NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 0360 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Esophageal Resection Mortality Rate (IQI 8)
De.2 **Brief description of measure:** Number of inpatient deaths per 100 discharges with a procedure for esophageal resection
1.1-2 **Type of Measure:** Outcome De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** Esophageal resection volume (IQI 1)
De.4 **National Priority Partners Priority Area:** Population health, Safety De.5 **IOM Quality Domain:** Effectiveness De.6 **Consumer Care Need:** Getting better

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	**NQF Staff**
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Government entity and in the public domain - no agreement necessary A.4 **Measure Steward Agreement attached:**	**A** Y☐ N☐
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least	**B** Y☐

every 3 years. Yes, information provided in contact section	N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement Accountability, Payment incentive	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Severity of illness, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** Esophageal resection is a complex cancer surgery, and studies have noted that providers with higher volumes have lower mortality rates. This suggests that providers with higher rates have some characteristics, either structurally or with regard to processes, that influence mortality. 1a.4 **Citations for Evidence of High Impact:** Patti MG, Corvera CU, Glasgow RE, et al. A hospital´s annual rate of esophagectomy influences the operative mortality rate. J Gastrointest Surg 1998;2(2):186-92. Gordon TA, Bowman HM, Bass EB, et al. Complex gastrointestinal surgery: impact of provider experience on clinical and economic outcomes. J Am Coll Surg 1999;189(1):46-56. Dimick JB, Cowan JA, Jr., Ailawadi G, et al. National variation in operative mortality rates for esophageal resection and the need for quality improvement; 2003. Finlayson EV, Goodney PP, Birkmeyer JD. Hospital volume and operative mortality in cancer surgery: a national study. Arch Surg 2003;138(7):721-5; discussion 726.	**1a** C☐ P☐ M☐ N☐
1b. Opportunity for Improvement	**1b**

1b.1 Benefits (improvements in quality) envisioned by use of this measure: Providers can adopt the processes of care of the best performing providers or consumers can select the best performing providers in order to reduce the overall mortality rate

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
5th 25th Median 75th 95th
0.017203 0.037254 0.058397 0.086440 0.140230

1b.3 Citations for data on performance gap:
2007 AHRQ State Inpatient Databases (SID) with 465 hospitals and 1,587 discharges

1b.4 Summary of Data on disparities by population group:
Based on the 2008 national statistics for esophageal resection mortality (http://hcupnet.ahrq.gov) the 2008 rates are as follows:

Overall rate per 100: 5.35 ; Risk adjusted rate: 6.59
Male: 5.75
Female: Too few reported to calculate reliable rates.

Ages 18 to 39: Too few reported to calculate reliable rates.
Ages 40 to 64: 3.15
Ages 65 to 74: 6.38
Ages 75+: 10.17

1b.5 Citations for data on Disparities:
AHRQ 2008 Nationwide Inpatient Sample

C☐ P☐ M☐ N☐

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** In-hospital death is directly related to the patient experience of care

1c.2-3. Type of Evidence: Systematic synthesis of research

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
Face validity. Esophageal resection is a complex procedure that requires technical skill. The primary evidence for this indicator arises from the volume-outcome literature. Several studies have found that hospitals that perform more procedures have better mortality rates than lower volume hospitals. The magnitude of this relationship is relatively large as compared to other procedures. A full review of this literature can be found in the discussion of esophageal resection as a volume indicator. This relationship suggests that there may be some differences in processes of care that result in better outcomes. Those processes have not been identified and are subject to controversy, as it is unclear what the causal relationship is, if there truly is one, between hospital volume and mortality.

Precision. Esophageal resection is a relatively uncommon procedure, which may impact the precision of the indicator. Patti et al1 noted that most hospitals perform 10 or fewer procedures during a 5-year period. Utilizing several years of data, which has been done in some of the volume-outcome research, may help improve the precision of this indicator.

Minimum bias. Although we located no studies specifically addressing the need for risk adjustment, most of the volume-outcome studies published have used some sort of risk adjustment, suggesting that risk adjustment may be important for this procedure. Most of those studies used administrative data for risk adjustment.

Practice patterns may influence mortality rate. One such factor is case selection and the practice of "opening and closing" complex cases. Pye at al. identified all patients with oesophagogastric malignancy over

1c
C☐ P☐ M☐ N☐

one year in Wales and showed that 30-day mortality was higher when surgeons operated on more than 70% of their patients. The significant difference in survival when more than 70% of patients were treated surgically compared with less than 70% (18% versus 5%), in conjunction with low overall anastomotic leak rate of 5%, strongly suggests that case selection is a major factor. In this study, the "open and close" rate was 23%, emphasizing the potential importance of preoperative case selection. 2

In addition, patient characteristics have been shown to influence mortality. Some of these patient characteristics can be captured using administrative data. For example, age, urgent or emergent admission, non-white race, and selected comorbidities (e.g., renal disease) have been identified as significant risk factors for in-hospital mortality.4,11 Bias due to these factors can be removed through risk-adjustment using administrative data.

Only a few studies have evaluated potential risk factors that are not available from administrative data. Griffin et al. showed that active smoking, forced vital capacity and forced expiratory volume prior to surgery were associated with severe postoperative pulmonary complications in 228 patients undergoing esophagectomy.3 However, their data base was too small to show whether these factors were also associated with mortality.

One study examined 995 patients undergoing esophagesctomy in 24 hospitals in the United Kingdom. In the analyses, they identified some significant risk factors, including cancer staging, surgeon assessment of disease severity, and score on a standardized physiological assessment (Physiological and Operative Scoring System for enumeration of Morbidity and Mortality (POSSUM). After adjusting for these risk factors, annual hospital volume was still significantly associated with in-hospital mortality, which might be due to some quality effects remaining even after adjusting for other variables.5

As expected, complications following surgery also affect mortality. In a chart review from one tertiary hospital in Texas, all esophagogastrectomy (EG) cases from 1996 to 2002 were examined in relation to in-hospital mortality. Pneumonia was associated with a 20% incidence of death. Patients with pneumonia had significantly worse deglutition and anastomotic integrity on barium esophagogram compared with patients without pneumonia ($p < 0.001$).6

Construct validity. The extensive evidence regarding the association between hospital volume and mortality, summarized elsewhere, supports the construct validity of mortality as an indicator of hospital quality. Patti et al.1 used five volume categories, and found decreasing mortality rates of 17%, 19%, 10%, 16%, and 6% (with volumes of 1-5, 6-10, 11-20, 21-30, and >30 procedures during the 5-year study period). Gordon et al.7 combined all complex gastrointestinal procedures, and found that low volume (11-20 procedures per year) hospitals had an adjusted odds of death of 4.0 as compared to the single high volume hospital. In the most prominent study of the volume-outcome association, Birkmeyer et al used Medicare data from 1994 through 1999 to estimate volume-outcome relationships, imputing total annual hospital volume and adjusting for age, sex, race, year of the procedure, urgency of admission, mean income from Social Security at the ZIP Code level, and coexisting conditions from the index admission and other admissions within the preceding six months (summarized as the Charlson Comorbidity Index). They found that crude mortality rates were 23.1, 18.9, 16.9, 11.7, and 8.1 percent in very low (<2 imputed cases/year), low (2-4), medium (5-7), high (8-19) and very high (>19) volume hospital groups, respectively. Unadjusted and adjusted odds ratios were 0.78 and 0.85, 0.68 and 0.76, 0.44 and 0.51, and 0.29 and 0.36 in low, medium, high and very high volume hospitals, respectively, relative to very low volume hospitals.10 Similar findings (e.g., 2.6 to 2.9-fold variation in adjusted mortality across hospital volume strata) have been reported from studies based on the Nationwide Inpatient Sample, which is designed as a 20% random sample of all hospital discharges in the US.11,12 This association was confirmed in the Netherlands, where hospital mortality was reported as 12.1, 7.5%, and 4.9% at low (1-10 cases/year), medium (11-20), and high (>50) volume centers, respectively.8 A weaker but still significant effect was observed in Ontario, with an adjusted odds ratio of 1.9 at the lowest volume hospitals (mean 2.8 cases/year) relative to the highest volume hospitals (mean 19.0 cases/year).17 The association between hospital volume and mortality also persisted after adjustment for physiologic predictors in one study from the UK.5. Dimick showed that the association between volume and mortality may be mediated by complications such as renal failure, pulmonary failure, septicemia, reintubation and aspiration.9

Dimick also found a significant decline in hospital mortality after esophagectomy in the U.S. from 1988 to 2000 (13.6% to 10.5%, P=0.001). Low volume hospitals had markedly higher mortality rates and showed no improvement over time (15.3% vs 14.5%). In contrast, high volume hospitals experienced a significant reduction in mortality over time (11.0% vs 7.5%, $p = 0.003$). Referral patterns changed over time with the proportion of esophageal resections performed at high volume hospitals increasing from 40% (1988 to 1991) to 57% (1997 to 2000).13

Beyond hospital volume, recent studies have examined other hospital characteristics and their relation to

mortality. Dimick et al. looked at hospital teaching status and found that in analyses adjusted only for patient characteristics, esophageal resection mortality was lower at teaching hospitals than at nonteaching hospitals (OR=1.8, 95% CI 1.1-3.2). However, after adjusting for hospital volume, teaching status was no longer an independent predictor of mortality (OR=1.4, 95% CI 0.7-2.6).14 In a study of 366 patients with esophageal resection, no significant association between the nighttime nurse-to-patient ratio (NNPR) and in-hospital mortality was seen. However, a nurse typically caring for more than two ICU patients at night significantly increased the risk of postoperative pneumonia, reintubation, and septicemia.15
Patients treated at the 51 National Cancer Institute (NCI) cancer centers were compared with patients from 51 control hospitals with the highest volume for esophagectomy. NCI cancer centers had lower adjusted surgical mortality rates than control hospitals for esophagectomy (7.9% vs. 10.9%; P = 0.027).18 Taken together, these findings suggest that risk-adjusted mortality rates may capture other aspects of hospital quality, beyond what volume alone would capture.
Surgeons' training and experience have also been examined as predictors of mortality. Using the national Medicare population in 1998-1999, mortality rates were 37% (odds ratio, 1.37; 95% confidence interval, 1.02 to 1.82) higher for surgeons without specialty training compared with thoracic surgeons (adjusted mortality 16.5% versus 12.4%; p = 0.01). However, differences in mortality between high-volume and low-volume hospitals (24.3% versus 11.4%; p < 0.001) and surgeons (20.7% versus 10.7%; p < 0.001) were larger than those between thoracic and general surgeons.19 Also using Medicare data, Birkmeyer et al. showed that surgeon volume is a strong independent risk factor for esophagectomy mortality (e.g., 18.8% for surgeons with <2 imputed cases/year versus 9.2% for surgeons with >6 imputed cases/year), even after adjusting for hospital volume. For example, even at high-volume hospitals (>13 imputed cases/year), adjusted mortality was 17.2%, 9.8%, and 8.0% for low, medium, and high-volume surgeons.20
Finally, according to a recent meta-analysis of 50 articles comparing surgical techniques for esophageal resection, in-hospital mortality was significantly higher after transthoracic esophageal resection than after transhiatal resection (9.2% versus 5.7%, RR=1.60, 95% CI 1.35-1.89). However, the 3 randomized controlled trials included in that meta-analysis did not support this overall finding (although they collectively included only 106 patients), and the benefits of transhiatal resection disappeared in analyses of 3-year and 5-year survival. Therefore, it is unclear whether hospitals and surgeons can improve their overall outcomes by changing their preferred surgical approach.21

Fosters true quality improvement. Though we found no evidence on whether or not this indicator would stimulate true improvement in quality, it is possible that high risk patients may be denied surgery. This hypothesized effect has not been empirically evaluated or demonstrated. One study found no evidence of discrimination against racial/ethnic minorities or Medicaid or uninsured patients in terms of the odds of receiving esophageal resection at low or high volume (relative to medium volume) hospitals.28

Prior use. This indicator has been utilized in the National Healthcare Quality Report16 and is currently included in the AHRQ Inpatient Quality Indicator set.

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):** Not applicable

1c.6 Method for rating evidence: Not applicable

1c.7 Summary of Controversy/Contradictory Evidence: None

1c.8 Citations for Evidence (*other than guidelines***):**
1.Patti MG, Corvera CU, Glasgow RE, et al. A hospital´s annual rate of esophagectomy influences the operative mortality rate. J Gastrointest Surg 1998;2(2):186-92.
2. Pye JK, Crumplin MK, Charles J, et al. One-year survey of carcinoma of the oesophagus and stomach in Wales. In: Br J Surg; 2001. p. 278-85.
3. Griffin SM, Shaw IH, Dresner SM. Early complications after Ivor Lewis subtotal esophagectomy with two-field lymphadenectomy: risk factors and management. In: J Am Coll Surg; 2002. p. 285-97.
4. Dimick JB, Cattaneo SM, Lipsett PA, et al. Hospital volume is related to clinical and economic outcomes of esophageal resection in Maryland. In: Ann Thorac Surg; 2001. p. 334-9; discussion 339-41.
5. McCulloch P, Ward J, Tekkis PP. Mortality and morbidity in gastro-oesophageal cancer surgery: initial results of ASCOT multicentre prospective cohort study. In: Bmj; 2003 Nov 22; 2003. p. 1192-7.
6. Atkins BZ, Shah AS, Hutcheson KA, et al. Reducing hospital morbidity and mortality following esophagectomy. In: Ann Thorac Surg; 2004. p. 1170-6; discussion 1170-6.

7. Gordon TA, Bowman HM, Bass EB, et al. Complex gastrointestinal surgery: impact of provider experience on clinical and economic outcomes. J Am Coll Surg 1999;189(1):46-56.
8. van Lanschot JJ, Hulscher JB, Buskens CJ, et al. Hospital volume and hospital mortality for esophagectomy; 2001.
9. Dimick JB, Pronovost PJ, Cowan JA, et al. Surgical volume and quality of care for esophageal resection: do high-volume hospitals have fewer complications? Ann Thorac Surg 2003 Feb;Sect. 337-41.
10. Birkmeyer JD, Siewers AE, Finlayson EV, et al. Hospital volume and surgical mortality in the United States. In: N Engl J Med; 2002. p. 1128-37.
11. Dimick JB, Cowan JA, Jr., Ailawadi G, et al. National variation in operative mortality rates for esophageal resection and the need for quality improvement; 2003.
12. Finlayson EV, Goodney PP, Birkmeyer JD. Hospital volume and operative mortality in cancer surgery: a national study. Arch Surg 2003;138(7):721-5; discussion 726.
13. Dimick JB, Wainess RM, Upchurch GR, Jr., et al. National trends in outcomes for esophageal resection. In: Ann Thorac Surg; 2005. p. 212-6; discussion 217-8.
14. Dimick JB, Cowan JA, Jr., Colletti LM, et al., inventors; Hospital teaching status and outcomes of complex surgical procedures in the United States. 2004 Feb.
15. Amaravadi RK, Dimick JB, Pronovost PJ, et al. ICU nurse-to-patient ratio is associated with complications and resource use after esophagectomy; 2000.
16. National Healthcare Quality Report. In: Agency for Healthcare Research and Quality; 2003.
17. Urbach DR, Bell CM, Austin PC. Differences in operative mortality between high- and low-volume hospitals in Ontario for 5 major surgical procedures: estimating the number of lives potentially saved through regionalization; 2003.
18. Birkmeyer NJ, Goodney PP, Stukel TA, et al. Do cancer centers designated by the National Cancer Institute have better surgical outcomes? In: Cancer; 2005. p. 435-41.
19. Dimick JB, Goodney PP, Orringer MB, Birkmeyer JD. Specialty training and mortality after esophageal cancer resection. Ann Thorac Surg. 2005;80:282-6.
20. Birkmeyer JD, Stukel TA, Siewers AE, et al. Surgeon volume and operative mortality in the United States. 2003;349:2117-27.
21. Huylscher JBF, Tijssen JGP, Obertop H, van Lanschot JJB. Transthoracic versus transhiatal resection for carcinoma of the esophagus: A meta-analysis. Ann Thorac Surg 2001;72:306-13.
28. Liu JH, Zingmond DS, McGory ML, et al. Disparities in the utilization of high-volume hospitals for complex surgery. In: Jama; 2006. p. 1973-80.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number***):**
Not applicable

1c.10 Clinical Practice Guideline Citation: Not applicable
1c.11 National Guideline Clearinghouse or other URL: Not applicable

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom***):**
Not applicable

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*:
During the comprehensive medical literature review, preference was given to high quality systematic reviews, meta-analyses, and clinical trials over the past ten years, plus existing nationally recognized treatment guidelines from the leading specialty societies.

1c.14 Rationale for using this guideline over others:
None

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**

2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	Eval Rating
2a. MEASURE SPECIFICATIONS	
S.1 Do you have a web page where current detailed measure specifications can be obtained? **S.2 If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*)**:** Number of deaths among cases meeting the inclusion and exclusion rules for the denominator. **2a.2 Numerator Time Window** (*The time period in which cases are eligible for inclusion in the numerator*)**:** Inpatient admission **2a.3 Numerator Details** (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*)**:** Discharge disposition of death (DISP=20)	
2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured*)**:** Discharges, age 18 years and older, with ICD-9-CM esophageal resection procedure code and a diagnosis code of esophageal cancer in any field OR gastrectomy procedure code ONLY if accompanied by selected diagnosis codes. **2a.5 Target population gender:** Female, Male **2a.6 Target population age range:** 18 and older **2a.7 Denominator Time Window** (*The time period in which cases are eligible for inclusion in the denominator*)**:** User defined; usually a calendar year **2a.8 Denominator Details** (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions*)**:** ICD-9-CM esophageal resection procedure codes: 424 ESOPHAGECTOMY 4240 ESOPHAGECTOMY NOS 4241 PARTIAL ESOPHAGECTOMY 4242 TOTAL ESOPHAGECTOMY 425 THORAC ESOPHAG ANAST 4251 THORAC ESOPHAGOESOPHAGOS 4252 THORAC ESOPHAGOGASTROST 4253 THORAC SM BOWEL INTERPOS 4254 THORAC ESOPHAGOENTER NEC 4255 THORAC LG BOWEL INTERPOS 4256 THORAC ESOPHAGOCOLOS NEC 4258 THORAC INTERPOSITION NEC 4259 THORAC ESOPHAG ANAST NEC 426 STERN ESOPHAG ANAST 4261 STERN ESOPHAGOESOPHAGOST 4262 STERN ESOPHAGOGASTROSTOM 4263 STERN SM BOWEL INTERPOS 4264 STERN ESOPHAGOENTER NEC 4265 STERN LG BOWEL INTERPOS	**2a-specs** C☐ P☐ M☐ N☐

4266 STERN ESOPHAGOCOLOS NEC
4268 STERN INTERPOSITION NEC
4269 STERN ESOPHAG ANAST NEC
ONLY if selected diagnosis codes:
esophageal cancer (see below)
gastrointestinal-related cancer (see below)

OR:

ICD-9-CM gastrectomy procedure code:
4399 OTHER TOTAL GASTRECTOMY -

ONLY if selected diagnosis codes:
esophageal cancer (see below)

Esophageal cancer:
1500 MALIGNANT NEOPLASM OF ESOPHAGUS, CERVICAL
1501 MALIGNANT NEOPLASM OF ESOPHAGUS, THORACIC
1502 MALIGNANT NEOPLASM OF ESOPHAGUS, ABDOMINAL
1503 MALIGNANT NEOPLASM OF ESOPHAGUS, UPPER THIRD OF
1504 MALIGNANT NEOPLASM OF ESOPHAGUS, MIDDLE THIRD OF
1505 MALIGNANT NEOPLASM OF ESOPHAGUS, LOWER THIRD OF
1508 MALIGNANT NEOPLASM OF ESOPHAGUS, OTHER SPECIFIED PART
1509 MALIGNANT NEOPLASM OF ESOPHAGUS, UNSPECIFIED

Gastrointestinal cancer
1510 MALIGNANT NEOPLASM OF STOMACH, CARDIA
1978 SECONDARY MALIGNANT NEOPLASM OF RESPIRATORY AND DIGESTIVE SYSTEMS, OTHER DIGESTIVE ORGANS AND SPLEEN
2301 CARCINOMA IN SITU OF DIGESTIVE ORGANS, ESOPHAGUS
2355 NEOPLASM OF UNCERTAIN BEHAVIOR OF DIGESTIVE AND RESPIRATORY SYSTEMS, OTHER AND UNSPECIFIED DIGESTIVE ORGANS

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population***):** Exclude discharges with pregnancy, discharge to a short term hospital or missing information for discharge disposition, age or sex.

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
Exclude cases:
• missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing)
• transferring to another short-term hospital (DISP=2)
• MDC 14 (pregnancy, childbirth, and puerperium)

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
Observed rates may be stratified by age group, race/ethnicity categories, payer categories and sex.

2a.12-13 Risk Adjustment Type: Case-mix adjustment

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**
The predicted value for each case is computed using GEE logistic regression and covariates for age (in 5-year age groups), APR-DRG and MDC. The reference population used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007, a database consisting of approximately 35 million discharges from 43 states. The expected rate is computed as the sum of the predicted value for each case divided by the number of cases for the unit of analysis of interest (i.e., county or state). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. The Smoothed Rate is the risk-

adjusted rate shrunken to the volume-specific rate and the prior year smoothed rate.
age 18-24; age 25-29; age 30-34; age 35-39; age 40-44; age 45-49; age 50-54; age 55-59; age 60-64 (omitted); age 65-69; age 70-74; age 75-79; age 80-84; age 85+
each age category*female
APRDRG 2201-MAJOR STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES (MINOR)
APRDRG 2202-MAJOR STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES (MODERATE) ADRG 2203-MAJOR STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES (MAJOR)
APRDRG 2204-MAJOR STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES (EXTREME) ADRG 9999 (OTHER)

2a.15-17 Detailed risk model available Web page URL or attachment: URL
http://www.qualityindicators.ahrq.gov/downloads/iqi/IQI%20Risk%20Adjustment%20Tables%20(Version%204%202)%20wo%20APR-DRG.pdf

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Lower score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**
Each Inpatient Quality Indicator (IQI) expressed as a rate, is defined as outcome of interest/population at risk or numerator/denominator. The Quality Indicators software performs five steps to produce the IQI rates. 1) Discharge-level data is used to mark inpatient records containing outcomes of interest. 2) Identify populations at risk. For provider IQIs populations at risk are derived from hospital discharge records. 3) Calculate observed rates. Using output data from steps 1 and 2, IQI rates are calculated for user-specified combinations of stratifiers. 4) Risk adjust the IQI rates. Regression coefficients from a reference population database are applied to the observed rates in the risk-adjustment process. The risk-adjusted rates will then reflect the age and APR-DRG distribution of data in the reference population. 5) Create multivariate signal extraction (MSX) smoothed rates. Shrinkage factors are applied to the risk-adjusted rates for each IQI in the MSX process. For each IQI, the shrinkage estimate reflects a reliability adjustment unique to each indicator. Full information on IQI algorithms and specification can be found at http://qualityindicators.ahrq.gov/iqi_download.htm.

2a.22 Describe the method for discriminating performance *(e.g., significance testing)***:**
Significance testing is not prescribed by the software. Users may define their methods of discriminating performance according to their application. Although all cases are measured, the rate is considered a sample in time, given the variations in case mix over time. Confidence intervals can be calculated, but again are not prescribed.

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
Not applicable

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested)*
Electronic administrative data/claims

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
Hospital administrative discharge data. See data requirements in the AHRQ QI Windows Application Documentation: http://www.qualityindicators.ahrq.gov/software.htm

2a.26-28 Data source/data collection instrument reference web page URL or attachment: URL
http://www.qualityindicators.ahrq.gov/software.htm

2a.29-31 Data dictionary/code table web page URL or attachment: URL
http://www.qualityindicators.ahrq.gov/downloads/winqi/AHRQ_QI_Windows_Software_Documentation_V41a.pdf

2a.32-35 Level of Measurement/Analysis (*Check the level(s) for which the measure is specified and tested)*
Facility/Agency

2a.36-37 Care Settings (*Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 Clinical Services (*Healthcare services being measured, check all that apply*)
Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)*: AHRQ 2007 State Inpatient Databases (SID)

2b.2 Analytic Method *(type of reliability & rationale, method for testing)*:
Annul review of ICD-9-CM coding updates for denominator inclusion and exclusion criteria

2b.3 Testing Results *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
Not applicable

2b C☐ P☐ M☐ N☐

2c. Validity testing

2c.1 Data/sample *(description of data/sample and size)*: AHRQ 2007 State Inpatient Databases (SID)

2c.2 Analytic Method *(type of validity & rationale, method for testing)*:
Annual update of risk-adjustment models and comparative data

2c.3 Testing Results *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
Signal variance of 0.001518. Average signal ratio of 0.26.

2c C☐ P☐ M☐ N☐

2d. Exclusions Justified

2d.1 Summary of Evidence supporting exclusion(s):
The only exclusions are for missing data and transfer out to an acute care hospital

2d.2 Citations for Evidence:
Not applicable

2d.3 Data/sample *(description of data/sample and size)*: AHRQ 2007 State Inpatient Databases (SID)

2d.4 Analytic Method *(type analysis & rationale)*:
Not applicable

2d.5 Testing Results *(e.g., frequency, variability, sensitivity analyses)*:
Not applicable

2d C☐ P☐ M☐ N☐ NA☐

2e. Risk Adjustment for Outcomes/ Resource Use Measures

2e.1 Data/sample *(description of data/sample and size)*: AHRQ 2007 State Inpatient Databases (SID)

2e.2 Analytic Method *(type of risk adjustment, analysis, & rationale)*:
The predicted value for each case is computed using GEE logistic regression and covariates for age (in 5-year age groups), APR-DRG and MDC. The reference population used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007, a database consisting of approximately 35 million discharges from 43 states. The expected rate is computed as the sum of the predicted value for each case divided by the number of cases for the unit of analysis of interest (i.e., county or state). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. The Smoothed Rate is the risk-adjusted rate shrunken to the volume-specific rate and the prior year smoothed rate.

2e.3 Testing Results *(risk model performance metrics)*:
c-statistic of 0.766

2e C☐ P☐ M☐ N☐ NA☐

2e.4 If outcome or resource use measure is not risk adjusted, provide rationale: Not applicable	
2f. Identification of Meaningful Differences in Performance **2f.1 Data/sample from Testing or Current Use** *(description of data/sample and size)*: AHRQ 2007 State Inpatient Databases (SID) **2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*: Posterior probability distribution (gamma); 95% probability interval **2f.3 Provide Measure Scores from Testing or Current Use** *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*: 5th 25th Median 75th 95th 0.017203 0.037254 0.058397 0.086440 0.140230 Discrimiation above or below the median of 3% of hosptials	**2f** C☐ P☐ M☐ N☐
2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: Not applicable **2g.2 Analytic Method** *(type of analysis & rationale)*: Not applicable **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*: Not applicable	**2g** C☐ P☐ M☐ N☐ NA ☐
2h. Disparities in Care **2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: Based on the 2008 national statistics for esophageal resection mortality (http://hcupnet.ahrq.gov) the 2008 rates are as follows: Overall rate per 100: 5.35 ; Risk adjusted rate: 6.59 Male: 5.75 Female: Too few reported to calculate reliable rates. Ages 18 to 39: Too few reported to calculate reliable rates. Ages 40 to 64: 3.15 Ages 65 to 74: 6.38 Ages 75+: 10.17 **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:** Rates may be stratified by age, gender and payer categories	**2h** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	**2** C☐ P☐ M☐ N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information	**3a**

C☐ P☐ M☐ N☐

3a.1 Current Use: In use

3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large) (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:**
1) State of California: Hospital Inpatient Mortality Indicators for California, http://oshpd.ca.gov/HID/Products/PatDischargeData/AHRQ/iqi-imi_overview.html
2) State of Florida: Florida Health Finder, http://www.floridahealthfinder.gov/
3) Norton Healthcare (multi-hospital system): Norton Healthcare Quality Report, http://www.nortonhealthcare.com/body.cfm?id=157
4) State of Massachusetts: My HealthCare Options, http://www.mass.gov/healthcareqc
5) State of New Jersey: Find and Compare Quality Care in New Jersey Hospitals, http://www.nj.gov/health/healthcarequality/
6) Niagara Health Quality Coalition and Alliance for Quality Health Care: New York State Hospital Report Card, http://www.myhealthfinder.com/
7) State of Texas: Reports on Hospital Performance, http://www.dshs.state.tx.us/thcic/
8) Niagara Health Quality Coalition and Alliance for Quality Health Care: Washington State Hospital Report Card, http://www.myhealthfinder.com/wa09/index.php
9) State of Nevada: Nevada Compare Care, http://nevadacomparecare.net/Monahrq/home.html
10) State of Vermont: Department of Banking, Insurance, Securities & Health Care Administration (BISHCA) Comparison Report, http://www.bishca.state.vt.us/health-care/hospitals-health-care-practitioners/2009-vermont-hospital-report-card
11) Wisconsin Hospital Association: CheckPoint, http://www.wicheckpoint.org/index.aspx

3a.3 If used in other programs/initiatives (*If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):**
University Healthcare Consortium - An alliance of 103 academic medical centers and 219 of their affiliated hospitals. Reporting the AHRQ QIs to their member hospitals. (see www.uhc.edu. Note: measure results reported to hospitals; not reported on site).

Dallas Fort Worth Hospital Council – Reporting on measure results to over 70 hospitals in Texas (see www.dfwhc.ord. Note: measure results reported to hospitals; not reported on site).

Norton Healthcare - a multi-hospital system in Kentucky (see http://www.nortonhealthcare.com/about/Our_Performance/index.aspx)

Ministry Health Care - a multi-hospital system in Wisconsin (see http://ministryhealth.org/display/router.aspx. Note: measure results reported to hospitals; not reported on site).

Minnesota Hospital Association
http://www.mnhospitals.org/ Note: measure used in quality improvement. Not reported publicly by the association)

Testing of Interpretability (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*)
3a.4 Data/sample *(description of data/sample and size)***:** The AHRQ State Inpatient Databases (SID) consist of approximatley 4,000 hospitals and 38 million discharges

3a.5 Methods *(e.g., focus group, survey, QI project)***:**
A research team from the School of Public Affairs, Baruch College, under contracts with the Department of Public Health, Weill Medical College and Battelle, Inc., has developed a pair of Hospital Quality Model Reports at the request of the Agency for Healthcare Research & Quality (AHRQ). The AHRQ hip fracture mortality measure is included in the reports. These reports are designed specifically to report comparative information on hospital performance based on the AHRQ Quality Indicators (QIs). The work was done in close collaboration with AHRQ staff and the AHRQ Quality Indicators team.

The Model Reports (discussed immediately above) are based on: • Extensive search and analysis of the literature on hospital quality measurement and reporting, as well as public reporting on health care quality more broadly; • Interviews with quality measurement and reporting experts, purchasers, staff of purchasing coalitions, and executives of integrated health care delivery systems who are responsible for quality in their facilities; • Two focus groups with chief medical officers of hospitals and/or systems and two focus groups with quality managers from a broad mix of hospitals; • Four focus groups with members of the public who had recently experienced a hospital admission; and • Four rounds of cognitive interviews (a total of 62 interviews) to test draft versions of the two Model Reports with members of the public with recent hospital experience, basic computer literacy but widely varying levels of education. 3a.6 **Results** *(qualitative and/or quantitative results and conclusions)*: Given the above review of the literature and original research that was conducted, a Model report was the result that could help sponsors use the best evidence on public reports so they are most likely to have the desired effects on quality.	
3b/3c. Relation to other NQF-endorsed measures 3b.1 **NQF # and Title of similar or related measures:** Leapfrog esophagectomy survival predictor (NQF# Unknown)	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): 3b.2 **Are the measure specifications harmonized? If not, why?** Yes; the Leapfrog specification is based on the AHRQ specification	**3b** C☐ P☐ M☐ N☐ NA ☐
3c. Distinctive or Additive Value 3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** The AHRQ measure has improved discrimination and predictive properties; the AHRQ measure also has an associated measure of uncertainty. 5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:** The AHRQ measure has improved discrimination and predictive properties; the AHRQ measure also has an associated measure of uncertainty.	**3c** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** C☐ P☐ M☐ N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes 4a.1-2 **How are the data elements that are needed to compute measure scores generated?**	**4a** C☐ P☐

Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	M☐ N☐
4b. Electronic Sources 4b.1 **Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) Yes 4b.2 **If not, specify the near-term path to achieve electronic capture by most providers.**	**4b** C☐ P☐ M☐ N☐
4c. Exclusions 4c.1 **Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No 4c.2 **If yes, provide justification.**	**4c** C☐ P☐ M☐ N☐ NA ☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences 4d.1 **Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** Based on national average mortality rates taken from the 2000 Nationwide Inpatient Sample the minimum hospital caseload necessary to detect a doubling of the mortality rate for esophageal resection is 77 (the rate the authors determined necessary to reliably detect increased mortality in poor performing hospitals). Only 1% of hospitals performed esophageal resections frequently when combining 3 years of data for the authors to advocate use of this indicator as a measure of hospital quality at the hospital-level.[1] AHRQ IQIs, including Esophageal Resection Mortality Rate, were easily applied to Veterans Administration data (2004 – 2007). The relative insensitivity of procuedure-related mortality indicators to detect temporal change or site differences in the VA are hypothesized in this study to be attributable to "the success of longstanding VA programs… or because of inadequate sample sizes (eg. esophageal cancer resection had only 0-12 cases in a given year)." [2] [1] Justin B. Dimick, MD; H. Gilbert Welch, MD, MPH; John D. Birkmeyer, MD. Surgical Mortality as an Indicator of Hospital Quality: The Problem With Small Sample Size. JAMA. 2004;292:847-851. [2] Borzecki Ann M; Christiansen Cindy L; Loveland Susan; Chew Priscilla; Rosen Amy K. Trends in the inpatient quality indicators: the Veterans Health Administration experience. Medical Care. 2010:48:694-702.	**4d** C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation 4e.1 **Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** None 4e.2 **Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** Administrative data are collected as part of routine operations. Additional staff time required to download and execute the software 4e.3 **Evidence for costs:** Reported user experience 4e.4 **Business case documentation:** None	**4e** C☐ P☐ M☐ N☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**

Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** **C☐** **P☐** **M☐** **N☐**
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited ☐**
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y☐** **N☐** **A☐**

CONTACT INFORMATION

Co.1 Measure Steward (Intellectual Property Owner)
Co.1 Organization
Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, Maryland, 20850

Co.2 Point of Contact
John, Bott, MSSW, MBA, john.bott@ahrq.hhs.gov, 301-427-1317-

Measure Developer If different from Measure Steward
Co.3 Organization
Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, Maryland, 20850

Co.4 Point of Contact
John, Bott, MSSW, MBA, john.bott@ahrq.hhs.gov, 301-427-1317-

Co.5 Submitter If different from Measure Steward POC
John, Bott, MSSW, MBA, john.bott@ahrq.hhs.gov, 301-427-1317-, Agency for Healthcare Research and Quality

Co.6 Additional organizations that sponsored/participated in measure development
UC Davis
Standford University
Battelle Memorial Institiute

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.
None

Ad.2 If adapted, provide name of original measure: Not applicable
Ad.3-5 If adapted, provide original specifications URL or attachment

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 Year the measure was first released: 2002
Ad.7 Month and Year of most recent revision: 10, 2010
Ad.8 What is your frequency for review/update of this measure? annually
Ad.9 When is the next scheduled review/update for this measure? 05, 2011

Ad.10 Copyright statement/disclaimers: The AHRQ QI software is publicly available. We have no copyright disclaimers.

Ad.11 -13 Additional Information web page URL or attachment: URL
http://www.qualityindicators.ahrq.gov/downloads/pqi/PQI%20Comparative%20Data%202008.pdf

Date of Submission (*MM/DD/YY*)**:** 12/31/2010

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 0361 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Esophageal Resection Volume (IQI 1)
De.2 **Brief description of measure:** Number of discharges with a procedure for esophogeal resection
1.1-2 **Type of Measure:** Structure/management De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** Esophageal Resection Mortality (IQI 8)
De.4 **National Priority Partners Priority Area:** Population health, Safety De.5 **IOM Quality Domain**: Effectiveness De.6 **Consumer Care Need:** Getting better

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	NQF Staff
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Government entity and in the public domain - no agreement necessary A.4 **Measure Steward Agreement attached:**	**A** Y☐ N☐
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	**B** Y☐ N☐

C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement Accountability	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Severity of illness, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** Esophageal resection is a procedure requiring technical proficiency. Complications can include pneumonia, sepsis, anastomotic breakdown, and death. Many studies have demonstrated a relationship between hospital volume and mortality (at least fourteen studies), while only two have found no such relationship. 1a.4 **Citations for Evidence of High Impact:** Patti MG, Corvera CU, Glasgow RE, et al. A hospital´s annual rate of esophagectomy influences the operative mortality rate. J Gastrointest Surg 1998;2(2):186-92. Owings MF, Kozak LJ. Ambulatory and inpatient procedures in the United States, 1996. Vital Health Stat 13 1998(139):1-119. Begg CB, Cramer LD, Hoskins WJ, et al. Impact of hospital volume on operative mortality for major cancer surgery. JAMA 1998;280(20):1747-51. Gordon TA, Bowman HM, Bass EB, et al. Complex gastrointestinal surgery: impact of provider experience on clinical and economic outcomes. J Am Coll Surg 1999;189(1):46-56. Dimick JB, Cattaneo SM, Lipsett PA, et al. Hospital volume is related to clinical and economic outcomes of esophageal resection in Maryland. In: Ann Thorac Surg; 2001. p. 334-9; discussion 339-41.	**1a** C☐ P☐ M☐ N☐

Dimick JB, Cowan JA, Jr., Ailawadi G, et al. National variation in operative mortality rates for esophageal resection and the need for quality improvement. Arch Surg 2003;138(12):1305-9.

Dimick JB, Pronovost PJ, Cowan JA, Jr., Lipsett PA. Surgical volume and quality of care for esophageal resection: Do high-volume hospitals have fewer complications? In: Ann Thorac Surg; 2003. 75:337-41

van Lanschot JJ, Hulscher JB, Buskens CJ, et al. Hospital volume and hospital mortality for esophagectomy; 2001.
Finlayson EV, Goodney PP, Birkmeyer JD, inventors; Hospital volume and operative mortality in cancer surgery: a national study. 2003 Jul.

Dudley RA, Johansen KL, Brand R, et al. Selective referral to high-volume hospitals: estimating potentially avoidable deaths. In: Jama; 2000. p. 1159-66.

Halm EA, Lee C, Chassin MR. Is volume related to outcome in health care? A systematic review and methodologic critique of the literature. In: Ann Intern Med; 2002. p. 511-20.

Dimick JB, Wainess RM, Upchurch GR, Jr., et al. National trends in outcomes for esophageal resection. In: Ann Thorac Surg; 2005. p. 212-6; discussion 217-8.

Wenner J, Zilling T, Bladstrom A, et al. The influence of surgical volume on hospital mortality and 5-year survival for carcinoma of the oesophagus and gastric cardia. In: Anticancer Res; 2005. p. 419-24.

1b. Opportunity for Improvement

1b.1 Benefits (improvements in quality) envisioned by use of this measure: Providers should increase volume or patients should select high volume providers in order to reduce overall mortality rates

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
Annual volume for IQI #01 Esophageal Resection Volume by quartile 1.0 (Q1) 1.4 (Q2) 2.4 (Q3) 8.4 (Q4)

1b.3 Citations for data on performance gap:
AHRQ 2007 State Inpatient Databases (SID) 424 hospitals and 1,587 discharges

1b.4 Summary of Data on disparities by population group:
Not applicable

1b.5 Citations for data on Disparities:
Not applicable

1b
C☐
P☐
M☐
N☐

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Volume indicators are proxy, or indirect, measures of quality. They are based on evidence suggesting that hospitals performing more of certain intensive, high-technology, or highly complex procedures may have better outcomes for those procedures.

1c.2-3. Type of Evidence: Systematic synthesis of research

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
This indicator is part of the AHRQ Inpatient Quality Indicator set and stems from the literature summarized below. The indicator is focused on the volume of esophageal resection performed for any indication, a procedure requiring high technical skill. Only adult patients are included.

Literature based evidence

1c
C☐
P☐
M☐
N☐

Highlights of literature evidence:

1. Esophageal resection is a procedure requiring technical proficiency. Complications can include pneumonia, sepsis, anastomotic breakdown, and death.

2. Many studies have demonstrated a relationship between hospital volume and mortality (at least fourteen studies), while only two have found no such relationship. Methodology varies between studies including data used (e.g., clinical, administrative), adjustment of confounding factors, and accounting for the volume of the operating surgeon.

3. A few studies have also demonstrated better pre-operative characterization of the extent of disease, shorter length of stay, shorter ICU length of stay, fewer serious postoperative complications, lower hospital charges, and more discharges to home at high-volume centers, compared with low-volume centers.

4. One study demonstrated that volume of the operating surgeon accounted for about half of the hospital volume-mortality effect.

Detailed literature evidence

Face validity. Procedure volume is a surrogate measure of quality; its face validity depends on whether a strong association with outcomes of care is both plausible and widely accepted in the professional community.
Esophageal cancer surgery requires technical proficiency; errors in surgical technique or management may lead to clinically significant complications, such as sepsis, pneumonia, anastomotic breakdown, and death. However, we are not aware of any consensus guidelines or recommendations regarding minimum procedure volume. The National Cancer Policy Board of the Institute of Medicine and the National Research Council recommends that cancer "patients undergoing procedures that are technically difficult to perform and have been associated with higher mortality in lower-volume settings (including esophagectomy) receive care at facilities with extensive experience (e.g., high-volume facilities)."

Precision. The number of esophagectomies is measured accurately with discharge data; in fact, discharge data are probably the best available source for hospital volume information. Although a few facilities have relatively high volumes, most (e.g., 239 of 273 California hospitals)1 perform 10 or fewer esophagectomies for cancer during a 5-year period. As a result, this measure is expected to have poor precision.

Minimum bias. Volume measures are not subject to bias due to disease severity and comorbidities. For this reason, risk-adjustment is not appropriate. Although volume measures are theoretically subject to bias due to variation across hospitals in the use of outpatient surgery facilities, less than 1% of resections in 1996 were performed in ambulatory settings." 2
Construct validity. Volume is not a direct measure of the quality or outcomes of care. Although higher volumes have been repeatedly associated with better outcomes after esophageal surgery, these findings may be limited by inadequate risk adjustment.
Only two studies used clinical data to estimate the association between hospital volume and mortality following esophageal cancer surgery. Begg et al.3 analyzed retrospective cohort data from the Surveillance, Epidemiology, and End Results(SEER)-Medicare linked database from 1984 through 1993. The crude 30-day mortality rate was 17.3% at hospitals that performed 1-5 esophagectomies on Medicare patients during the study period, versus 3.9% and 3.4% at hospitals that performed 6-10 and 11 or more esophagectomies, respectively. The association between volume and mortality remained highly significant ($p<.001$) in a multivariate model, adjusting for the number of comorbidities, cancer stage and volume, and age. The association between hospital volume and mortality (OR=0.50, 95% CI 0.24-1.05 at hospitals with 11-20 cases/year and OR=0.49, 95% CI 0.24-0.97 at hospitals with >20 cases/year, relative to lower volume hospitals) also persisted after adjustment for cancer stage and physiologic predictors, such as the Physiological and Operative Severity Score for the enumeration of Morbidity and Mortality (POSSUM), in one study from the UK (Mortality Ref 5).
The two earliest studies using hospital discharge data found similar effects of hospital volume. Using 1990-94 data from California, Patti et al.1 estimated risk-adjusted mortality rates of 17%, 19%, 10%, 16%, and 6% across five hospital volume categories (e.g., 1-5, 6-10, 11-20, 21-30, and >30 procedures during the 5-year

study period). Their risk adjustment was quite limited; only the year of surgery, age, sex, race, payer source, tumor location, and the total number of secondary diagnoses were included. Using 1990-97 data from Maryland (adjusting only for age and payer source), Gordon et al.4 estimated that the adjusted odds of death at minimal-volume (<11 "complex gastrointestinal procedures" per year) and low-volume (11-20 procedures/ year) hospitals were 3.8 and 4.0 times that at a high-volume hospital (214 procedures/year). However, the generalizability of these results is limited by the fact that the last category included only one hospital.

This inverse association between hospital volume and mortality has been confirmed in several more recent studies, using a wide variety of administrative databases. 5-13 In the most prominent such study, Birkmeyer et al used Medicare data from 1994 through 1999 to estimate volume-outcome relationships, imputing total annual hospital volume and adjusting for age, sex, race, year of the procedure, urgency of admission, mean income from Social Security at the ZIP Code level, and coexisting conditions from the index admission and other admissions within the preceding six months (summarized as the Charlson Comorbidity Index). They found that crude mortality rates were 23.1, 18.9, 16.9, 11.7, and 8.1 percent in very low (<2 imputed cases/year), low (2-4), medium (5-7), high (8-19) and very high (>19) volume hospital groups, respectively. Unadjusted and adjusted odds ratios were 0.78 and 0.85, 0.68 and 0.76, 0.44 and 0.51, and 0.29 and 0.36 in low, medium, high and very high volume hospitals, respectively, relative to very low volume hospitals. 14 Similar findings (e.g., 2.6 to 2.9-fold variation in adjusted mortality across hospital volume strata) have been reported from studies based on the Nationwide Inpatient Sample, which is designed as a 20% random sample of all hospital discharges in the US.6,9 This association was confirmed in the Netherlands, where hospital mortality was reported as 12.1, 7.5%, and 4.9% at low (1-10 cases/year), medium (11-20), and high (>50) volume centers, respectively.33 A weaker but still significant effect was observed in Ontario, with an adjusted odds ratio of 1.9 at the lowest volume hospitals (mean 2.8 cases/year) relative to the highest volume hospitals (mean 19.0 cases/year).25

Hospital volume has been associated with other outcomes in addition to mortality. Using Massachusetts discharge data from 1992 to 2000, Kuo et al showed that high volume hospitals (>6 cases/yr) were associated with a 2-day decrease in median length of stay ($p<0.001$), a 3-day reduction in median intensive care unit stay ($p<0.001$), an increased rate of home discharge as opposed to rehabilitation hospital ($p<0.001$), and a 3.7-fold decrease in hospital mortality, relative to lower volume hospitals. The adjusted odds ratio for death at low volume hospitals was 4.3 (95% CI: 2.3 to 7.7).15 Using Medicare data from 1994 through 1999, Birkmeyer's group also found that mean postoperative length of stay was about 2 days shorter at the highest volume hospitals (>19 imputed cases/year) than at lower volume hospitals (18.2 versus 19.6-20.1 days), but readmission rates did not differ across volume strata.36 Using Maryland hospital discharge data from 1994 to 1998, Dimick et al. confirmed earlier findings related to mortality (2.5% at hospitals with at least 34 cases during the study period, versus 15.4% at lower-volume hospitals), but also found a decreased risk of pulmonary failure (2.9% versus 11.8%), renal failure (0.5% versus 8.0%), aspiration (16% versus 34%), reintubation (7.8% versus 27%), surgical complications (6.9% versus 14%), and septicemia (1.5% versus 6.2%) at high-volume hospitals.7 In a separate study, they also reported a 6-day (32%) difference in mean length of stay, and an $11,673 (35%) difference in mean charges, between hospitals that did more than 15 cases per year and hospitals that did fewer than 4 cases per year.5

Some studies have attempted to investigate surgeon volume effect. A recent British study examined the 30-day mortality among operators for esophagectomy. The 30-day mortality rate was greatest in the infrequent operators (<4 resections/yr) compared with both the intermediate group (4-11 resections/yr) and the frequent group (15.1% versus 6.6% and 11.8%, respectively). This volume effect disappeared in a parallel analysis of 5-year survival.16 An older British study also found a surgeon volume effect, but did not consider hospital volume.18 Birkmeyer et al showed that surgeon volume was inversely related to operative mortality and accounted for a large proportion of the apparent effect of hospital volume. For esophagectomy, the proportion of the hospital volume effect attributable to surgeon volume was 46%.17

Finally, a recent study in Netherlands on 573 patients diagnosed with esophageal cancer (1994-2003) showed that the preoperative investigations performed in low-volume regional centers detected true-positive malignant lymph nodes in 8% of patients and true-positive distant metastases in 7% of patients, whereas these percentages were 16% and 20%, respectively, in the high-volume referral center. 19 These findings suggested better preoperative evaluation of patients at high-volume centers.

Only a few studies have discounted the robust association between volume and outcome. One study, by Christian et al, tested whether volume was a significant predictor of mortality among 87 university teaching hospitals. All possible thresholds for volume were tested and the optimal threshold at which the odds ratio was the highest was estimated. Although they reported being "unable to identify a consistent relationship between volume and outcome" for esophagectomy, they also found an empirical threshold of 22 procedures

per year, below which hospital mortality was increased between 2 and 3-fold.20 Two other studies reported excellent outcomes from low-volume hospitals, but did not evaluate the volume outcome association.21, 22 In a Canadian study, using the Ontario cancer registry data from 1990 to 2000, surgery in a high-volume versus a low-volume hospital did not have a statistically significant influence on the odds of operative death for patients who underwent esophageal cancer resection.27

Although volume-outcome associations have been demonstrated for esophageal cancer surgery, volume seems likely to both insensitive and nonspecific as a measure of quality. It has been estimated that shifting patients in California from low-volume to high-volume hospitals would avert only 7 deaths per year, although 77% of all operations are performed in low-volume hospitals.29 One recent study in California showed that only 9% of hospitals met the 7 esophageal cancer resections per year criterion of the Leapfrog Group in 2000.24 Another study in Connecticut showed that only one hospital performed more than 7 esophageal cancer resections in FY 2000.30

Several other studies have investigated the impact of shifting patients on "avoidable deaths". One study in Ontario also showed that the absolute number of operative deaths that could potentially be avoided by shifting cases to high volume centers for esophagectomy from 1994 to 1999 would have been 4 (95% CI, 0 to 9).25 Using data from National Inpatient Sample, Birkmeyer et al estimated the total number of esophagectomy procedures performed in US, and the number of potential avoidable deaths if the Leapfrog volume standards were implemented. They found that with full nationwide implementation of the Leapfrog volume standard (which currently limits esophagectomy to hospitals with 13 or more procedures per year), 168 lives would have been saved in 1997 31 and 180 lives in 2000.32

Fosters true quality improvement. One possible adverse effect of volume-based measures is to encourage low-volume providers (who may also provide poorer quality of care) to increase their volume, simply to reach a threshold of 6 cases per year. Such responses would probably not improve patient outcomes to the same extent as moving patients from low-volume to high-volume hospitals. At the extreme, hospitals may loosen eligibility criteria and perform procedures on patients who are marginal or inappropriate candidates. The alternative of shutting down low-volume hospitals and transferring procedures to high-volume hospitals may overload these providers and impair access to care. None of these hypothesized effects has been empirically evaluated or demonstrated.

Prior use. This indicator has been utilized in the National Healthcare Quality Report35 and is currently included in the AHRQ Inpatient Quality Indicator set.

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):** Not applicable

1c.6 Method for rating evidence: Not applicable

1c.7 Summary of Controversy/Contradictory Evidence: None

1c.8 Citations for Evidence (*other than guidelines***):** References

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1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number***):** None

1c.10 Clinical Practice Guideline Citation: None
1c.11 National Guideline Clearinghouse or other URL: None

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom*)**:** Not applicable **1c.13 Method for rating strength of recommendation** (*If different from USPSTF system, also describe rating and how it relates to USPSTF)***:* During the comprehensive medical literature review, preference was given to high quality systematic reviews, meta-analyses, and clinical trials over the past ten years, plus existing nationally recognized treatment guidelines from the leading specialty societies. **1c.14 Rationale for using this guideline over others:** Not applicable	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 Do you have a web page where current detailed measure specifications can be obtained? **S.2 If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*)**:** Discharges, age 18 years and older, with ICD-9-CM code for esophageal resection in any procedure field OR gastrectomy procedure code ONLY if accompanied by selected diagnosis codes. **2a.2 Numerator Time Window** (*The time period in which cases are eligible for inclusion in the numerator*)**:** Time period is user defined. Users of the measure typically use a 12 month time period. **2a.3 Numerator Details** (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*)**:** CD-9-CM esophageal resection procedure codes: 424 ESOPHAGECTOMY 4240 ESOPHAGECTOMY NOS 4241 PARTIAL ESOPHAGECTOMY 4242 TOTAL ESOPHAGECTOMY 425 THORAC ESOPHAG ANAST 4251 THORAC ESOPHAGOESOPHAGOS 4252 THORAC ESOPHAGOGASTROST 4253 THORAC SM BOWEL INTERPOS 4254 THORAC ESOPHAGOENTER NEC 4255 THORAC LG BOWEL INTERPOS 4256 THORAC ESOPHAGOCOLOS NEC 4258 THORAC INTERPOSITION NEC 4259 THORAC ESOPHAG ANAST NEC 426 STERN ESOPHAG ANAST	**2a-specs** **C☐** **P☐** **M☐** **N☐**

4261 STERN ESOPHAGOESOPHAGOST
4262 STERN ESOPHAGOGASTROSTOM
4263 STERN SM BOWEL INTERPOS
4264 STERN ESOPHAGOENTER NEC
4265 STERN LG BOWEL INTERPOS
4266 STERN ESOPHAGOCOLOS NEC
4268 STERN INTERPOSITION NEC
4269 STERN ESOPHAG ANAST NEC

OR

ICD-9-CM gastrectomy procedure code:
4399 OTHER TOTAL GASTRECTOMY

ONLY if accompanied by selected diagnosis codes
1500 MALIGNANT NEOPLASM OF ESOPHAGUS, CERVICAL
1501 MALIGNANT NEOPLASM OF ESOPHAGUS, THORACIC
1502 MALIGNANT NEOPLASM OF ESOPHAGUS, ABDOMINAL
1503 MALIGNANT NEOPLASM OF ESOPHAGUS, UPPER THIRD OF
1504 MALIGNANT NEOPLASM OF ESOPHAGUS, MIDDLE THIRD OF
1505 MALIGNANT NEOPLASM OF ESOPHAGUS, LOWER THIRD OF
1508 MALIGNANT NEOPLASM OF ESOPHAGUS, OTHER SPECIFIED PART
1509 MALIGNANT NEOPLASM OF ESOPHAGUS, UNSPECIFIED

Exclude cases:
MDC 14 (pregnancy, childbirth, and puerperium)

2a.4 **Denominator Statement (***Brief, text description of the denominator - target population being measured***):**
Not applicable

2a.5 **Target population gender:** Female, Male
2a.6 **Target population age range:** 18 and older

2a.7 **Denominator Time Window (***The time period in which cases are eligible for inclusion in the denominator***):**
Not applicable

2a.8 **Denominator Details (***All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions***):**
Not Applicable

2a.9 **Denominator Exclusions (***Brief text description of exclusions from the target population***):** Not Applicable

2a.10 **Denominator Exclusion Details (***All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
Not Applicable

2a.11 **Stratification Details/Variables (***All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
Not Applicable

2a.12-13 **Risk Adjustment Type:** No risk adjustment necessary

2a.14 **Risk Adjustment Methodology/Variables (***List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**
Risk adjustment not applicable; volume measures are not subject to bias due to disease severity and comorbidities

2a.15-17 Detailed risk model available Web page URL or attachment:	
2a.18-19 Type of Score: Count **2a.20 Interpretation of Score:** Better quality = Higher score **2a.21 Calculation Algorithm (***Describe the calculation of the measure as a flowchart or series of steps***):** The volume is the number of discharges with a procedure for esophageal resection	
2a.22 Describe the method for discriminating performance *(e.g., significance testing)***:** Performance discrimination is based on pre-defined thresholds derived from the literature. Threshold 1: 6 or more procedures per year. Threshold 2: 7 or more procedures per year. Threshold 2: 7 or more procedures per year.	
2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*: Not applicable	
2a.24 Data Source (*Check the source(s) for which the measure is specified and tested)***:** Electronic administrative data/claims **2a.25 Data source/data collection instrument (***Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):** Hospital administrative discharge data. See data requirements in the AHRQ QI Windows Application Documentation: http://www.qualityindicators.ahrq.gov/software.htm **2a.26-28 Data source/data collection instrument reference web page URL or attachment:** URL http://www.qualityindicators.ahrq.gov/software.htm **2a.29-31 Data dictionary/code table web page URL or attachment:** URL http://www.qualityindicators.ahrq.gov/downloads/winqi/AHRQ_QI_Windows_Software_Documentation_V41a.pdf **2a.32-35 Level of Measurement/Analysis** (*Check the level(s) for which the measure is specified and tested)* Facility/Agency **2a.36-37 Care Settings (***Check the setting(s) for which the measure is specified and tested)***:** Hospital **2a.38-41 Clinical Services** (*Healthcare services being measured, check all that apply*) Clinicians: Physicians (MD/DO)	
TESTING/ANALYSIS	
2b. Reliability testing **2b.1 Data/sample** *(description of data/sample and size)***:** Not applicable **2b.2 Analytic Method** *(type of reliability & rationale, method for testing)***:** We conduct annual measure maintenance including a review of the ICD-9-CM coding. **2b.3 Testing Results** *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)***:** Not applicable	**2b** **C☐** **P☐** **M☐** **N☐**
2c. Validity testing **2c.1 Data/sample** *(description of data/sample and size)***:** AHRQ 2007 State Inpatient Databases (SID) 424 hospitals and 1,587 discharges **2c.2 Analytic Method** *(type of validity & rationale, method for testing)***:** We conduct annual measure maintenance including a review of the numerator inclusion and exclusion criteria and calculation of comparative data.	**2c** **C☐** **P☐** **M☐** **N☐**

2c.3 Testing Results *(statistical results, assessment of adequacy in the context of norms for the test conducted)*: Not applicable	
2d. Exclusions Justified **2d.1 Summary of Evidence supporting exclusion(s):** Not applicable **2d.2 Citations for Evidence:** Not applicable **2d.3 Data/sample** *(description of data/sample and size)*: Not applicable **2d.4 Analytic Method** *(type analysis & rationale)*: Not applicable **2d.5 Testing Results** *(e.g., frequency, variability, sensitivity analyses)*: Not applicable	**2d** C☐ P☐ M☐ N☐ NA☐
2e. Risk Adjustment for Outcomes/ Resource Use Measures **2e.1 Data/sample** *(description of data/sample and size)*: Not applicable **2e.2 Analytic Method** *(type of risk adjustment, analysis, & rationale)*: Not applicable **2e.3 Testing Results** *(risk model performance metrics)*: Not applicable **2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:** Not applicable	**2e** C☐ P☐ M☐ N☐ NA☐
2f. Identification of Meaningful Differences in Performance **2f.1 Data/sample from Testing or Current Use** *(description of data/sample and size)*: Not applicable **2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*: Not applicable **2f.3 Provide Measure Scores from Testing or Current Use** *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*: Hospitals that perform more esophageal resections have better outcomes. Performance discrimination is completed using pre-defined thresholds derived from the literature concerning this procedure. Threshold 1: 6 or more procedures per year. Threshold 2: 7 or more procedures per year. Threshold 2: 7 or more procedures per year.	**2f** C☐ P☐ M☐ N☐
2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: Not applicable **2g.2 Analytic Method** *(type of analysis & rationale)*: Not applicable **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*: Not applicable	**2g** C☐ P☐ M☐ N☐ NA☐
2h. Disparities in Care	**2h** C☐

2h.1 If measure is stratified, provide stratified results *(scores by stratified categories/cohorts)*: Not applicable **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:** Not applicable	**P☐ M☐ N☐ NA☐**
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? Rationale:	**2 C☐ P☐ M☐ N☐**
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information **3a.1 Current Use:** In use **3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:** 1) State of California: Hospital Inpatient Mortality Indicators for California, http://oshpd.ca.gov/HID/Products/PatDischargeData/AHRQ/iqi-imi_overview.html 2) Illinois Hospital Association: Illinois Hospitals Caring for You, www.illinoishospitals.org 3) Norton Healthcare (multi-hospital system): Norton Healthcare Quality Report, http://www.nortonhealthcare.com/body.cfm?id=157 4) State of New Jersey: Find and Compare Quality Care in New Jersey Hospitals, http://www.nj.gov/health/healthcarequality/ 5) Niagara Health Quality Coalition and Alliance for Quality Health Care: New York State Hospital Report Card, http://www.myhealthfinder.com/ 6) State of Texas: Reports on Hospital Performance, http://www.dshs.state.tx.us/thcic/ 7) State of Vermont: Department of Banking, Insurance, Securities & Health Care Administration (BISHCA) Comparison Report, http://www.bishca.state.vt.us/health-care/hospitals-health-care-practitioners/2009-vermont-hospital-report-card 8) Niagara Health Quality Coalition and Alliance for Quality Health Care: Washington State Hospital Report Card, http://www.myhealthfinder.com/wa09/index.php 9) State of Oregon: Oregon Hospital Quality Indicators, http://egov.oregon.gov/DAS/OHPPR/HQ/HospReports.shtml **3a.3 If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** University Healthcare Consortium - An alliance of 103 academic medical centers and 219 of their affiliated hospitals. Reporting the AHRQ QIs to their member hospitals. (see www.uhc.edu. Note: measure results reported to hospitals; not reported on site). Dallas Fort Worth Hospital Council – Reporting on measure results to over 70 hospitals in Texas (see www.dfwhc.ord. Note: measure results reported to hospitals; not reported on site). Norton Healthcare - a multi-hospital system in Kentucky (see http://www.nortonhealthcare.com/about/Our_Performance/index.aspx) Ministry Health Care - a multi-hospital system in Wisconsin (see http://ministryhealth.org/display/router.aspx. Note: measure results reported to hospitals; not reported on	**3a C☐ P☐ M☐ N☐**

site).

Minnesota Hospital Association
http://www.mnhospitals.org/ Note: measure used in quality improvement. Not reported publicly by the association)

Testing of Interpretability (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*)
3a.4 **Data/sample** *(description of data/sample and size)*: The 2007 AHRQ State Inpatient Databases (SID) consist of approximatley 4,000 hospitals and 38 million discharges

3a.5 **Methods** *(e.g., focus group, survey, QI project)*:
A research team from the School of Public Affairs, Baruch College, under contracts with the Department of Public Health, Weill Medical College and Battelle, Inc., has developed a pair of Hospital Quality Model Reports at the request of the Agency for Healthcare Research & Quality (AHRQ). The AHRQ hip fracture mortality measure is included in the reports. These reports are designed specifically to report comparative information on hospital performance based on the AHRQ Quality Indicators (QIs). The work was done in close collaboration with AHRQ staff and the AHRQ Quality Indicators team.

The Model Reports (discussed immediately above) are based on:
- Extensive search and analysis of the literature on hospital quality measurement and reporting, as well as public reporting on health care quality more broadly;
- Interviews with quality measurement and reporting experts, purchasers, staff of purchasing coalitions, and executives of integrated health care delivery systems who are responsible for quality in their facilities;
- Two focus groups with chief medical officers of hospitals and/or systems and two focus groups with quality managers from a broad mix of hospitals;
- Four focus groups with members of the public who had recently experienced a hospital admission; and
- Four rounds of cognitive interviews (a total of 62 interviews) to test draft versions of the two Model Reports with members of the public with recent hospital experience, basic computer literacy but widely varying levels of education.

3a.6 **Results** *(qualitative and/or quantitative results and conclusions)*:
Given the above review of the literature and original research that was conducted, a Model report was the result that could help sponsors use the best evidence on public reports so they are most likely to have the desired effects on quality.

3b/3c. Relation to other NQF-endorsed measures

3b.1 **NQF # and Title of similar or related measures:**
Leapfrog esophagectomy survival predictor (NQF # unknown)

(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**

3b. Harmonization
If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population):
3b.2 **Are the measure specifications harmonized? If not, why?**
Yes; the Leapfrog specification is based on the AHRQ specification

3b
C☐
P☐
M☐
N☐
NA☐

3c. Distinctive or Additive Value
3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:**
The AHRQ volume measure is paired with a mortality measure. Together, The AHRQ measure has improved discrimination and predictive properties; the AHRQ measure also has an associated measure of uncertainty.

5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:**

3c
C☐
P☐
M☐
N☐
NA☐

The AHRQ volume measure is paired with a mortality measure. Together, The AHRQ measure has improved discrimination and predictive properties; the AHRQ measure also has an associated measure of uncertainty.	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** **C☐** **P☐** **M☐** **N☐**
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	**Eval Rating**
4a. Data Generated as a Byproduct of Care Processes **4a.1-2 How are the data elements that are needed to compute measure scores generated?** Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	**4a** **C☐** **P☐** **M☐** **N☐**
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) Yes **4b.2 If not, specify the near-term path to achieve electronic capture by most providers.**	**4b** **C☐** **P☐** **M☐** **N☐**
4c. Exclusions **4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No **4c.2 If yes, provide justification.**	**4c** **C☐** **P☐** **M☐** **N☐** **NA☐**
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** The relative rarity of esophageal resection results in an indicator that is less precise than most volume indicators, although still highly adequate for use as a quality indicator. Hospitals should examine more than one year of data if possible and average volumes for a more precise estimate. Hospitals may also consider use with the pancreatic resection indicator, another complex cancer surgery. The volume-outcome relationship on which this indicator is based may not hold over time, as providers become more experienced or as technology changes.	**4d** **C☐** **P☐** **M☐** **N☐**
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** None **4e.2 Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** Administrative data are collected as part of the routine operations. Some staff time is required to download and execute the software from the AHRQ webs site, which is available at no cost.	**4e** **C☐** **P☐** **M☐** **N☐**

4e.3 Evidence for costs: User reported experiences **4e.4 Business case documentation:** None	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** **C☐** **P☐** **M☐** **N☐**
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited ☐**
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y☐** **N☐** **A☐**
CONTACT INFORMATION	
Co.1 Measure Steward (Intellectual Property Owner) **Co.1 Organization** Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, Maryland, 20850 **Co.2 Point of Contact** John, Bott, MSSW, MBA, john.bott@ahrq.hhs.gov, 301-427-1317-	
Measure Developer If different from Measure Steward **Co.3 Organization** Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, Maryland, 20850 **Co.4 Point of Contact** John, Bott, MSSW, MBA, john.bott@ahrq.hhs.gov, 301-427-1317-	
Co.5 Submitter If different from Measure Steward POC John, Bott, john.bott@ahrq.hhs.gov, 301-427-1317-, Agency for Healthcare Research and Quality	
Co.6 Additional organizations that sponsored/participated in measure development UC Davis Stanford University Battelle Memorial Institute	
ADDITIONAL INFORMATION	
Workgroup/Expert Panel involved in measure development **Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.** None	
Ad.2 If adapted, provide name of original measure: None **Ad.3-5 If adapted, provide original specifications URL or attachment**	
Measure Developer/Steward Updates and Ongoing Maintenance **Ad.6 Year the measure was first released:** 2002 **Ad.7 Month and Year of most recent revision:** 10, 2010 **Ad.8 What is your frequency for review/update of this measure?** annually **Ad.9 When is the next scheduled review/update for this measure?** 05, 2011	

Ad.10 Copyright statement/disclaimers: The AHRQ QI software is publicly available. We have no copyright disclaimers.
Ad.11 -13 Additional Information web page URL or attachment:
Date of Submission (*MM*/*DD*/*YY*)**:** 12/31/2010

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 1526 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Transfusion Consent
De.2 **Brief description of measure:** Percentage of patients with a signed consent for blood transfusion who received information about the risks, benefits and alternatives of transfusions prior to the initial transfusion or the initial transfusion was deemed a medical emergency - applicable to inpatients of all ages.
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** PBM-01 is a part of the Patient Blood Management(PBM) measure set: PBM-02(RBC Transfusion Indication), PBM-03 (Plasma Transfusion Indication), PBM-04 (Platelet Transfusion Indication), PBM-05 (Blood Administration Documentation), PBM-06 (Preoperative Anemia Screening), PBM-07(Preoperative Blood Type Testing and Antibody Screening)
De.4 **National Priority Partners Priority Area:** Patient and family engagement, Care coordination, Safety De.5 **IOM Quality Domain**: Patient-centered, Safety De.6 **Consumer Care Need:** Getting better

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	NQF Staff
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Agreement will be signed and submitted prior to or at the time of	A Y☐ N☐

measure submission A.4 **Measure Steward Agreement attached:**	
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	**B** Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement Accreditation	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Frequently performed procedure 1a.2 1a.3 **Summary of Evidence of High Impact:** In certain circumstances, blood transfusions can save lives, restore normal life expectancy and improve the quality of life. However, results from recent studies have shown that blood transfusions may not be the best treatment and may cause serious adverse events, so the decision to transfuse must be made with great care. Recent national health policies and practices have put greater emphasis on patient involvement and choice about medical treatment that should include information about blood transfusions. Every patient has the right to know why a treatment is recommended and if there are any risks or alternatives. 1a.4 **Citations for Evidence of High Impact:** Rock, G, Berger R, Filion D, et. al. Documenting a transfusion: how well is it done? Transfusion 2007;47:568-572. Manthous CA, DeGirolama A, Haddad C, et al. Informed consent for medical procedures: Local and national practices. Chest 2003;124:1978-84. Hewitt B, de Silva M. Consent for transfusion BMJ 1997;316:397. Speiss BD, Counts RB, Gould SA. Perioperative Transfusion Medicine, Williams and Wilkins; 1998; 201-204.	**1a** C☐ P☐ M☐ N☐

Stowell C, Sazama K. Informed Consent in Blood Transfusion and Cellular Therapies: Patients, Donors and Research Subjects. AABB Press; 2007; ISBN #978-1-56395-254-8.
Burch JW, Uhl L. Guidelines for Informed Consent in Transfusion Medicine. AABB Press; 2006; ISBN #1-56395-146-0.2008.
Standards for Blood Banks and Transfusion Services, 25th ed. Bethseda, MD: AABB 2008.
The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL. Joint Commission Resources, Inc, 2009.
The Joint Commission, "National Patient Safety Goals (NPSG)", IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.

1b. Opportunity for Improvement

1b.1 **Benefits (improvements in quality) envisioned by use of this measure:** The practice of obtaining consent for blood transfusions is inconsistent across the nation. Establishing a process to monitor transfusion consents may increase the number of patients who will receive information about the risks, benefits and alternatives to transfusion as more studies cite data on increased mortality and morbidity rates from blood transfusions. Involving patients in decision-making is the right thing to do.

1b.2 **Summary of data demonstrating performance gap (variation or overall poor performance) across providers:**
The process for obtaining consent has been inconsistent across the United Kingdom and Canada. In 1997, one study showed that only 31% of patients were given information before transfusion with the remainder receiving no information or were told they were going to have a transfusion. 82 percent of these patients felt they received enough information, while 92 percent indicated that they understood why they needed a transfusion. Twenty percent said that additional information especially about risk would have been helpful. Two small studies were done that showed that 75% of cases had no documentation by the doctor or designate that a discussion informing them about the transfusion had occurred. One study in Canada reviewed 1005 charts with documentation of a consent in 13.2% of the charts. No studies have been done like it in the US, but antidotal evidence suggests that the US has similar problems. One report stated that many patients were not aware that they had received blood.
Even states that have a mandated informed consent process, compliance has not been reported to be 100%. In 2004, Saxena reported that documentation of informed consent increased from 80 to 100 percent as a result of an audit to measure compliance with blood-ordering procedures. In another study, separate consent (beyond the general consent to treat) was not uniformly obtained for the transfusion of blood products (range, 74 to 93%).

1b.3 **Citations for data on performance gap:**
Hewitt B, DeSilva M. Consent for transfusion. BMJ 1997;316:397.
California Blood Bank Society. Survey on Informed Consent for Transfusion. Available at: http://www.cbbsweb.org/enf/2003/consent blood2.html Accessed December 10, 2010.
Manthous CA, DeGirolama A, Haddad C, et al. Informed consent for medical procedures: Local and national practices. Chest 2003;124:1978-84.
Rock, G, Berger R, Filion D, et. al. Documenting a transfusion: how well is it done? Transfusion 2007;47:568-572.
Murphy MF, Docherty S, Greenfield P. Survey of the information given to patients about blood transfusion and the need for consent before transfusion. Transfus Med 1997;7:287-8.
McClelland DB;Working party of the clinical resource and audit group. Optimal use of donor blood. Edinburgh:National Health Service (Scotland): 1995.
Saxena S, Ramer L, Shulman IA. A comprehensive assessment program to improve blood-administering practices using the FOCUS-PDCA model. Transfusion 2004;44:1350-1356.

1b.4 **Summary of Data on disparities by population group:**
Educating patients about blood transfusions may be difficult for those with communication issues such as low literacy levels, lack of adequate skills to read or understand health care information or those who may have recently immigrated to this county.

1b.5 **Citations for data on Disparities:**
Matiasek J, Wynia MK. Patient and Family Involvement: Reconceptualizing the informed consent process at eight innovative hospitals. The Joint Commission Journal on Quality and Patient Safety 2008. 34;3:127-137.

1b
C☐
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Weiss B. Epidemiology of low health literacy. In J.G. Schwarzberg, J.B. VanGeest, C.C Wang (eds.): Understanding Health Literacy: Implications for Medicine and Public Health. Chicago:AMA Press, 2005:17-39.

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** The desired outcome for this measure is two-fold. Hospitals would develop a culture that promotes patient-centered care by making information about the need for transfusion available to patients, families and caregivers, and this in turn would allow all patients to have an opportunity to engage in decision-making in accordance with their personal preferences and values.

1c.2-3. Type of Evidence: Observational study, Expert opinion

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
A 1998 study in Western Australia found that 96% of patients would avoid a transfusion if possible thought only 4% were aware that alternatives were available. Similar results have been noted in the US, Europe and Canada. The medical community has also expressed a preference to avoid allogeneic blood products. Professionals surveyed in the United Kingdom would prefer their own blood to donated blood while anesthesiologists would prefer a blood substitute if blood was needed.

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom*)**:**
Not rated

1c.6 Method for rating evidence: NA

1c.7 Summary of Controversy/Contradictory Evidence: NA

1c.8 Citations for Evidence (*other than guidelines*)**:** Farmer S. Your Body, Your Choice. Singapore, Media Masters, 2000.
Eurobarometer. Europeans and blood. Prepared for the European commission on Employment, Industrial Relations and Social Affairs. Paris, Institut National de la recherché Agronomique, 1995.
Lowe KC, Ferguson E. Benefit and risk perception in transfusion medicine: blood and blood substitutes. J Intern Med 2003;253:498-507.
Farmer S, Webb D. Your Body, Your Choice. Singapore, Media Masters, 2000.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number*)**:**
NA

1c.10 Clinical Practice Guideline Citation: NA
1c.11 National Guideline Clearinghouse or other URL: NA

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom*)**:**
NA

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF*)**:**
NA

1c.14 Rationale for using this guideline over others:
NA

1c
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TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*

1

Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met?
Rationale:

1
Y☐

	N☐
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 Do you have a web page where current detailed measure specifications can be obtained? **S.2 If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*)**:** Patients with a signed consent who received information about the risks, benefits and alternatives of transfusion prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency **2a.2 Numerator Time Window** (*The time period in which cases are eligible for inclusion in the numerator*)**:** Episode of Care **2a.3 Numerator Details** (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*)**:** The units in the numerator are a subset of the denominator units. The following data elements are collected for the numerator; Transfusion Consent, Education Addressed Risks, Benefits and Alternatives. Detailed descriptions are provided in attachment for Section 2a.30.	
2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured*)**:** Patients who received red blood cells, platelets or plasma **2a.5 Target population gender:** Female, Male **2a.6 Target population age range:** All ages **2a.7 Denominator Time Window** (*The time period in which cases are eligible for inclusion in the denominator*)**:** Episode of Care **2a.8 Denominator Details** (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions*)**:** Admission Date Blood Bank Records Discharge Date ICD-9-CM Principal or Other Procedure Codes Detailed descriptions are provided in the attachment for Section 2a.30.	
2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population*)**:** None **2a.10 Denominator Exclusion Details** (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions*)**:** None	
2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions*)**:** None	**2a-specs** **C**☐ **P**☐ **M**☐ **N**☐
2a.12-13 Risk Adjustment Type: No risk adjustment necessary **2a.14 Risk Adjustment Methodology/Variables** (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method*)**:**	

2a.15-17 Detailed risk model available Web page URL or attachment:

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Higher score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**
Algorithms are provided in the attachment for Section 2a.30.

2a.22 Describe the method for discriminating performance *(e.g., significance testing)***:**
During the six-month pilot, the distribution of the hospital rates was reviewed over time.

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
For pilot testing, hospitals were requested to submit 10 cases of patients discharged from the designated six months for each of the measures. Post pilot, the sample size will be based on the number of units transfused per discharge month or quarter. Cases for this measure are derived from the initial transfusion of cases in PBM-02 – PBM-04.
Hospitals that choose to sample have the option of sampling quarterly or monthly. A hospital may choose to use a larger sample size than required. Hospitals with an initial population size less than the minimum number of units/doses transfused per quarter/month for the measure, cannot apply sampling to the measure.

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested)*
Paper medical record/flow-sheet, Electronic administrative data/claims

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
The Joint Commission developed a web-based data collection tool that was used by hospitals and for reliability testing during the pilot test. When the measures are made part of The Joint Commission's ORYX data collection and reporting program, the data will most likely be collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy of the data collection tool with the specifications

2a.26-28 Data source/data collection instrument reference web page URL or attachment: Attachment The_Patient Blood_Management_Tool [1].pdf

2a.29-31 Data dictionary/code table web page URL or attachment: Attachment PBMSpecifications-634279424304913378.pdf

2a.32-35 Level of Measurement/Analysis (*Check the level(s) for which the measure is specified and tested)*
Facility/Agency, Can be measured at all levels

2a.36-37 Care Settings (*Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 Clinical Services (*Healthcare services being measured, check all that apply*)
Clinicians: Nurses, Clinicians: PA/NP/Advanced Practice Nurse, Clinicians: Physicians (MD/DO), Other Transfusion specialist

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)***:** A sample of 194 medical records were reabstracted at 12 randomly selected pilot hospitals July through September 2010.

2b.2 Analytic Method *(type of reliability & rationale, method for testing)***:**
Hospitals for reliability testing were randomly selected based on multiple characteristics, including region

2b
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N☐

(west, south, north central, northeast), hospital type (teaching/non-teaching, rural/urban), and bed size (0-99, 100-199, 200-299, 300+). The objectives of the reliability site visits included: evaluation of the reliability of the individual measures and associated data elements, assessment of data collection effort including abstraction time and estimated cost, assessment of measure specifications including definitions, abstraction guidelines, etc. and assessment of sampling strategies. To prepare for the reliability site visits, the data collection tool that was used by the pilot hospitals was enhanced and tested. During the reliability site visit, Joint Commission staff re-abstracted a sub-set of records that had been previously submitted by the hospital into the enhanced data collection tool without knowing the measure specific data values that the hospital had submitted. When reabstraction was completed for each record, the results from the hospital and Joint Commission staff were compared and differences adjudicated in the program. Focus group interviews were conducted at each hospital and findings were discussed with each hospital to understand what aspects could be improved. A comparison of calculated indicator rates using data originally abstracted by hospitals and the data that were reabstracted by The Joint Commission staff was adjudicated on each measure and the individual data elements. Statistical analysis utilized Kappa scores and p values.

2b.3 **Testing Results** *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
The number of originally abstracted denominator cases was 139 with a computed original measure rate of 81.3%. The number of re-abstracted denominator cases was 115 with a re-abstracted measure rate of 74.8%. The absolute difference was 6.5% with a Kappa score of 0.451. The percent of hospital identified population verified as 87% and the symmetry of the numerator versus denominator was 1.7%. The match rate for 184 cases for the individual data elements was: Transfusion Consent 95.6% and Education Addressed Risks, Benefits and Alternatives to Transfusion 85.9%. Measure specifications have been revised to strengthen and provide additional clarity to the data element definitions and abstraction guidelines.

2c. Validity testing

2c.1 **Data/sample** *(description of data/sample and size)*: Face validity was tested by a total of 63 hospitals of various sizes and geographic locations across the country that represented over 300 individuals during August and May 2009. Measure specifications were sent to the test hospitals for review. In addition, on-site focus interviews were conducted at five hospitals. Criterion validity was evaluated during the reliability site visits mentioned above as well as through an online survey that the participating hospitals completed.

2c.2 **Analytic Method** *(type of validity & rationale, method for testing)*:
The measure information form and the data dictionary were evaluated for face validity. The following parts of the measure information form were evaluated: numerator statement, numerator inclusions, numerator exclusions, denominator statement, denominator inclusions, denominator exclusions and an overall understanding of the measure information form. Each area was scored utilizing a five-point Likert scale. For each data element, the hospitals were asked to comment on the clarity and understanding of the abstraction guidelines and data definitions. In addition, the data dictionary was reviewed for overall understanding, usefulness and clarity utilizing a five-point Likert scale. Qualitative analysis was performed on measure feedback received during the focus group interviews and from the online surveys.

2c.3 **Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
A total of 58 hospitals completed the face validity evaluation and rated the overall understanding of the numerator and denominator statements an average 4.325 that ranked the measure 4th out of the 10 measures. Modifications to improve the understanding and clarity of the measure specifications were made prior to pilot testing based on feedback received from the hospitals during the face validity evaluation. Analysis of the online survey revealed 93% (54/58) of the pilot hospitals recommended moving the measure forward to the pilot test with suggested modifications.

2c
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P☐
M☐
N☐

2d. Exclusions Justified

2d.1 **Summary of Evidence supporting exclusion(s):**

2d.2 **Citations for Evidence:**

2d
C☐
P☐
M☐
N☐
NA☐

2d.3 Data/sample *(description of data/sample and size)*: **2d.4 Analytic Method** *(type analysis & rationale)*: **2d.5 Testing Results** *(e.g., frequency, variability, sensitivity analyses)*:	
2e. Risk Adjustment for Outcomes/ Resource Use Measures **2e.1 Data/sample** *(description of data/sample and size)*: **2e.2 Analytic Method** *(type of risk adjustment, analysis, & rationale)*: **2e.3 Testing Results** *(risk model performance metrics)*: **2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:**	**2e** C☐ P☐ M☐ N☐ NA☐
2f. Identification of Meaningful Differences in Performance **2f.1 Data/sample from Testing or Current Use** *(description of data/sample and size)*: The sub-set of patients > 4 months of age that had been selected for measures PBM-02 –PBM-04 was used from the eligible measure population of inpatient discharges from 7/1/09 – 12/31/09. For each patient, the initial transfusion for any of the blood products was used for measurement purposes. **2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*: Z-scores were used to determine hospital measure rates that were significantly different from the overall average. **2f.3 Provide Measure Scores from Testing or Current Use** *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*: Mean Rate for All Hospitals = 89.7% Overall Rate for All Hospitals = 88.7% Standard Deviation = 18.6% Median Rate for All Hospitals = 89.7% Min. = 5.7% Max. = 100% Lower Quartile = 90.3% Upper Quartile = 99.2% Z< -2* = 2 Z< 2** = 0	**2f** C☐ P☐ M☐ N☐
2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: **2g.2 Analytic Method** *(type of analysis & rationale)*: **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*:	**2g** C☐ P☐ M☐ N☐ NA☐
2h. Disparities in Care	**2h** C☐

2h.1 If measure is stratified, provide stratified results *(scores by stratified categories/cohorts)*: **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**	P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	***2*** C☐ P☐ M☐ N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information **3a.1 Current Use:** Not in use but testing completed **3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:** We intend to incorporate these Patient Blood Management measures into our ORYX initiative with associated public reporting on Quality Check when there is a national call for these measures. **3a.3 If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** The specifications will be posted on the Joint Commission website for public use in 2011. **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) **3a.4 Data/sample** *(description of data/sample and size)*: **3a.5 Methods** *(e.g., focus group, survey, QI project)*: **3a.6 Results** *(qualitative and/or quantitative results and conclusions)*:	**3a** C☐ P☐ M☐ N☐
3b/3c. Relation to other NQF-endorsed measures **3b.1 NQF # and Title of similar or related measures:**	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): **3b.2 Are the measure specifications harmonized? If not, why?**	**3b** C☐ P☐ M☐ N☐ NA☐
3c. Distinctive or Additive Value **3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:**	**3c** C☐ P☐ M☐ N☐

5.1 If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:	**NA☐**
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** **C☐** **P☐** **M☐** **N☐**
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	**Eval Rating**
4a. Data Generated as a Byproduct of Care Processes **4a.1-2 How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	**4a** **C☐** **P☐** **M☐** **N☐**
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) No **4b.2 If not, specify the near-term path to achieve electronic capture by most providers.** Phase III will begin by January 2011 to retool the specifications for retrieval from an EHR.	**4b** **C☐** **P☐** **M☐** **N☐**
4c. Exclusions **4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No **4c.2 If yes, provide justification.**	**4c** **C☐** **P☐** **M☐** **N☐** **NA☐**
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** None identified during testing	**4d** **C☐** **P☐** **M☐** **N☐**
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** There were very few data collection issues with this measure. Most patients had a signed transfusion consent, but information related to benefits was sometimes implied rather than have explicit information. Information about alternatives was also missing. We will emphasize the need for more explicit information in the notes for abstraction. The timing and frequency of data collection will remain monthly or quarterly as it does for the other Joint Commission measure sets. Maintaining patient confidentially was not an issue during the pilot test, since	**4e** **C☐** **P☐** **M☐** **N☐**

blinded hospital and patient identifiers are used on all data received by The Joint Commission staff for data quality reviews. Twenty hospitals estimated an average time of 30 minutes to abstract a unit of blood with an average cost of $21-25 per hour. This measure would be included as part of the average time for one unit of blood, but anticipate that it would involve minimal time. However, these costs do not include the time or cost involved in identifying the patient population, staff training or data collection tool instruction. It should also be noted that the learning curve varied widely due to the staff experience and expertise that were utilized for a 'time-limited' project. During the 12 reliability site visits, two Joint Commission staff also found that the abstraction time varied widely based on the method of record retrieval (e.g., paper record, scanned record or electronic information) at each hospital and the amount of blood transfused per case. Based on hospital feedback, measure specifications have been revised to strengthen and provide additional clarity to data element definitions and abstraction guidelines. The timing and frequency of data collection will remain monthly or quarterly as it does for the other Joint Commission measure sets. Maintaining patient confidentially was not an issue during the pilot test, since blinded hospital and patient identifiers are used on all data received by The Joint Commission staff for data quality reviews. 4e.2 **Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** The majority of hospitals already have processes in place to abstract measures if the patients are identified using procedure codes. However, some hospitals document total hospital blood use using blood bank records that would have to be cross-referenced by the patient medical record number to determine how much and the type of blood product each patient received which adds to the abstraction burden. There are no Joint Commission fees to abstract the measures, but the abstraction cost for this measure would depend on the amount of blood transfused at each hospital. This measure would only evaluate the initial transfusion regardless of the number of units that were submitted for red blood cells, plasma or platelet for PBM-02 – PBM-04. Hospitals with Blood Management or conservation programs may have fewer units to review and those with efficient or electronic processes to document blood may have lower abstraction costs. 4e.3 **Evidence for costs:** 4e.4 **Business case documentation:** For hospitals that document blood use with procedure codes, this measure requires minimal hospital resources to abstract and may decrease potential legal problems if adverse events occur as a result of the transfusion. Most hospitals require a consent for blood transfusions so the information should be readily available. Communicating with patients about their care options is in concert with national priorities and is the right thing to do. Patients who are satisfied with their experience will return when they need additional care and will likely recommend the hospital to others.	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** **C☐** **P☐** **M☐** **N☐**
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited ☐**
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y☐** **N☐** **A☐**
CONTACT INFORMATION	
Co.1 **Measure Steward (Intellectual Property Owner)**	

Co.1 **Organization**
The Joint Commission, One Renaissance Boulevard., Oakbrook Terrace, Illinois, 60181

Co.2 **Point of Contact**
Jerod M., Loeb, PhD, jloeb@jointcommission.org, 630-792-5920-

Measure Developer If different from Measure Steward
Co.3 **Organization**
The Joint Commission, One Renaissance Boulevard., Oakbrook Terrace, Illinois, 60181

Co.4 **Point of Contact**
Harriet, Gammon, MSN, RN, CPHQ, hgammon@jointcommission.org, 630-792-5926-

Co.5 **Submitter If different from Measure Steward POC**
Harriet, Gammon, MSN, RN, CPHQ, hgammon@jointcommission.org, 630-792-5926-, The Joint Commission

Co.6 **Additional organizations that sponsored/participated in measure development**

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 **Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.**
The technical advisory panel determined priority areas in blood management for measure development. They reviewed public comments and were actively involved in all phases of the project to identify and develop the numerator and denominator statements. Measure recommendations for National Quality Forum endorsement were made after careful review of the pilot results and site feedback.

Ad.2 **If adapted, provide name of original measure:**
Ad.3-5 **If adapted, provide original specifications URL or attachment**

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 **Year the measure was first released:**
Ad.7 **Month and Year of most recent revision:** 12, 2010
Ad.8 **What is your frequency for review/update of this measure?** Biannually
Ad.9 **When is the next scheduled review/update for this measure?** 06, 2011

Ad.10 **Copyright statement/disclaimers:** No royalty or use fee is required for copying or reprinting this manual, but the following are required as a condition of usage: 1) disclosure that the Specifications Manual is periodically updated, and that the version being copied or reprinted may not be up-to-date when used unless the copier or printer has verified the version to be up-to-date and affirms that, and 2) users participating in Joint Commission accreditation, including performance measures systems, are required to update their software and associated documentation based on the published manual production timelines.

Example Acknowledgement: The Specifications Manual for National Hospital Inpatient Quality Measures Patient Blood Management. Performance Measure Set is periodically updated by The Joint Commission. Users of the Specifications Manual for National Hospital Inpatient Quality Measures Patient Blood Management Performance Measure Set must update their software and associated documentation based on the published manual production timelines.

Ad.11 -13 **Additional Information web page URL or attachment:** Attachment TAPLISTWEBc.doc

Date of Submission (*MM/DD/YY*)**:** 12/29/2010

Patient Blood Management (PBM)

Set Measures

Set Measure ID	Measure Short Name
PBM-01	Transfusion Consent
PBM-02	RBC Transfusion Indication
PBM-03	Plasma Transfusion Indication
PBM-04	Platelet Transfusion Indication
PBM-05	Blood Administration Documentation
PBM-06	Preoperative Anemia Screening
PBM-07	Preoperative Blood Type Testing and Antibody Screening

Measure Set Specific Data Elements

Element Name	Collected For
Admission From Home	PBM-06,
Anesthesia Start Date	PBM-06,
Blood Administration Location	PBM-02, PBM-03, PBM-04, PBM-05,
Blood Bank Records	PBM-01, PBM-02, PBM-03, PBM-04, PBM-05,
Blood ID Number	PBM-05,
Blood Type Testing Ordered	PBM-07,
Clinical Indication for Plasma	PBM-03,
Clinical Indication for Platelets	PBM-04,
Clinical Indication for RBCs	PBM-02,
Education Addressed Risks, Benefits and Alternatives to Transfusion	PBM-01,
Patient ID Verification	PBM-05,
Plasma ID	PBM-03, PBM-05,
Platelet ID	PBM-04, PBM-05,
Pre-transfusion Hematocrit	PBM-02,
Pre-transfusion Hemoglobin	PBM-02,
Pre-transfusion PT/INR Result	PBM-03,
Pre-transfusion Platelet Count	PBM-04,
Preoperative Anemia Screening Date	PBM-06,
Preoperative Blood Type Testing	PBM-07,
RBC ID	PBM-02, PBM-05,
RBC Unit Exclusions	PBM-02, PBM-05,
Surgery Scheduled Timeframe	PBM-06,
Transfusion Consent	PBM-01,
Transfusion Order	PBM-05,
Transfusion Start Date	PBM-05,
Transfusion Start Time	PBM-05,
Vital Sign Monitoring	PBM-05,

Related Materials

Document Name
z. Appendix E - Miscellaneous Tables

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-01

Performance Measure Name: Transfusion Consent

Description: Patients with a signed consent who received information about the risks, benefits and alternatives of transfusion prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency.

Rationale: Planning a discussion with a licensed practitioner regarding the risks, benefits and alternatives of transfusion is an opportunity for the patient to participate in decisions about his or her care. It is a process that takes into consideration, each patient's preferences, clinical needs and provides information in compliance with the regulations and policies of the state and facility. Even though policies related to informed consent may vary among hospitals, all hospitals require some type of consent prior to treatment unless emergency care is needed. The elements of performance for the Joint Commission Standard RI.01.03.01 related to the informed consent process include a discussion about the risks, benefits and alternatives, and a discussion about the risk, if care is not received. This measure is also supported by the Joint Commission's National Patient Safety Goal (NPSG) 13 that encourages patients' active involvement in their own care as a patient safety strategy.

For many years, the American Association of Blood Banks (AABB) organization has supported the consent process for transfusion and has developed several standards such as AABB Standard 5.19.1. AABB requires that at a minimum, a recipient consent for transfusion and that should include; a description of the risks, benefits and treatment alternatives, the opportunity to ask questions and the right to accept or refuse transfusion.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with a signed consent who received information about the risks, benefits and alternatives prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Education Addressed Risks, Benefits and Alternatives to Transfusion*
- *Transfusion Consent*

Denominator Statement: Patients who received red blood cell, plasma or platelet transfusions

Included Populations: Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.3-9.6 or a transfusion documented from Blood Bank Records.

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data collection sources for required data elements include administrative data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document tranfusions may use blood bank records to identify the population.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Hospitals may want to evaluate the cases according to medical or surgical designation that were not included in the numerator in order to determine if the consent was signed and/or if all or only part of the educational components were given or if documentation was insufficient. Based on this information, hospitals may assess the barriers impacting this measure that could be improved.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

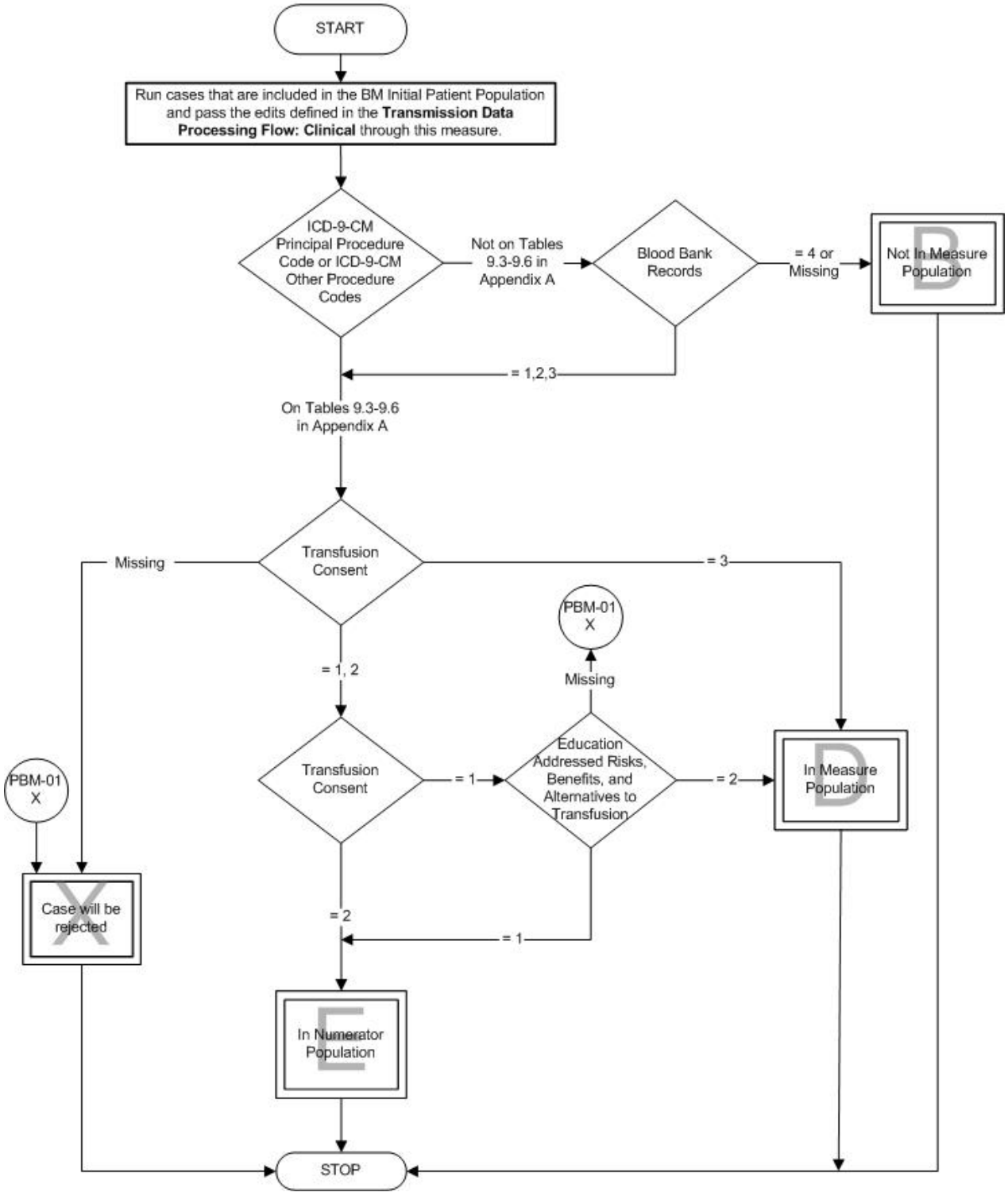
- Speiss BD, Counts RB, Gould SA. Perioperative Transfusion Medicine, Williams and Wilkins; 1998; 201-204.
- Stowell C, Sazama K. Informed Consent in Blood Transfusion and Cellular Therapies: Patients, Donors and Research Subjects. AABB Press; 2007; ISBN #978-1-56395-254-8.
- Burch JW, Uhl L. Guidelines for Informed Consent in Transfusion Medicine. AABB Press; 2006; ISBN #1-56395-146-0.2008.
- Standards for Blood Banks and Transfusion Services, 25th ed. Bethseda, MD: AABB 2008.
- The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL. Joint Commission Resources, Inc, 2009.
- The Joint Commission, “National Patient Safety Goals (NPSG)”, IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.

Measure Algorithm:

PBM–01: Transfusion Consent

Numerator: Patients with a signed consent who received information about the risks, benefits and alternatives prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency

Denominator: Patients who received red blood cells, platelets or plasma



Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-02

Performance Measure Name: RBC Transfusion Indication

Description: The number of transfused red blood cell (RBC) units with a pre-transfusion hemoglobin (hgb) or hematocrit (hct) result and clinical indication documented from patients of all ages who received RBCs.

Rationale: Improvement of the safety and quality of care that a hospital provides includes the review of the use of blood and blood products. Despite current evidence and best practice guidelines, clinical practice regarding when to transfuse varies among physicians and institutions even though most would agree that blood products should only be given when the benefits outweigh the harm. Many advocate that transfusion decisions should be based on a clinical assessment and not on laboratory values alone to avoid inappropriate over-or-under transfusion. Measuring whether an "indication for transfusion" and a pre-transfusion laboratory value was documented may improve the utilization of blood components. In addition, implementing such a process may simplify the hospital's review for appropriateness of the transfusion when auditing records for accreditation and regulatory agencies. In a study by Friedman and Ebrahim, there was a significant correlation between red blood cell transfusions that lacked documentation of the clinical necessity for transfusion and justification of the transfusion.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of RBC units with pre-transfusion hemoglobin or hematocrit result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for RBCs*
- *Pre-transfusion Hematocrit*
- *Pre-transfusion Hemoglobin*
- *RBC ID*

Denominator Statement: Number of transfused red blood cell units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Tables 9.3 or 9.4 or a RBC transfusion documented from Blood Bank Records.
- The first six RBCs units transfused after hospital arrival

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*
- *RBC Unit Exclusions*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received RBCs.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Hospitals may want to use the data to further evaluate the process for determining the need for blood products based on the clinical indications and correlating it with the pre-transfusion value that was documented. This information may assist hospitals to determine if the patients were transfused appropriately or if efforts should be directed toward additional documentation efforts for monitoring blood product usage. Data may be grouped by service designation or by blood products to identify specific areas for staff review.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

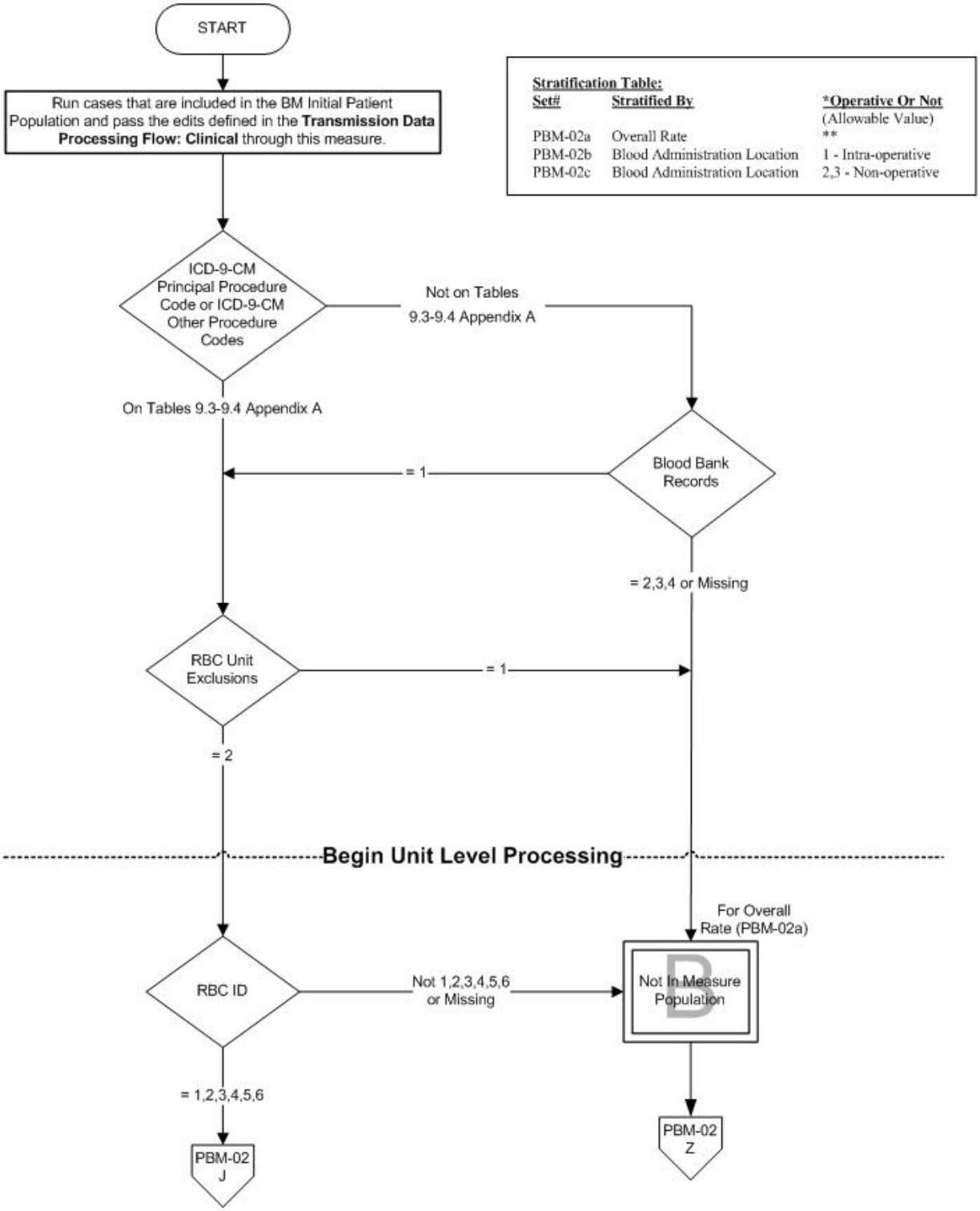
- Friedman MT, Ebrahim A. Adequacy of physician documentation of red blood cell transfusion and correlation with assessment of transfusion appropriateness. Arch Pathol Lab Med. 2006;130: 474-79.
- Corwin HL, Parsonnet KC, Gettinger A. RBC transfusion in the ICU: is there a reason? Chest. 1995;108: 767-771.
- Tobin SN, Campbell DA, Boyce NW. Durability of response to a targeted intervention to modify clinician transfusion practices in a major teaching hospital. MJA. 2001;174:445-448.
- Clinical practice guideline: Red blood cell transfusion in adult trauma and critical care. Crit Care Med 2009 Vol.37, No.12.

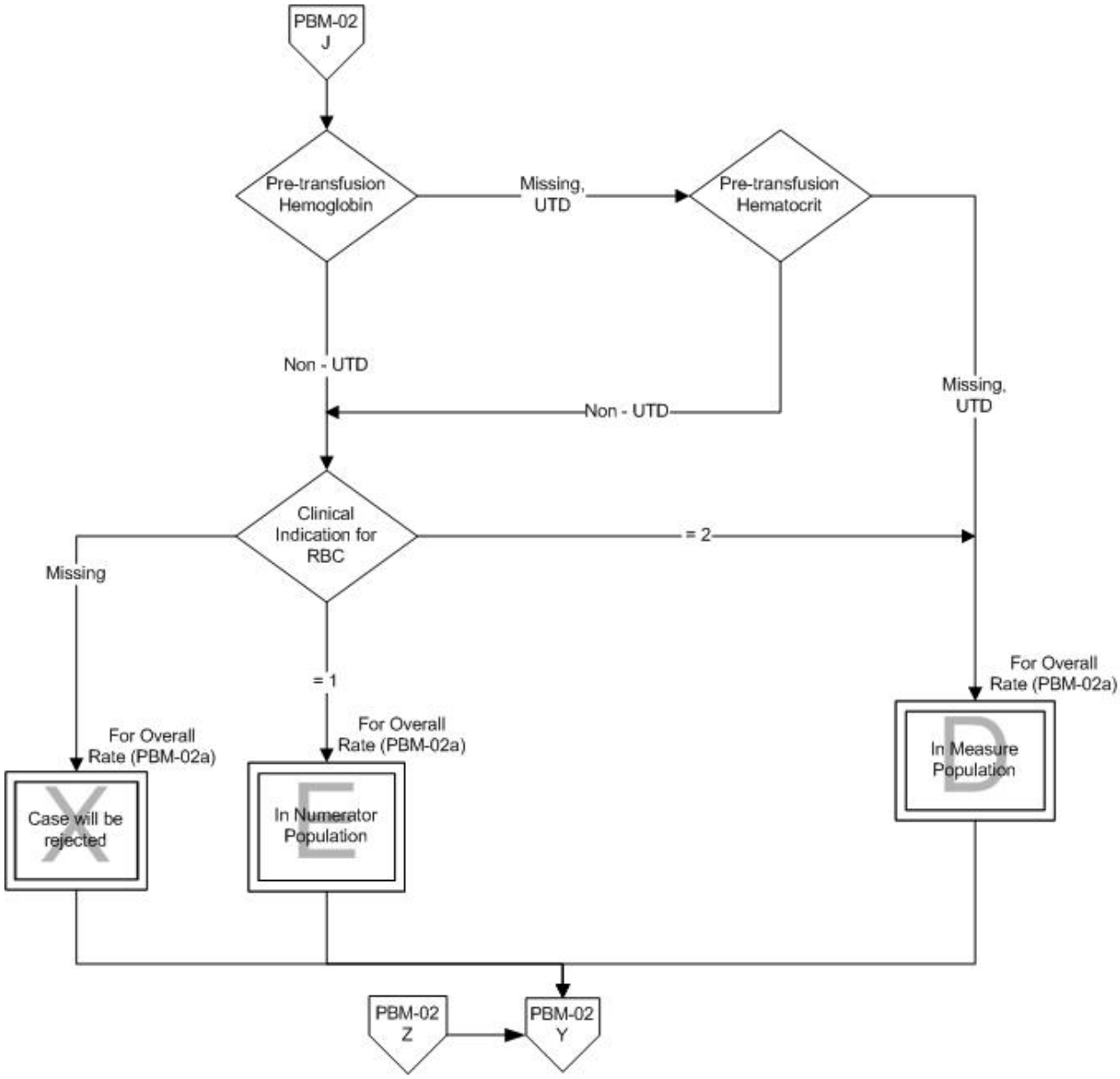
Measure Algorithm:

PBM–02: RBC Transfusion Indication

Numerator: Number of RBC units (bags) with pre-transfusion hemoglobin or hematocrit result and clinical indication documented

Denominator: Number of transfused red blood cell units evaluated





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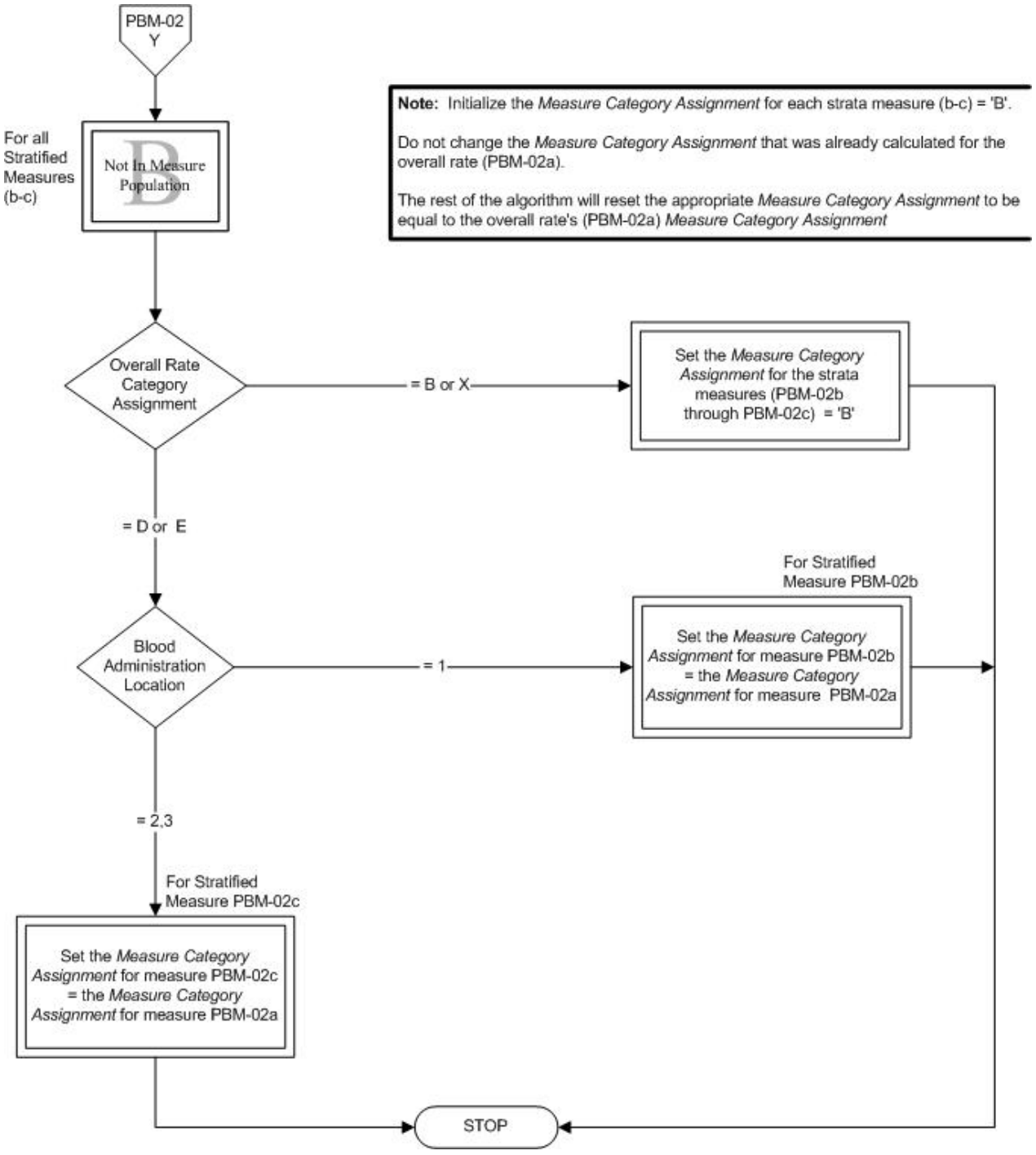


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-03

Performance Measure Name: Plasma Transfusion Indication

Description: The number of transfused plasma units with a pre-transfusion PT/INR result and clinical indication documented from patients of all ages who received plasma.

Rationale: The use of plasma has increased and is disproportionally high compared to other countries with similar levels of health care. Indications for transfusing plasma are very limited, and as a result, published studies often show unjustifiable use of plasma. According to the National Heart Lung and Blood Institute, plasma should be administered only to increase the level of clotting factors in patients with a demonstrated deficiency. If the prothrombin time (PT) and partial thromboplastin time (PTT) are < 1.5 times normal, a plasma transfusion is rarely needed. However, plasma is frequently transfused to patients with mild-to moderate elevations in PT despite numerous studies that have not shown a correlation between the risk of bleeding and mild-to moderate test results. In a study by Wahab et al, transfusion of plasma for mild abnormalities of coagulation values resulted in a partial normalization in a minority of patients, and failed to correct the PT in 99% of the patients. In a 2004 study by Hui, the need to correct prolonged international normalized ratios (INRs) for patients on warfarin emerged as the primary indication for plasma followed by massive transfusions.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of plasma units with pre-transfusion PT/INR result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for Plasma*
- *Plasma ID*
- *Pre-transfusion PT/INR Result*

Denominator Statement: Number of transfused plasma units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.6 or a plasma transfusion documented from Blood Bank Records
- The first three plasma units transfused from hospital arrival

Excluded Populations:

- Discharges with an ICD-9-CM Principal Diagnosis Code of trauma as defined in Appendix A, Table 9.7.

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Diagnosis Code*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received plasma.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Data from this measure may be used to review the type of invasive procedures or surgeries that use plasma in order to further evaluate appropriateness of use.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

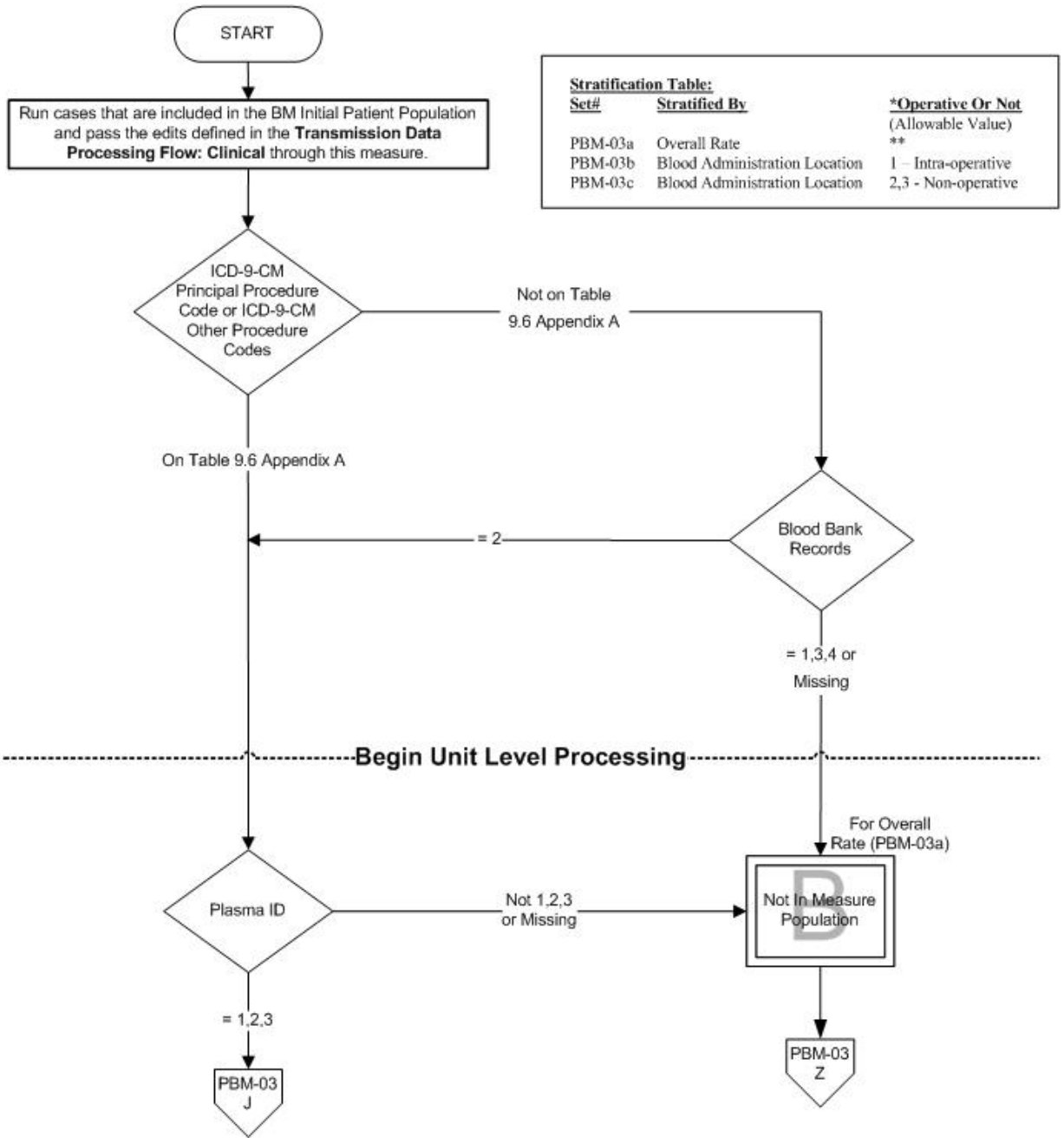
- Hui C, Williams I, Davis K. Clinical audit of the use of fresh-frozen plasma and platelets in a tertiary teaching hospital and the impact of a new transfusion request form. Int Med J. 2005;35:283-288.
- Wallis JP, Dzik S. Is fresh frozen plasma overtransfused in the United States? Transfusion. 2004;44:1674-75.
- Ardel-Wahab OI, Healy B, Dzik WH. Effect of fresh-frozen plasma transfusion on prothrombin time and bleeding in patients with mild coagulation abnormalities. Transfusion. 2006;46:1479-1285.
- Segal J, Dzik WH; Transfusion Medicine/Hemostasis Clinical Trials Network. Paucity of studies to support that abnormal coagulation test results predict bleeding in the setting of invasive procedures: an evidenced-based review. Transfusion. 2005;45:1413-25.

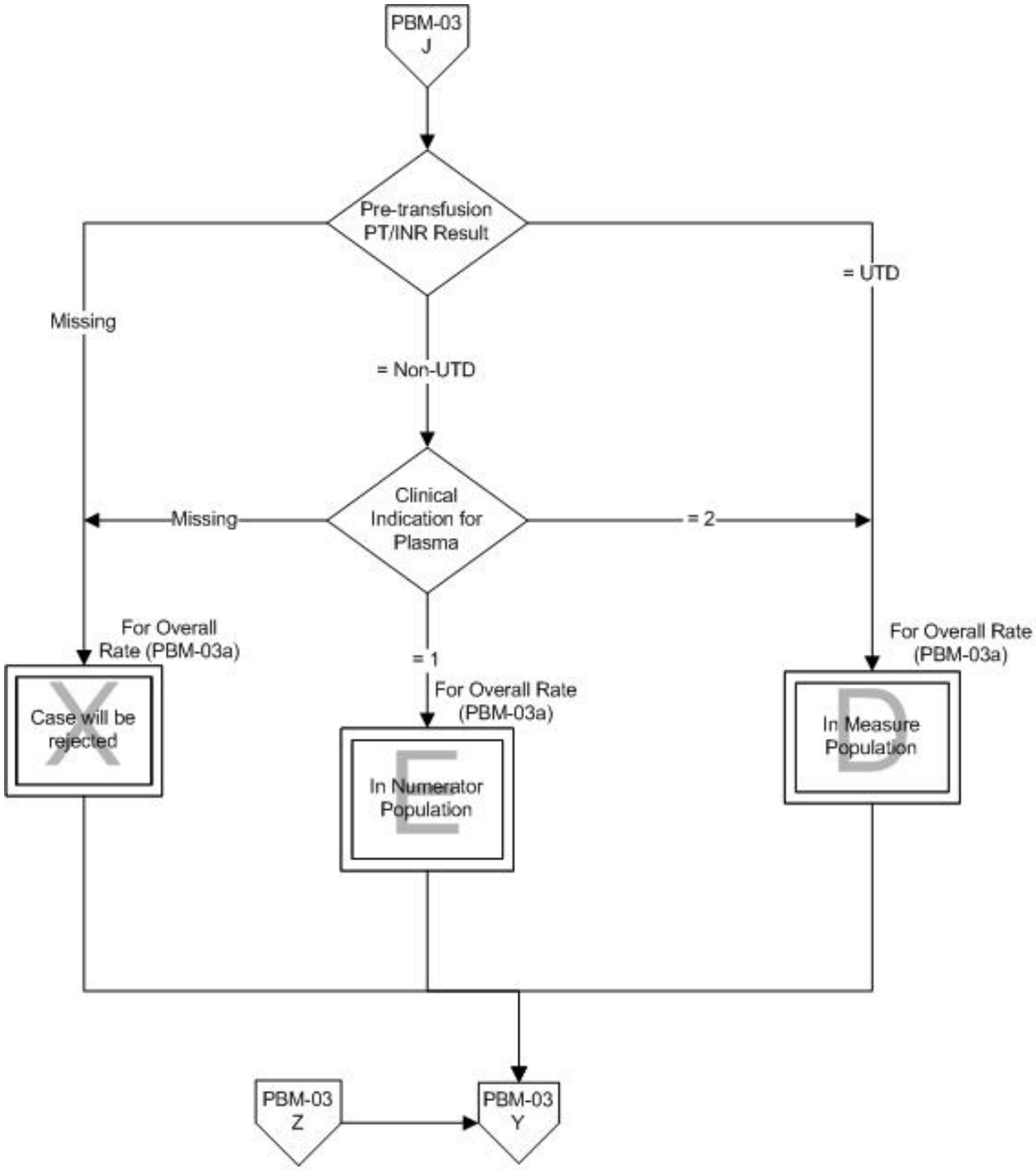
Measure Algorithm:

PBM–03: Plasma Transfusion Indication

Numerator: Number of plasma units with pre-transfusion PT/INR result and clinical indication documented

Denominator: Number of transfused plasma units evaluated





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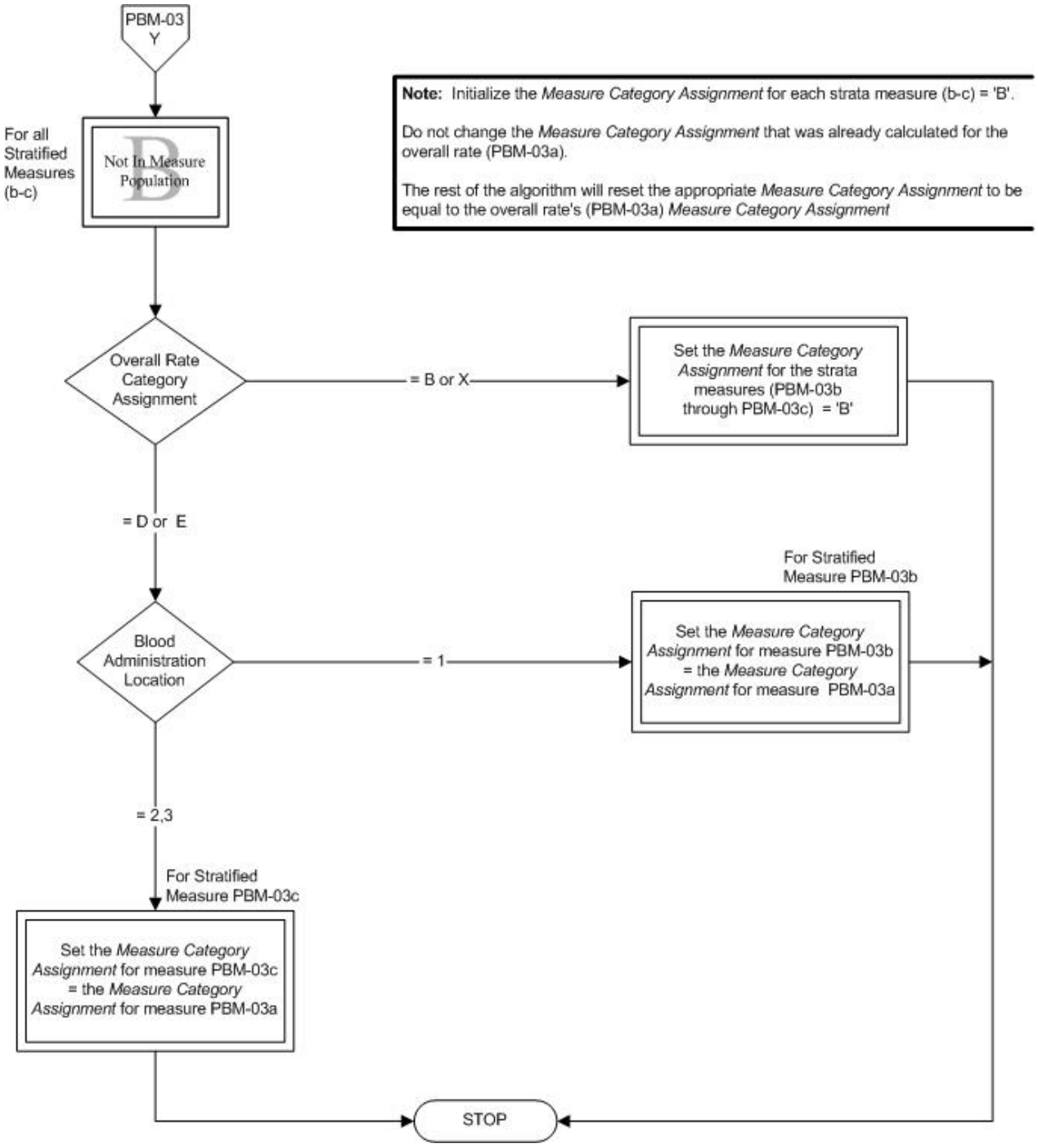


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-04

Performance Measure Name: Platelet Transfusion Indication

Description: The number of transfused platelet units with pre-transfusion platelet count and clinical indication documented from patients of all ages who received platelets.

Rationale: Platelets are transfused to treat or prevent bleeding associated with thrombocytopenia and/or platelet dysfunction. Platelets given therapeutically should help stop the bleeding, and if given prophylactically, post transfusion platelet counts should be obtained to monitor the response to determine the effectiveness of the transfusion. Repeated platelet transfusions can cause alloimmunization and cause platelet refractoriness to future transfusions. Multiple infectious risks are associated with platelet transfusions so patients should only be exposed to the least amount needed.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of platelet units with pre-transfusion platelet count result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for Platelets*
- *Platelet ID*
- *Pre-transfusion Platelet Count*

Denominator Statement: Number of transfused platelet units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.5 or a platelet transfusion documented from Blood Bank Records
- The first three platelet units transfused after hospital arrival

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Blood Administration Location*
- *Blood Bank Records*

- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received platelets.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Data from this measure may be used to evaluate the utilization and approriateness of platelets used by an organization.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

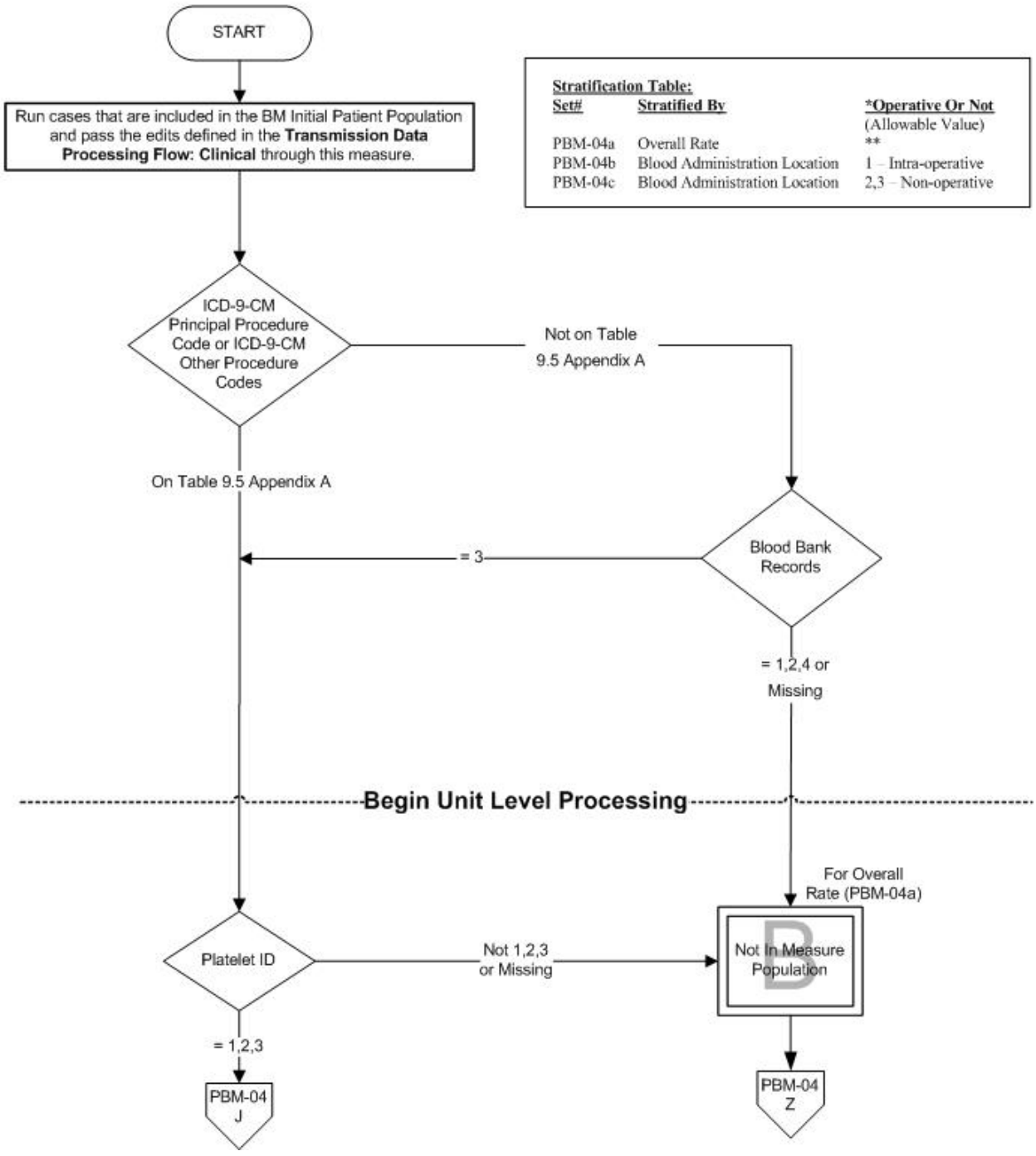
- Garrioch M, Sandbach J, Pirie E, Morrison A, Todd A, Green R. Reducing red cell transfusion by audit, education and a new guideline in a large teaching hospital. Transfusion Med. 2004;14:25-31.
- Petrides M. Red cell transfusion “trigger”: A review. Southern Med J. 2003; 96:664-667.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- BR J Haematol 1998, 101:609 - 617.

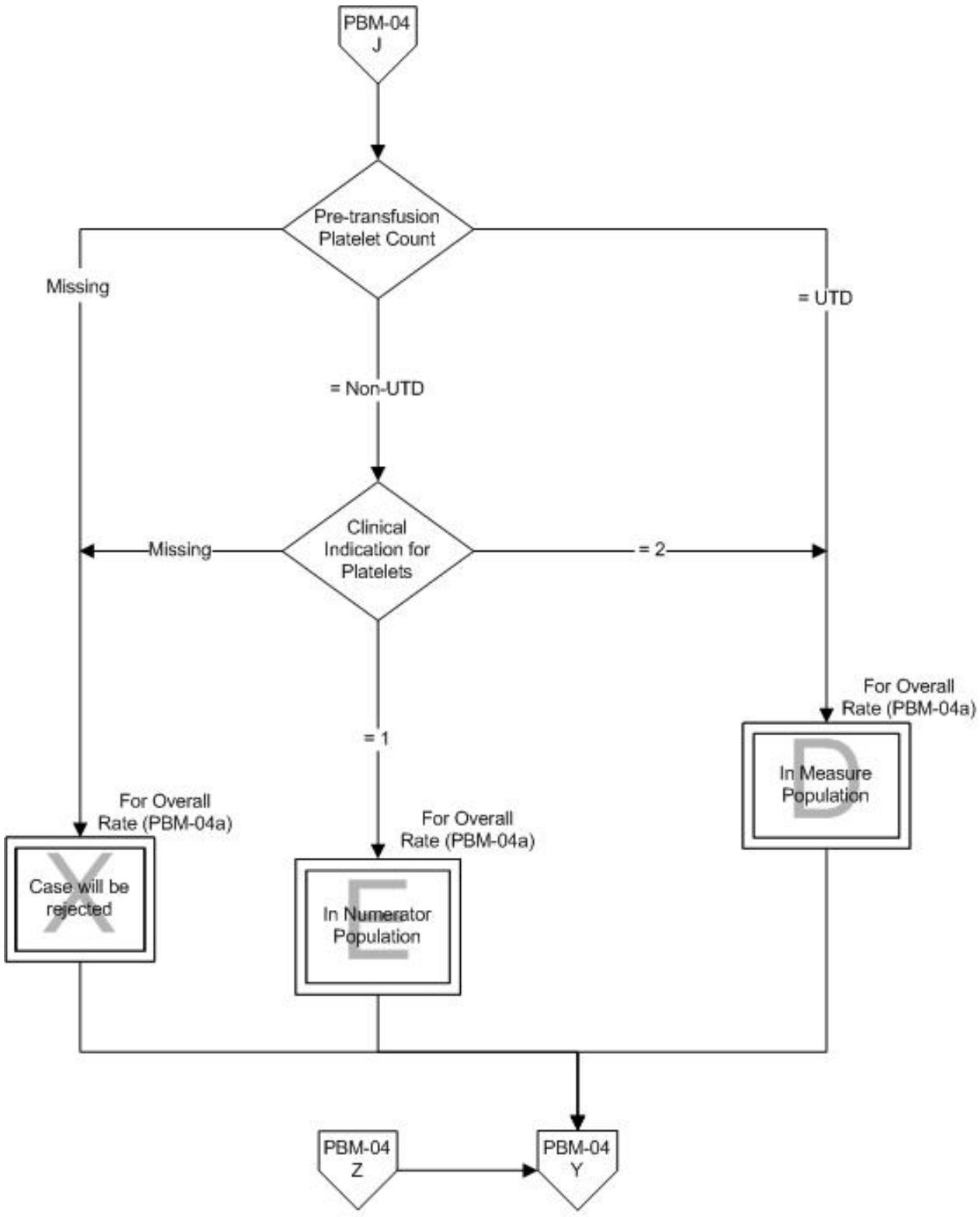
Measure Algorithm:

PBM–04: Platelet Transfusion Indication

Numerator: Number of platelet doses with pre-transfusion platelet count result and clinical indication documented

Denominator: Number of transfused platelet units evaluated





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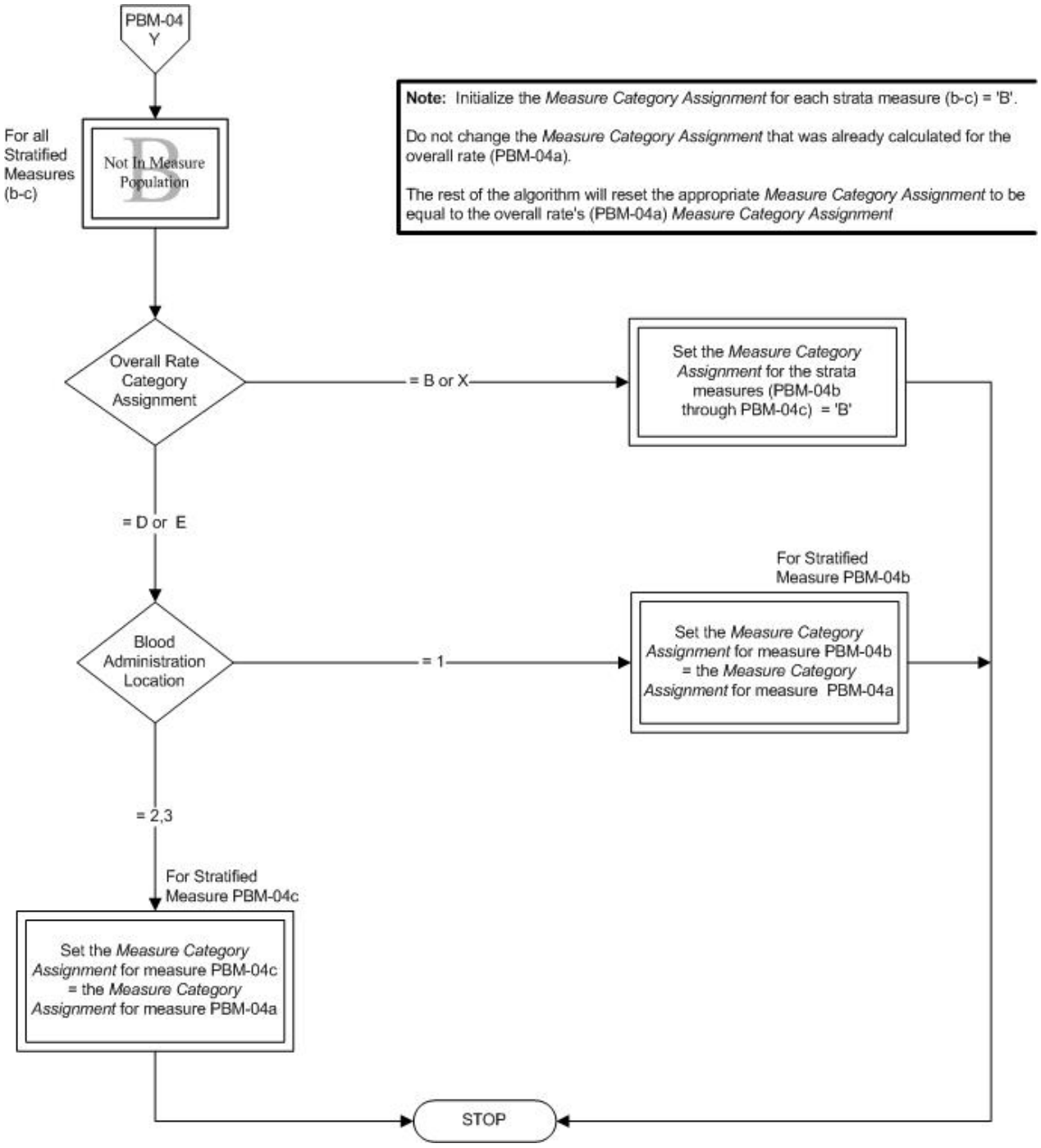


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-05

Performance Measure Name: Blood Administration Documentation

Description: The number of transfused red blood cells, plasma or platelet transfusion units/doses (bags) that had documentation of the following: patient identification and an order to transfuse (Blood ID Number) confirmed prior to the initiation of transfusion, transfusion start date and time, and blood pressure, pulse and temperature recorded at specific intervals.

Rationale: Since the majority of blood units are transfused in hospitals, specific policies and procedures have been developed by each hospital to address documentation of blood administration standards in accordance with their state and federal regulations. Though documentation components vary among organizations, identification of the patient and confirmation of the order to transfuse are common indicators used for all blood products since incomplete patient identification could result in an adverse outcome. Prior to administering blood or blood products, patient identification by two identifiers is required by numerous organizations including the AABB Standard 5.19.3, and the Joint Commission National Patient Safety Goal (NPSG) 1. In addition, numerous organizations require or advise that the licensed staff confirm that there is a transfusion order as directed by the AABB Standard 5.19.6 and the elements of performance for the Joint Commission NPSG.01.01.01.

Patient monitoring during the transfusion is an important component related to patient safety. The first 10 to 15 minutes of the transfusion are considered the most critical to assess for a potential transfusion reaction and close observation during this time is recommended in the AABB Primer. Monitoring of vital signs at baseline, during and at the completion of the transfusion in addition to observation are used to assess the patient's condition for any changes.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of units/doses (bags) with documentation for all of the following:

- patient identification and transfusion order (Blood ID Number) confirmed prior to the initiation of transfusion
- transfusion start date and time
- blood pressure, pulse and temperature recorded pre, during and post transfusion

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Blood ID Number*
- *Patient ID Verification*
- *Plasma ID*

- *Platelet ID*
- *RBC ID*
- *Transfusion Order*
- *Transfusion Start Date*
- *Transfusion Start Time*
- *Vital Sign Monitoring*

Denominator Statement: Number of transfused red blood cells, plasma or platelet units/doses (bags) evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.3-9.6 or a transfusion documented from Blood Bank Records

Excluded Populations:

- Units used in massive transfusion protocols
- Uncrossmatched units
- Units used to prime equipment

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*
- *RBC Unit Exclusions*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: The data from this measure may be used to evaluate the adherence to organizational policies and procedures for blood administration for each of the blood products. Data could be evaluated by unit or service in order to identify areas for staff education. The data could also be used during accreditation surveys to document the hospital's efforts to improve the accuracy of patient identification when administering blood related to the Joint Commission National Patient Safety Goal #1.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

- Whitsett CF, Robichaux MG. Assessment of blood administration procedures: problems identified by direct observation and administrative incident reporting. Transfusion. 2001;41:581-86.
- Saxena S, Ramer L, Shulman IA. A comprehensive assessment program to improve blood-administering practices using the FOCUS-PDCA model. Transfusion. 2004; 44:1350-56.
- Novis DA, Miller KA, Howanitz PJ, Renner SW, Walsh MK; College of American Pathologists. Audit of transfusion procedures in 660 hospitals. A College of American Pathologists Q–Probes study of patient identification and vital sign monitoring frequencies in 16494 transfusions. Arch Pathol Lab Med. 2003;127:541-8.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009.
- The Joint Commission, “National Patient Safety Goals (NPSG)”, IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.
- AABB Primer of Blood Administration. Revised August 2008. Bethseda, Maryland. [Available at http://www.aabb.org/Content/Professional_Development/Education_and_Training_Material/edtr (accessed November 2009).]

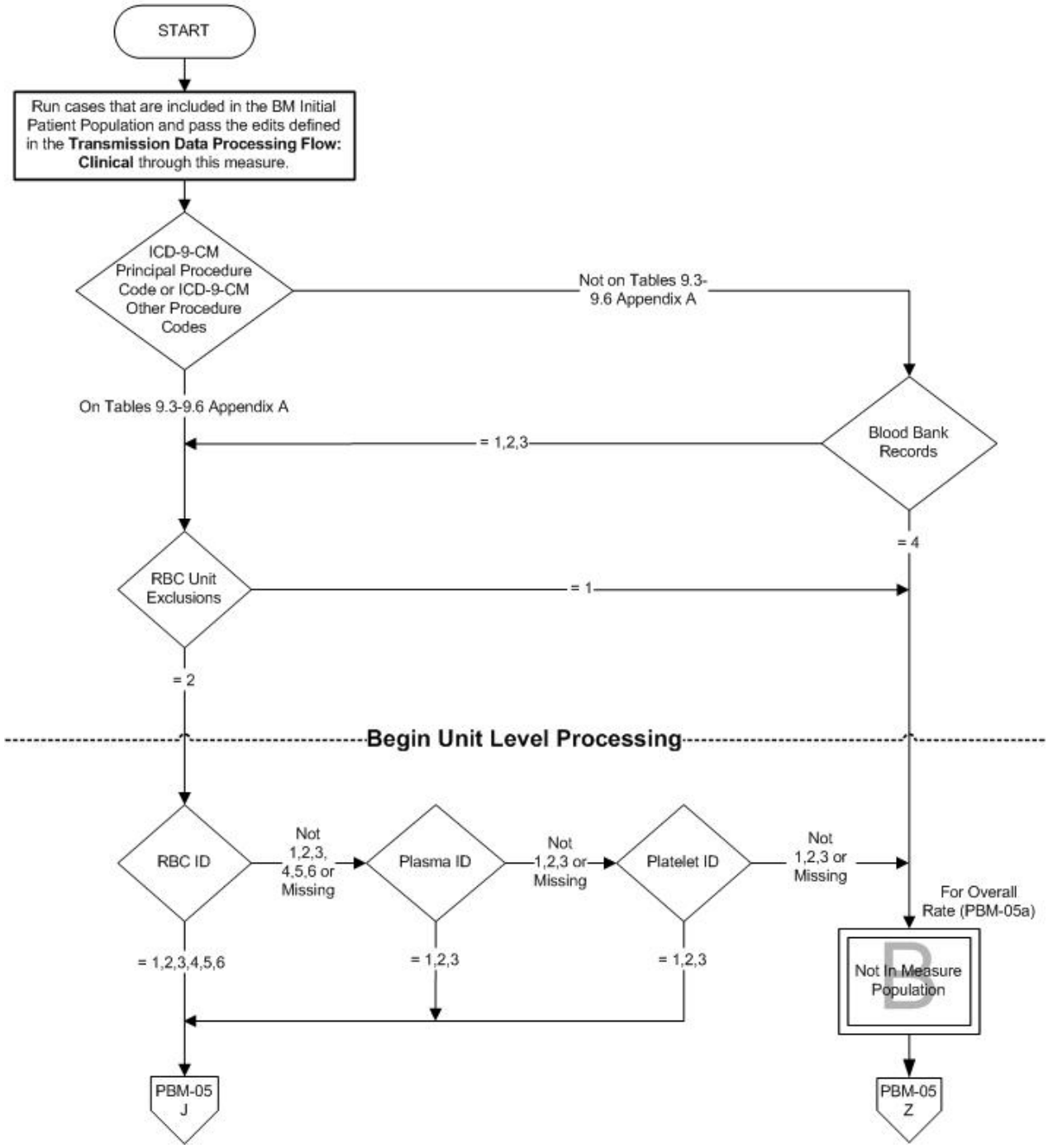
Measure Algorithm:

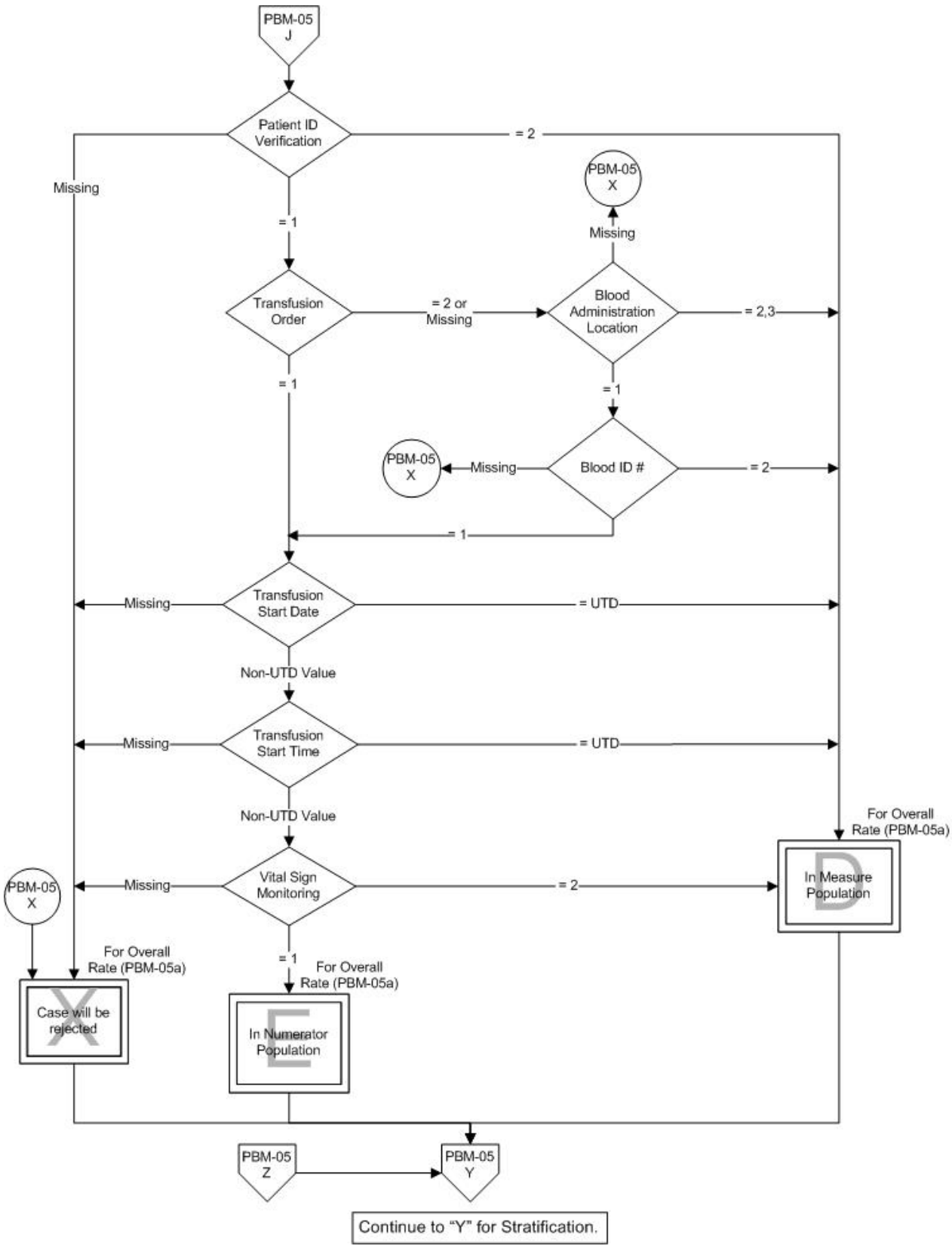
PBM–05: Blood Administration Documentation

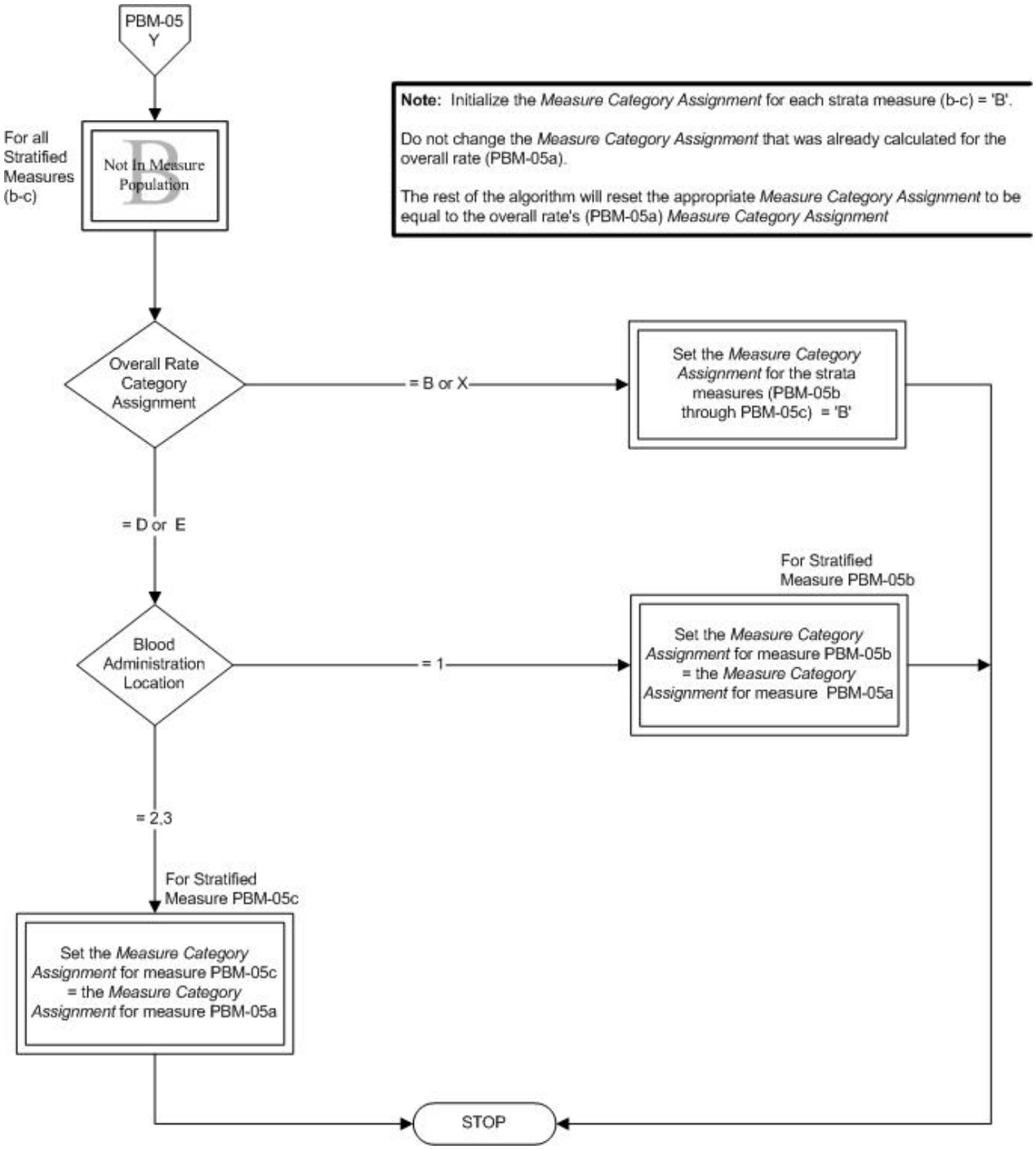
Numerator: Number of blood transfusion units (bags) or doses with documentation for all of the following:

- patient identification (ID) and transfusion order (blood ID number) confirmed prior to the initiation of blood
- date and time of transfusion
- blood pressure, pulse and temperature recorded pre, during and post transfusion

Denominator: Number of transfused red blood cells, plasma and platelet units (bags) or doses evaluated




PBM-05 J
Patient ID Verification
= 2
Missing
PBM-05 X
= 1
Missing
Transfusion Order
= 2 or Missing
Blood Administration Location
= 2,3
= 1
= 1
PBM-05 X
Missing
Blood ID #
= 2
= 1
Transfusion Start Date
Missing
= UTD
Non-UTD Value
Transfusion Start Time
Missing
= UTD
Non-UTD Value
For Overall Rate (PBM-05a)
PBM-05 X
Vital Sign Monitoring
Missing
= 2
In Measure Population
D
For Overall Rate (PBM-05a)
= 1
For Overall Rate (PBM-05a)
Case will be rejected
X
In Numerator Population
E
PBM-05 Z
PBM-05 Y
Continue to "Y" for Stratification.



Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-06

Performance Measure Name: Preoperative Anemia Screening

Description: Selected elective orthopedic, cardiac and hysterectomy surgical patients with documentation of preoperative anemia screening date 14 – 45 days before surgery start date for procedures scheduled 14 or more days before surgery.

Rationale: Development of formal protocols for preoperative testing of hemoglobin (hgb) for potential high-blood loss elective surgeries could be used to identify and intervene for optimal management of blood resources. Preoperative anemia often goes unrecognized and untreated unless tests are ordered in advance of a planned surgery. Early recognition of anemia offers patients an opportunity to receive the most appropriate transfusion-sparing strategy, and avoid the risk of a potential transfusion. Researchers have shown that preoperative hgb and hematocrit can be used as predictors of outcome for specific types of patients such as cardiac artery bypass graft or orthopedic surgery. In a study by Salido, orthopedic patients with a preoperative hemoglobin <13 g/dL had four times the risk of transfusion than those with a hemoglobin level between 13 g/dL and 15 g/dL.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with preoperative anemia screening 14 - 45 days before Anesthesia Start Date

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Preoperative Anemia Screening Date*

Denominator Statement: Selected elective surgical patients

Included Populations:

- Discharges with an ICD-9-CM Principal Procedure Codes of selected surgeries as defined in Appendix A, Tables 2.2, 5.01, 5.02, 5.08, 5.11, 5.22, 5.23, 9.1 or 9.2.

Excluded Populations:

- Patients less than 18 years of age
- Patients with surgery scheduled less than 14 days before Anesthesia Start Date
- Patients not admitted from home

Data Elements:

- *Admission Date*
- *Admission From Home*
- *Birthdate*
- *Discharge Date*
- *ICD-9-CM Principal Procedure Code*
- *ICD-9-CM Principal Procedure Date*
- *Surgery Scheduled Timeframe*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: These data may be used to evaluate specific patient groups at high risk for a blood transfusion that did not have their pre-operative hemoglobin and/or transfusion testing completed and/or documented prior to surgery. The data could be further analyzed based on physician or type of procedure. Patients who are not included in the numerator could be tracked to see if there were any adverse outcomes due to the lack of preoperative anemia screening.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References: * Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.

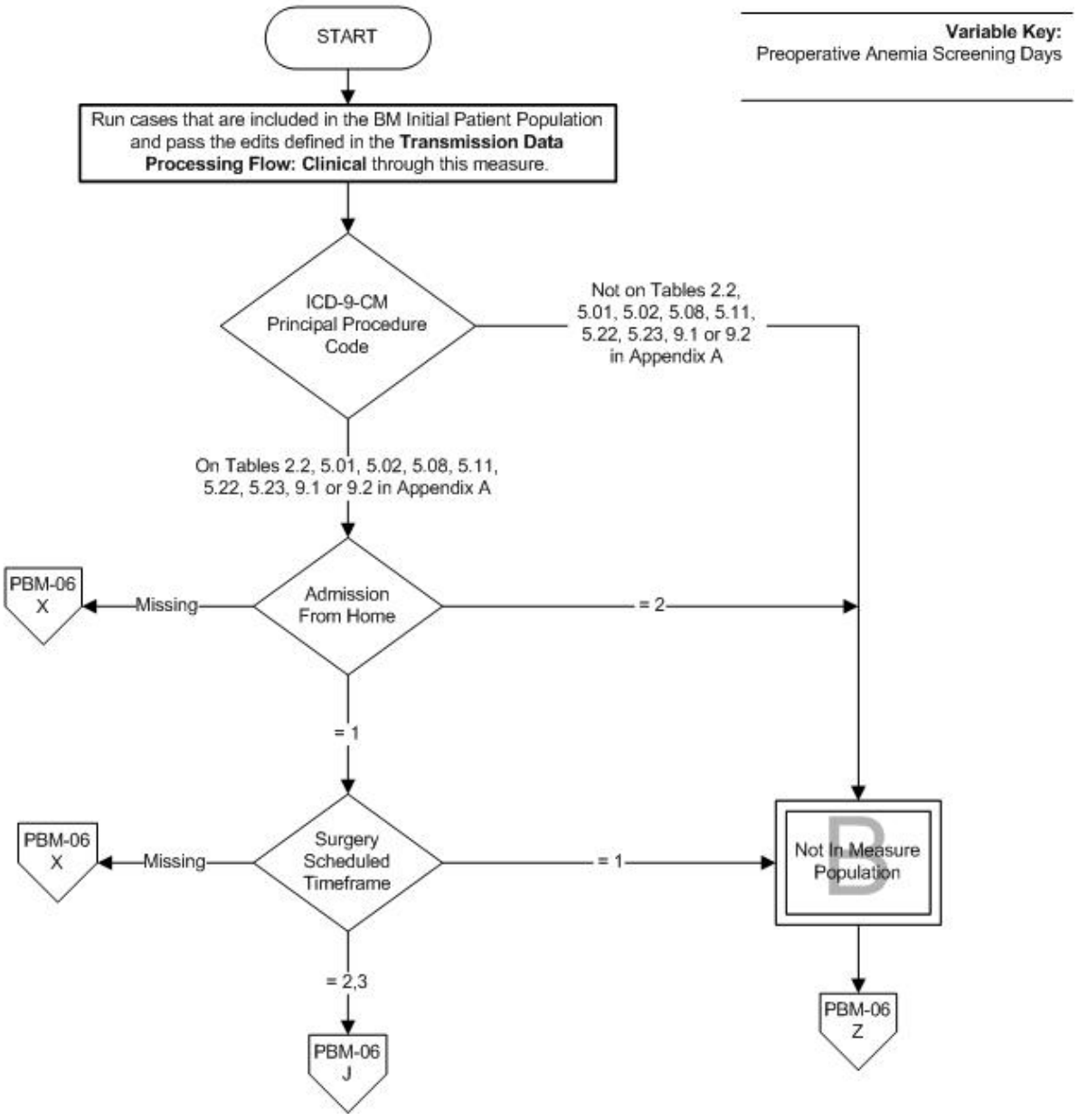
- Salido JA, Martin LA, Gomez LA, et al. Preoperative hemoglobin levels and the need for transfusion after prosthetic hip and knee surgery; analysis of predictive factors. J Bone Joint Surg. 2002;84: 216-20.
- Rady MY, Ryan T, Starr NJ. Perioperative determinants of morbidity and mortality in elderly patients undergoing cardiac surgery. Crit Care Med. 1998;26: 225-235.
- Magovern JA, Sakert T, Magovern GJ et al. A model that predicts morbidity and mortality after coronary artery bypass graft surgery. J Am Coll Cardiol. 1996;28: 1147-1153.
- Campbell DA, Henderson WG, Englesbe, MJ, Hall BL, O'Reilly M, Bratzler D et al. Surgical site infection prevention: the importance of operative duration and blood transfusion-results of the first american college of surgeons –national surgical quality improvement program best practices initiative. J AM Coll Surg 2008;207:810-820.

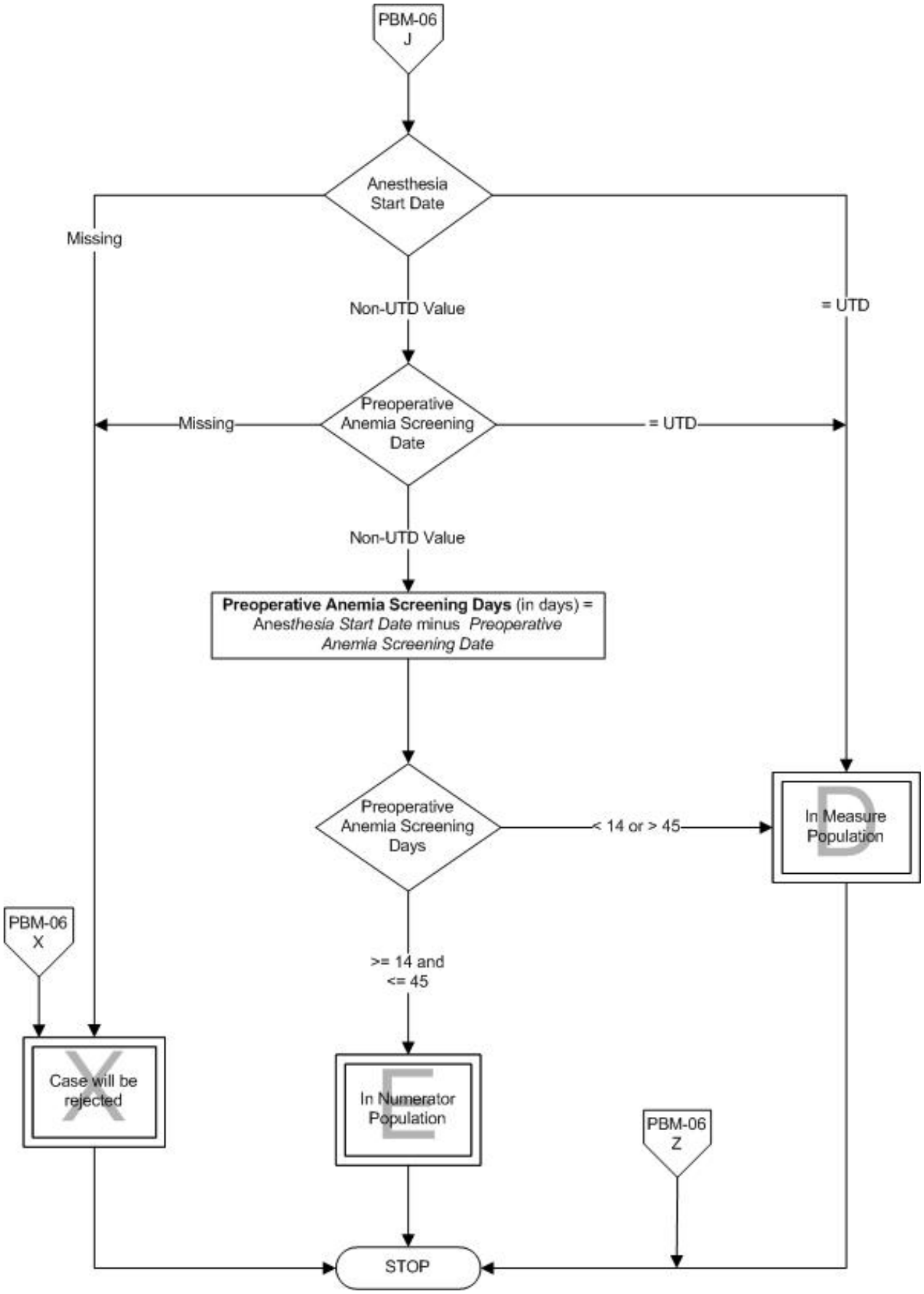
Measure Algorithm:

PBM–06: Preoperative Anemia Screening

Numerator: Patients with documentation of preoperative anemia screening 14 - 45 days before Anesthesia Start Date

Denominator: Selected elective surgical patients





Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-07

Performance Measure Name: Preoperative Blood Type Testing and Antibody Screening

Description: Selected elective orthopedic, cardiac and hysterectomy surgical patients who had preoperative blood type testing and antibody screening (type and screen or type and crossmatch) completed prior to surgery start time if ordered preoperatively.

Rationale: Hospitals need to ensure that sufficient compatible blood is available for each scheduled procedure. Since about 3% of specimens have a serologic finding that requires further investigation that may cause a delay in the availability of the blood, patient screening of ABO group and Rh type should be collected in sufficient time to complete all pretransfusion testing before surgery begins. According to the Joint Commission's Pre-publication National Patient Safety Goal UP.01.01.01 for 2010, a preprocedure verification process should be conducted to identify items that must be available for the procedure and use a standardized list to verify their availability. Documentation of any required blood products for the procedure is required. Development of formal protocols to ensure that patients have blood testing completed prior to surgery start time for potential high-blood loss elective surgeries may optimize management of blood resources and maximize patient safety.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with preoperative type and crossmatch or type and screen completed prior to surgery start time

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Preoperative Blood Type Testing*

Denominator Statement: Selected elective surgical patients

Included Populations:

- Discharges with an ICD-9-CM Principal Procedure Code of selected surgeries as defined in Appendix A, Tables 2.2, 5.01, 5.02, 5.08, 5.11, 5.22, 5.23, 9.1 or 9.2.

Excluded Populations:

- Patients less than 18 years of age
- Patients with type and screen or type and crossmatch ordered preoperatively

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Type Testing Ordered*
- *Discharge Date*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data collection sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: These data may be used to evaluate specific patient groups at high risk for a blood transfusion that did not have pre-operative transfusion testing completed and/or documented prior to surgery start time. The data could be further analyzed based on physician or type of procedure. Patients who are not included in the numerator could be tracked to see if there were any adverse outcomes due to the lack of preoperative testing.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References: * Saxena S, Nelson JM, Osby M, Shah M, Kempf R, Shulman IA. Ensuring timely completion of type and screen testing and the verification of ABO/Rh status for elective surgical patients. Arch Pathol Lab Med. 2007;131:576-81.

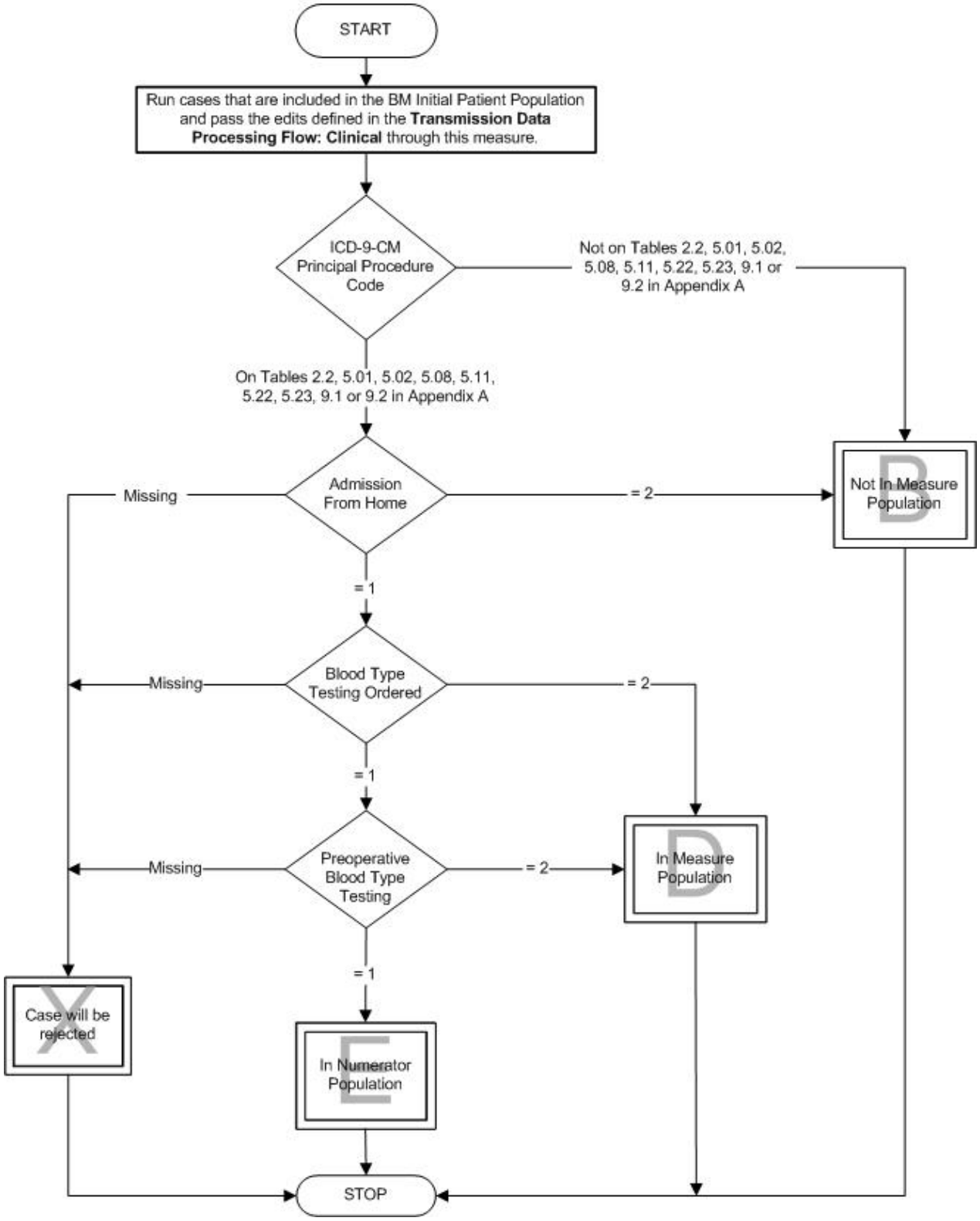
- Friedberg RC, Jones BA, Walsh MK. Type and screen completion for scheduled surgical procedures. A College of American Pathologists Q-Probes study of 8941 type and screen tests in 108 institutions. Arch Pathol Lab Med. 2003;127:533-40.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- Magovern JA, Sakert T, Magovern GJ et al. A model that predicts morbidity and mortality after coronary artery bypass graft surgery. J Am Coll Cardiol. 1996;28: 1147-1153.
- The Joint Commission 2010 National Patient Safety Goals, Oakbrook Terrace, IL [Available at http://www.jointcommission.org/NR/rdonlyres/868C9E07-037F-433D-8858-0D5FAA4322F2/0/RevisedChapter_HAP_NPSG_20090924.pdf (accessed January 27, 2010).]

Measure Algorithm:

PBM–07: Preoperative Blood Type Testing and Antibody Screening

Numerator: Patients with documentation of preoperative type and crossmatch or type and screen completed prior to Anesthesia Start Time

Denominator: Selected elective surgical patients



Related Topics

Data Element Name: *Admission From Home*

Collected For: PBM-06,

Definition: Patient was admitted for the pre-scheduled elective surgery procedure from home.

Suggested Data Collection Question: Was the patient admitted from home?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 Patient was admitted from home.

2 Patient was not admitted from home or unable to determine from medical record documentation.

Notes for Abstraction:

- Patients who have to stay overnight at a location other than their primary residence due to long distance travel for procedure are considered admitted from home.

Suggested Data Sources:

- Face sheet
- Nursing admission assessment
- Physician's notes
- Preop checklist

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Anesthesia Start Date*
Collected For:	PBM-06,
Definition:	The date the anesthesia for the procedure started.
Suggested Data Collection Question:	On what date did the anesthesia for the procedure start?
Format:	**Length:** 10 – MM-DD-YYYY (includes dashes) **Type:** Date **Occurs:** 1
Allowable Values:	MM-DD-YYYY MM = Month (01-12) DD = Day (01-31) YYYY = Year (2001-Current Year) Leave Blank if Unable to Determine
Notes for Abstraction:	If the Anesthesia Start Date cannot be determined from medical record documentation, enter UTD. When the date documented is obviously invalid (not a valid format/range [12-39-20xx] or after the Discharge Date or Anesthesia End Date) and no other documentation can be found that provides the correct information, the abstractor should select "UTD." Example: Patient expires on 02-12-20xx and documentation indicates the Anesthesia Start Date was 03-12-20xx. Other documentation in the medical record supports the date of death as being accurate, but no other documentation of the Anesthesia Start Date can be found. Since the Anesthesia Start Date is outside of the parameter for care (after the Discharge Date [death]) and no other documentation is found, the abstractor should leave blank. If the Anesthesia Start Date is incorrect (in error) but it is a valid date and the correct date can be supported with other documentation in the medical record, the correct date may be entered. If supporting documentation of the correct date cannot be found, the medical record must be abstracted as documented or at "face value." Examples: The anesthesia form is dated 12-10-2007, but other documentation in the medical record supports that the correct date was 12-10-2009. Enter the correct date of 12-10-2009 as the Anesthesia Start Date. An Anesthesia End Date of 11-20-20xx is documented but the Anesthesia Start Date is documented as 11-10-20xx. If no other documentation can be found to support another Anesthesia Start Date, then it must be abstracted as 11-10-20xx because the date is not considered invalid or outside the parameter of care.

Suggested Data Sources:

Other Suggested Sources:

- Intraoperative record
- Circulator record
- Post-anesthesia evaluation record
- Operating room notes

Additional Notes:

Suggested Data Sources:

Note: The anesthesia record is the priority data source for this data element, if a valid Anesthesia Start Date is found on the anesthesia record, use that date. If a valid date is not on the anesthesia record, other suggested data sources may be used in no particular order to determine the Anesthesia Start Date.

Priority Source:

- Anesthesia record

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Blood Administration Location*
Collected For:	PBM-02, PBM-03, PBM-04, PBM-05,
Definition:	The hospital setting (intraoperative or non-intraoperative) where the blood product began infusing.
Suggested Data Collection Question:	In what setting did the blood product begin infusing?
Format:	**Length:** 1 **Type:** Alphanumeric **Occurs:** 1-12

Allowable Values:

1 Intraoperative setting

2 Non-introperative setting

3 Unable to determine

Notes for Abstraction:

- Select setting for each unit transfused based on the physical location of the patient.
- Intraoperative setting is anytime during the operation.
- Non-intraoperative setting is any area outside of the operating room. For example, setting such as the intensive care unit, surgical floor or emergency room.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Nursing notes
- Nursing flow sheet
- Nursing admission assessment
- Progress notes
- Physician's notes
- Operative notes
- Operating room notes
- Operative report
- Procedure notes
- ICU notes
- PACU/recovery room record

Blood Administration Documentation Sheet

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Blood Bank Records*

Collected For: PBM-01, PBM-02, PBM-03, PBM-04, PBM-05,

Definition: Documentation that the patient received red blood cells (RBCs), plasma or platelets after hospital arrival.

Suggested Data Collection Question: Was there documentation that the patient received RBCs, plasma or platelets after hospital arrival?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1-12

Allowable Values:

Select all that apply: 1 RBCs

2 Plasma

3 Platelets

4 None of the above or unable to determine from medical record documentation

Notes for Abstraction:

- Include transfusions given in the emergency room or observation area.

Suggested Data Sources: Blood Bank Records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name: *Blood ID Number*

Collected For: PBM-05,

Definition: Documentation of the actual blood bank identification number in the intraoperative record for the unit that was transfused.

Suggested Data Collection Question: Was there documentation of a blood bank identification number for the unit or dose of blood transfused during surgery?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 There is documentation of a blood bank identification number for the unit that was transfused.

2 There is no documentation of a blood bank identification number for the unit that was transfused or unable to determine from medical record documentation.

Notes for Abstraction:

Suggested Data Sources:

- Anesthesia record
- Operative report

Blood administration record

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Blood Type Testing Ordered*

Collected For: PBM-07,

Definition: A type and screen and/or type and crossmatch was ordered preoperatively for the elective surgery.

Suggested Data Collection Question: Was a type and screen and/or type and crossmatch ordered preoperatively?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 A type and screen and/or type and crossmatch was ordered preoperatively.

2 A type and screen and/or type and crossmatch was not ordered preoperatively or unable to determine

Notes for Abstraction:

Suggested Data Sources:

- Physician orders
- Preop checklist

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for Plasma*

Collected For: PBM-03,

Definition: Documentation by the physician/advance practice nurse/physician assistant or (physician/APN/PA) of the clinical indication for the plasma transfusion unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused plasma unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused plasma unit.

2 There was no documentation of a clinical indication for the transfusion or unable to determine from the medical record.

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first four plasma transfusion units closest to hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING BLOOD:

- Anesthesia record
- Consultation notes
- Emergency department record
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for Platelets*

Collected For: PBM-04,

Definition: Documentation by the physician/advance practice nurse/physician assistant (physician/APN/PA) of the clinical indication for the transfused platelet unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused platelet unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused platelet unit.

2 There was no documentation of clinical indication for the platelet transfusion or unable to determine from the medical record

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first three units transfused after hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING PLASMA:

- Anesthesia record
- Consultation notes
- Emergency department record
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for RBCs*

Collected For: PBM-02,

Definition: Documentation by the physician/advance practice nurse/physician assistant (physician/APN/PA) of the clinical indication for the tranfused red blood cell (RBCs) unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused RBC unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 6

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused RBC unit.

2 There was no clinical indication documented by the physician/APN/PA for the transfused RBC unit or unable to determine from medical record documentation.

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first six RBC transfusion units after hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING RBCs:

- Anesthesia record
- Consultation notes
- Emergency department record
- Operative notes
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Education Addressed Risks, Benefits and Alternatives to Transfusion*
Collected For:	PBM-01,
Definition:	Documentation that information addressing risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion or the initial transfusion was deemed a medical emergency after hospital arrival.
Suggested Data Collection Question:	Was there documentation that information regarding risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion event or was the initial transfusion deemed a medical emergency after hospital arrival?
Format:	**Length:** 1 **Type:** Numeric **Occurs:** 1

Allowable Values:

1 Information addressing the risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion after hospital arrival.

2 Information addressing the risks, benefits and alternatives to transfusion was not given to the patient/caregiver prior to the initial transfusion after hospital arrival or unable to determine from medical record documentation.

Notes for Abstraction:

- Use only documentation provided in the medical record.
- If the patient refused information about risks, benefits and alternatives to transfusion, select “1.”
- The caregiver is defined as the patient’s family or any other person (e.g., guardian) who will be responsible for care of the patient.

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Nursing notes
- Progress notes
- Operative notes
- Admission forms
- Consent form
- Emergency department record
- Progress notes
- Nursing notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Patient ID Verification*

Collected For: PBM-05,

Definition: Documentation that two unique patient identifiers were checked during a two-person verification process (or the use of automated identification technology may be used in place of one of the individuals) prior to the administration of the transfusion unit/dose (bag).

Suggested Data Collection Question: Was there documentation that two unique patient identifiers were checked or automated identification was used in place of one person during the verification process prior to the administration of the blood transfusion unit/dose (bag)?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 12

Allowable Values:

1 There was documentation that two unique patient identifiers were checked during the two person verification process or an automated identification system was used in place of one of the individuals prior to the administration of the transfusion unit/dose (bag).

2 There was no documentation that two unique patient identifiers or automated identification were used during the two-person identification check prior to the administration of the transfusion unit/dose (bag) or unable to determine from medical record documentation.

Notes for Abstraction:

- *Patient ID Verification* must be associated with the blood product and RBC ID that was selected for abstraction.
- *Patient ID Verification* can be documented by the signature of two persons that attest that two unique patient identifiers were checked to verify the identification of the patient prior to the transfusion or the signature of one person and an automated identification device.
- Patient identifiers that could be used include; name, date of birth, patient identification number or unique identifier given at the time the crossmatch was drawn.
- The patient room number should not be used to identify the patient.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Nursing notes
- Progress notes
- Physician's notes
- Operative notes
- Operative report
- Procedure notes
- PACU/recovery room record

- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Plasma ID*

Collected For: PBM-03, PBM-05,

Definition: The number assigned to designate whether the plasma unit was the first, second or third unit transfused after hospital arrival.

Suggested Data Collection Question: What number was assigned to the plasma unit selected for abstraction?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 First Plasma Unit

2 Second Plasma Unit

3 Third Plasma Unit

Notes for Abstraction:

- The abstractor assigns a plasma identification (ID) number for each unit evaluated.
- Each allowable value is only used one time and is determined by the order in which it was administered.
- Abstract up to three plasma transfusion units per patient.
- Include plasma transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Platelet ID*

Collected For: PBM-04, PBM-05,

Definition: The number assigned to designate whether the platelet unit was the first, second or third unit that was transfused after hospital arrival.

Suggested Data Collection Question: What number was assigned to the platelet unit selected for abstraction?

Format:

Length: 2
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 First Platelet Unit

2 Second Platelet Unit

3 Third Platelet Unit

Notes for Abstraction:

- The abstractor assigns a platelet identification (ID) number for each unit evaluated.
- Each allowable value is only used one time and is determined by the order in which it was administered.
- Abstract up to three platelet units per patient
- Include platelet transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Hematocrit*

Collected For: PBM-02,

Definition: Documentation of the closest hematocrit (hct) completed prior to the RBC transfusion.

Suggested Data Collection Question: What was documented as the closest pre-transfusion hct prior to the RBC transfusion?

Format:

Length: 4
Type: Alphanumeric
Occurs: 1 - 6

Allowable Values:

Enter the patient's closest hematocrit result (number only, reported in percent) performed prior to each RBC transfusion.

UTD = Unable to Determine

- For abstraction, select either the pre-transfusion hematocrit or the hemoglobin result; both are not required.
- Select the result associated with the RBC ID selected for abstraction.
- When recording the allowable value for hematocrit, input 23.00 if the patient's hematocrit is 23%.

Notes for Abstraction:

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Hemoglobin*

Collected For: PBM-02,

Definition: Documentation of the closest hemoglobin (hgb) completed prior to the RBC transfusion.

Suggested Data Collection Question: What was documented as the closest pre-transfusion hgb prior to the RBC transfusion?

Format:

Length: 4
Type: Alphanumeric
Occurs: 1 - 6

Allowable Values:

Enter the patient's closest hemoglobin result reported in g/dL performed prior to transfusion.

UTD = Unable to Determine

- For abstraction, select either the pre-transfusion hematocrit or the hemoglobin result; both are not required.
- Select the hemoglobin result that is associated with the RBC ID selected for abstraction.
- If the hemoglobin result is 9.9 g/dL, enter 9.9.

Notes for Abstraction:

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion PT/INR Result*

Collected For: PBM-03,

Definition: Documentation of PT/INR result completed prior to the plasma transfusion.

Suggested Data Collection Question: What was the PT/INR result completed prior to the plasma transfusion.

Format:

Length: 1 - 5
Type: Alphanumeric
Occurs: 1 - 3

Allowable Values:

Enter the closest PT/INR result to the plasma transfusion.

UTD = Unable to determine

Notes for Abstraction:

- Enter the PT/INR result that is associated with the plasma ID selected for abstaction.
- An allowable value should be entered with one decimal. For example, a PT/INR of 1.5 should be entered as written. INR values over 10 should be entered as 10.00.

Suggested Data Sources:

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Platelet Count*

Collected For: PBM-04,

Definition: Documentation of the closest platelet count completed prior to the platelet transfusion.

Suggested Data Collection Question: What was the closest platelet count documented prior to the platelet transfusion?

Format:

Length: 1 - 5
Type: Alphanumeric
Occurs: 1 - 3

Allowable Values:

Enter the patient's closest platelet count result, in 10^9/µL performed prior to the platelet transfusion selected for abstraction.

UTD = Unable to Determine

Note:

- Select the platelet count result that is associated with the Platelet ID selected for abstraction.
- An allowable value for a platelet count result should be entered as '11.00' for a platelet count of 11,000.

Notes for Abstraction:

Suggested Data Sources:

- Anesthesia record
- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Preoperative Anemia Screening Date*

Collected For: PBM-06,

Definition: The date that preoperative anemia screening or a hemoglobin (hgb)or hematocrit (hct) result was completed.

Suggested Data Collection Question: What date was preoperative anemia screening or a hgb or hct result completed?

Format:

Length: 10 - MM-DD-YYYY (includes dashes)
Type: Date
Occurs: 1

Allowable Values:

MM-DD-YYYY

MM = Month (01-12)
DD = Day (01-31)
YYYY = Year (2001-Current Year)
UTD

Notes for Abstraction:

- Select the *Preoperative Anemia Screening Date* associated with the elective surgical procedure selected for abstraction.*Preoperative Transfusion Testing*.
- The medical record must be abstracted as documented (taken at "face value"). When the date documented is obviously in error (not a valid date/format) and no other documentation is found that provides this information, the abstractor should select UTD.
- Example: Documentation indicates the Preoperative Anemia Screening Date was 03-42-2008. No other documentation in the medical record provides a valid date. Since the Preoperative Anemia Screening Date is outside of the range listed in the Allowable Values for "Day," it is not a valid date, and the abstractor should select UTD.

Suggested Data Sources:

- Nursing notes
- Progress notes
- Preop checklist
- Pre-arrival laboratory reports

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Preoperative Blood Type Testing*

Collected For: PBM-07,

Definition: Documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time.

Suggested Data Collection Question: Was there documentation of a type and screen or type and crossmatch completed prior to anesthesia start time?

Format:

Length: 1
Type: Numeric
Occurs: 1

Allowable Values:

1 There is documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time.

2 There is no documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time or unable to determine from medical record documentation.

Notes for Abstraction:

- If type and screen and type and crossmatch were completed prior to the surgical procedure, select “1”.
- Anesthesia Start Time is the same as surgery start time.

Suggested Data Sources:

- Consultation notes
- History and physical
- Progress notes
- Preop checklist
- Pre-arrival laboratory reports

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *RBC ID*

Collected For: PBM-02, PBM-05,

Definition: The number assigned to designate whether the RBC transfusion was the first through the sixth RBC transfusion unit that was transfused after hospital arrival.

Suggested Data Collection Question: What RBC unit was selected for abstraction?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 6

Allowable Values:

1 First RBC Unit

2 Second RBC Unit

3 Third RBC Unit

4 Fourth RBC Unit

5 Fifth RBC Unit

6 Sixth RBC Unit

Notes for Abstraction:

- The abstractor assigns a RBC identification (ID) number for each unit evaluated.
- Each allowable value is used only one time and is determined by the order in which it was administered.
- Abstract up to six RBC transfusion units per patient.
- Include RBC transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Operative report
- Medication administration record (MAR)
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion

None	None

Data Element Name:	*RBC Unit Exclusions*
Collected For:	PBM-02, PBM-05,
Definition:	Red blood cell (RBC) units that are excluded from abstraction. The following RBC units excluded from abstraction are; units used for a massive transfusion protocol or documentation of hemorrhagic shock, uncrossmatched units given during an emergency situation and units used to prime equipment for treatment.
Suggested Data Collection Question:	Was this unit transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment?
Format:	**Length:** 1 **Type:** Alphanumeric **Occurs:** 1-6

Allowable Values:

1. There was documentation that this unit was transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment

1. There was no documentation that this unit was transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment or unable to determine from medical record documentation.

Notes for Abstraction:

- If the initial six units transfused are excluded due to the exclusion criteria, abstract the next six units that were tranfused. If the patient only received RBC units that are excluded, then no RBC units should be abstracted.

Suggested Data Sources:

- Anesthesia record
- Circulation record
- Emergency department record
- Laboratory report
- Nursing notes
- Nursing flow sheet
- Progress notes
- Physician orders
- Physician’s notes
- Operative notes
- Operating room notes
- Operative report
- Procedure notes
- ICU notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Surgery Scheduled Timeframe*

Collected For: PBM-06,

Definition: The elective surgery was scheduled in less than 14 days from the planned surgery start date.

Suggested Data Collection Question: Was the elective surgery scheduled in less than 14 days from the planned surgery?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 There was documentation that the elective surgery was scheduled in less than 14 days from the planned surgery.

2 There was no documentation that the elective surgery was scheduled in less than 14 days from the planned surgery or unable to determine from medical record documentation.

Notes for Abstraction:

Suggested Data Sources:

- Preop checklist

Preoperative paperwork

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Transfusion Consent*

Collected For: PBM-01,

Definition: Documentation of a signed consent **prior** to the first transfusion of RBCs, platelets or plasma.

Suggested Data Collection Question: Was there documentation of a signed consent **prior** to the first blood transfusion?

Format:

Length: 1
Type: Numeric
Occurs: 1

Allowable Values:

1 There was documentation of a signed consent prior to the first blood transfusion.

2 The first blood transfusion was deemed a medical emergency.

3 There was no documentation of a blood transfusion consent prior to the first blood transfusion or unable to determine from medical record documentation.

Notes for Abstraction:

- The consent may be signed by the patient or caregiver.
- If organizations require a consent prior to every transfusion, then review the record for the first transfusion to answer this data element.
- For hospitals that use a general consent for treatment that includes transfusions, select “Yes”.
- If a patient receives chronic transfusions and a previous consent is acceptable for a defined timeframe within the institution, select “1” if the consent is valid.

Suggested Data Sources:

- Emergency department record
- History and physical
- Nursing notes
- Progress notes
- Operative notes
- Consent form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Transfusion Order*

Collected For: PBM-05,

Definition: An order to transfuse was written by the physician/advance practice nurse/physician assistant (physician/APN/PA) **prior** to the initiation of the transfusion.

Suggested Data Collection Question: Was there documentation of an order to transfuse **prior** to the transfusion?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 12

Allowable Values:

1 There was documentation of an order to transfuse prior to transfusion.

2 There was no documentation of an order to transfuse prior to transfusion or unable to determine from medical record documentation.

Notes for Abstraction:

- A verbal or telephone order that was written prior to the transfusion is acceptable.
- The Transfusion Order must be associated with the blood product unit ID that was selected for abstraction.
- Note: Transfusion Order may apply to more than one unit/dose (bag). For example: An order written to "Transfuse two doses of platelets" would apply to both bags that were administered.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE ORDER TO TRANSFUSE:

- Anesthesia record
- Consultation notes
- Emergency department record
- Operative notes
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Transfusion Start Date*
Collected For:	PBM-05,
Definition:	The date that the blood transfusion unit/dose (bag) was administered.
Suggested Data Collection Question:	What is the date that the blood transfusion unit/dose (bag) was administered?
Format:	**Length:** 10 – MM-DD-YYYY (includes dashes) **Type:** Date **Occurs:** 1 - 12
Allowable Values:	MM-DD-YYYY MM = Month (01-12) DD = Day (01-31) YYYY = Year (2001-Current Year) UTD
Notes for Abstraction:	• Abstract the Transfusion Date associated with the Transfusion Start Time of the unit/dose (bag) from the blood product ID selected for abstraction. • Some of the dates of the transfusion units may be the same date. Record a transfusion date for each unit abstracted up to three units for plasma or platelets or up to six units for RBCs. • The medical record must be abstracted as documented (taken at "face value"). When the date documented is obviously in error (not a valid date/format) and no other documentation is found that provides this information, the abstractor should select UTD. Example: Documentation indicates the Transfusion Start Date was 03-42-2008. No other documentation in the medical record provides a valid date. Since the Transfusion Start Date is outside of the range listed in the Allowable Values for "Day," it is not a valid date and the abstractor should select UTD.
Suggested Data Sources:	• Anesthesia record • Emergency department record • Nursing notes • Progress notes • Operative notes • Blood administration record
Additional Notes:	

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Transfusion Start Time*
Collected For:	PBM-05,
Definition:	The start time (military time) of the unit/dose (bag) of RBCs, plasma or platelets that was administered.
Suggested Data Collection Question:	What was the start time of the blood unit/dose (bag) administration?
Format:	**Length:** 5 - HH:MM (with or without colon) or UTD **Type:** Time **Occurs:** 1 - 12

Allowable Values:

Select the Transfusion Start Time associated with the Transfusion Start Date of the unit/dose (bag) from the associated blood product ID being abstracted.

HH = Hour (00-23)
MM = Minutes (00-59)
UTD = Unable to Determine

Notes for Abstraction:

Time must be recorded in military time format. With the exception of Midnight and Noon:

- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour

Examples:
Midnight - 00:00 Noon - 12:00
5:31 am - 05:31 5:31pm - 17:31
11:59 am - 11:59 11:59pm - 23:59

- For times that include “seconds,” remove the seconds and record the time as is. Example: 15:00:35 would be recorded as 15:00
- If more than one Transfusion Start Time is documented, use the earliest time documented.
- The medical record must be abstracted as documented (taken at “face value”). When the time documented is obviously in error (not a valid format/range) and no other documentation is found that provides this information, the abstractor should select “UTD.”
- Example: Documentation indicates the Transfusion Start Time was 3300. Since the Transfusion Start Time is outside of the range in the Allowable Values for “Hour,” it is not a valid time and the abstractor should select “UTD.”

Suggested Data Sources:

- Anesthesia record

- Emergency department record
- Nursing notes
- Operative notes
- Operative report
- Blood administration form

Additional Notes:

Select the Transfusion Start Time associated with the Transfusion Start Date of the unit/dose (bag) from the blood product ID identified for abstraction.

Time must be recorded in military time format.
With the exception of Midnight and Noon:

- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour.

The medical record must be abstracted as documented (taken at "face value"). When the time documented is obviously in error (not a valid format/range) and no other documentation is found that provides this information, the abstractor should select "UTD."

Example:
Documentation indicates the Transfusion Start Time was 3300. Since the Transfusion Start Time is outside of the range in the Allowable Values for "Hour," it is not a valid time and the abstractor should select "UTD."

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Vital Sign Monitoring*
Collected For:	PBM-05,
Definition:	Documentation of blood pressure (BP), pulse and temperature monitored at specific intervals for the transfusion. The intervals are: • Pre-transfusion, within 15 minutes of the initiation of the transfusion and within one hour of transfusion completion
Suggested Data Collection Question:	Was there documentation of BP and temperature monitored for all of the specified intervals for the transfusion?
Format:	**Length:** 2 **Type:** Numeric **Occurs:** 1 -12
Allowable Values:	**1** There was documentation for all of the BP, pulse and temperature monitoring intervals for the transfusion. **2** There was no documentation for all of the blood pressure, pulse and temperature monitoring intervals for the transfusion or unable to determine from medical record documentation.
Notes for Abstraction:	• All vital signs must be recorded at the following times: pre-transfusion, within 15 minutes of the initiation of the transfusion and within one hour of transfusion completion. To select "1", all recordings must be documented. • The pre-transfusion BP, pulse and temperature must be within one hour of the Transfusion Start Time. Vitals documented at the start of the transfusion are considered “within one hour of transfusion initiation". • For blood that may be transfused within 15 minutes, select "1" if the pre-transfusion and the within one hour of transfusion completion vitals are documented. • Vitals documented at the completion of the transfusion are considered “within one hour of transfusion completion". • The "unit" or "dose" information for the Vital Sign Monitoring data element must be associated with the blood product ID that was selected for abstraction.
Suggested Data Sources:	• Anesthesia record • Consultation notes • Emergency department record • Nursing notes • Progress notes • Operative notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 2.2 Left Ventricular Assistive Device (LVAD) and Heart Transplant		
Code	ICD-9-CM Description	Shortened Description
33.6	Combined heart-lung transplantation	COMB HEART/LUNG TRANSPLA
37.51	Heart transplantation	HEART TRANSPLANTATION
37.52	Implantation of total replacement heart system	IMPLANT TOT REP HRT SYS
37.53	Replacement or repair of thoracic unit of total replacement heart system	REPL/REP THORAC UNIT HRT
37.54	Replacement or repair of other implantable component of total replacement heart system	REPL/REP OTH TOT HRT SYS
37.62	Insertion of non-implantable heart assist system	INS NON-IMPL HRT ASSIST
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of heart assist system	REMOVE HEART ASSIST SYS
37.65	Implant of external heart assist system	IMP EXT HRT ASSIST SYST
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.68	Insertion of percutaneous external heart assist device	PERCUTAN HRT ASSIST SYST

Table 5.01 Coronary Artery Bypass Graft (CABG)		
Code	ICD-9-CM Description	Shortened Description
36.10	Aortocoronary bypass for heart revascularization, not otherwise specified	AORTOCORONARY BYPASS NOS
36.11	(Aorto)coronary bypass of one coronary artery	(AORTO)COR BYPAS-1 COR ART
36.12	(Aorto)coronary bypass of two coronary arteries	(AORTO)COR BYPAS-2 COR ART
36.13	(Aorto)coronary bypass of three coronary arteries	(AORTO)COR BYPAS-3 COR ART
36.14	(Aorto)coronary bypass of four coronary arteries	(AORT)COR BYPAS-4+ COR ART
36.15	Single internal mammary-coronary artery bypass	1 INT MAM-COR ART BYPASS
36.16	Double internal mammary-coronary artery bypass	2 INT MAM-COR ART BYPASS
36.17	Abdominal-coronary artery bypass	ABD-CORON ARTERY BYPASS
36.19	Other bypass anastomosis for heart revascularization	HRT REVAS BYPS ANAS NEC

Table 5.02 Other Cardiac Surgery		
Code	ICD-9-CM Description	Shortened Description
35.10	Open heart valvuloplasty, without replacement, unspecified valve	OPEN VALVULOPLASTY NOS
35.11	Open heart valvuloplasty of aortic valve without replacement	OPN AORTIC VALVULOPLASTY
35.12	Open heart valvuloplasty of mitral valve without replacement	OPN MITRAL VALVULOPLASTY
35.13	Open heart valvuloplasty of pulmonary valve without replacement	OPN PULMON VALVULOPLASTY
35.14	Open heart valvuloplasty of tricuspid valve without	OPN TRICUS

	replacement	VALVULOPLASTY
35.20	Replacement of unspecified heart valve	REPLACE HEART VALVE NOS
35.21	Replacement of aortic valve with tissue graft	REPLACE AORT VALV-TISSUE
35.22	Other replacement of aortic valve	REPLACE AORTIC VALVE NEC
35.23	Replacement of mitral valve with tissue graft	REPLACE MITR VALV-TISSUE
35.24	Other replacement of mitral valve	REPLACE MITRAL VALVE NEC
35.25	Replacement of pulmonary valve with tissue graft	REPLACE PULM VALV-TISSUE
35.26	Other replacement of pulmonary valve	REPLACE PULMON VALVE NEC
35.27	Replacement of tricuspid valve with tissue graft	REPLACE TRIC VALV-TISSUE
35.28	Other replacement of tricuspid valve	REPLACE TRICUSP VALV NEC
35.31	Operations on papillary muscle	PAPILLARY MUSCLE OPS
35.32	Operations on chordae tendineae	CHORDAE TENDINEAE OPS
35.33	Annuloplasty	ANNULOPLASTY
35.34	Infundibulectomy	INFUNDIBULECTOMY
35.35	Operations on trabeculae carneae cordis	TRABECUL CARNEAE CORD OP
35.39	Operations on other structures adjacent to valves of heart	TISS ADJ TO VALV OPS NEC
35.42	Creation of septal defect in heart	CREATE SEPTAL DEFECT
35.50	Repair of unspecified septal defect of heart with prosthesis	PROSTH REP HRT SEPTA NOS
35.51	Repair of atrial septal defect with prosthesis, open technique	PROS REP ATRIAL DEF-OPN
35.53	Repair of ventricular septal defect with prosthesis, open technique	PROS REP VENTRIC DEF-OPN
35.54	Repair of endocardial defect with prosthesis	PROS REP ENDOCAR CUSHION
35.60	Repair of unspecified septal defect with tissue graft	GRFT REPAIR HRT SEPT NOS
35.61	Repair of atrial septal defect with tissue graft	GRAFT REPAIR ATRIAL DEF
35.62	Repair of ventricular septal defect with tissue graft	GRAFT REPAIR VENTRIC DEF
35.63	Repair of endocardial cushion defect with tissue graft	GRFT REP ENDOCAR CUSHION
35.70	Other and unspecified repair of unspecified septal defect of heart	HEART SEPTA REPAIR NOS
35.72	Other and unspecified repair of ventricular septal defect	VENTR SEPTA DEF REP NEC
35.73	Other and unspecified repair of endocardial cushion defect	ENDOCAR CUSHION REP NEC
35.81	Total repair of tetralogy of Fallot	TOT REPAIR TETRAL FALLOT
35.82	Total repair of total anomalous pulmonary venous connection	TOTAL REPAIR OF TAPVC
35.83	Total repair of truncus arteriosus	TOT REP TRUNCUS ARTERIOS
35.84	Total correction of transposition of great vessels, not elsewhere classified	TOT COR TRANSPOS GRT VES
35.91	Interatrial transposition of venous return	INTERAT VEN RETRN TRANSP

35.92	Creation of conduit between right ventricle and pulmonary artery	CONDUIT RT VENT-PUL ART
35.93	Creation of conduit between left ventricle and aorta	CONDUIT LEFT VENTR-AORTA
35.94	Creation of conduit between atrium and pulmonary artery	CONDUIT ARTIUM-PULM ART
35.98	Other operations on septa of heart	OTHER HEART SEPTA OPS
35.99	Other operations on valves of heart	OTHER HEART VALVE OPS

Table 5.08 Vascular Surgery

Code	ICD-9-CM Description	Shortened Description
38.14	Endarterectomy, aorta	ENDARTERECTOMY OF AORTA
38.16	Endarterectomy, abdominal arteries	ABDOMINAL ENDARTERECTOMY
38.18	Endarterectomy, lower limb arteries	LOWER LIMB ENDARTEREC T
38.34	Resection of vessel with anastomosis, aorta	AORTA RESECTION & ANAST
38.36	Resection of vessel with anastomosis, abdominal arteries	ABD VESSEL RESECT/ANAST
38.37	Resection of vessel with anastomosis, abdominal veins	ABD VEIN RESECT & ANAST
38.44	Resection of vessel with replacement, aorta, abdominal	RESECT ABDM
38.48	Resection of vessel with replacement, lower limb arteries	LEG ARTERY RESEC W REPLA
38.49	Resection of vessel with replacement, lower limb veins	LEG VEIN RESECT W REPLAC
38.64	Other excision of vessels, aorta, abdominal	EXCISION OF AORTA
39.25	Aorta-iliac-femoral bypass	AORTA-ILIAC-FEMOR BYPASS
39.26	Other intra-abdominal vascular shunt or bypass	INTRA-ABDOMIN SHUNT NEC
39.29	Other (peripheral) vascular shunt or bypass	VASC SHUNT & BYPASS NEC

Table 5.11 Cardiac Surgery

Code	ICD-9-CM Description	Shortened Description
35.10	Open heart valvuloplasty without replacement, unspecified valve	OPEN VALVULOPLASTY NOS
35.11	Open heart valvuloplasty of aortic valve without replacement	OPN AORTIC VALVULOPLASTY
35.12	Open heart valvuloplasty of mitral valve without replacement	OPNMITRAL VALVULOPLASTY
35.13	Open heart valvuloplasty of pulmonary valve without replacement	OPN PULMON VALVULOPLASTY
35.14	Open heart valvuloplasty of tricuspid valve without replacement	OPN TRICUS VALVULOPLASTY
35.20	Replacement of unspecified heart valve	REPLACE HEART VALVE NOS
35.21	Replacement of aortic valve with tissue graft	REPLACE AORT VALVE-TISSUE
35.22	Other replacement of aortic valve	REPLACE AORT VALVE NEC

35.23	Replacement of mitral valve with tissue graft	REPLACE MITR VALVE-TISSUE
35.24	Other replacement of mitral valve	REPLACE MITRAL VALVE NEC
35.25	Replacement of pulmonary valve with tissue graft	REPLACE PULM VALV-TISSUE
35.26	Other replacement of pulmonary valve	REPLACE PULMON VALVE NEC
35.27	Replacement of tricuspid valve with tissue graft	REPLACE TRICUSP VALV NEC
35.28	Other replacement of tricuspid valve	REPLACE TRICUSP VALV NEC
35.31	Operations on papillary muscle	PAPILLARY MUSCLE OPS
35.32	Operations on chordae tendineae	CHORDAE TENDINEAE OPS
35.33	Annuloplasty	ANNULOPLASTY
35.34	Infundibulectomy	INFUNDIBULECTOMY
35.35	Operations of trabeculae carneae cordis	TRABECUL CARNEAE CORD OP
35.39	Operations on other structures adjacent to valves of heart	TISS ADJ TO VALV OPS NEC
35.42	Creation of septal defect in heart	CREATE SEPTAL DEFECT
35.50	Repair of unspecified septal defect of heart with prosthesis	PROSTH REP HRT SEPTA NOS
35.51	Repair of atrial septal defect with prosthesis, open technique	PROS REP ATRIAL DEF-OPN
35.53	Repair of ventricular septal defect with prosthesis, open technique	PROS REP VENTRIC DEF-OPN
35.54	Repair of endocardial cushion defect with prosthesis	PROS REP ENDOCAR CUSHION
35.60	Repair of unspecified septal defect of heart with tissue graft	GRFT REPAIR HRT SEPT NOS
35.61	Repair of atrial septal defect with tissue graft	GRAFT REPAIR ATRIAL DEF
35.62	Repair of ventricular septal defect with tissue graft	GRAFT REPAIR VENTRIC DEF
35.63	Repair of endocardial cushion defect with tissue graft	GRFT REP ENDOCAR CUSHION
35.70	Other and unspecified repair of unspecified septal defect of heart	HEART SEPTA REPAIR NOS
35.71	Other and unspecified repair of atrial septal defect	ATRIA SEPTA DEF REP NEC
35.72	Other and unspecified repair of ventricular septal defect	VENTR SEPTA DEF REP NEC
35.73	Other and unspecified repair of endocardial cushion defect	ENDOCAR CUSHION REP NEC
35.81	Total repair of tetralogy of Fallot	TOT REPAIR TETRAL FALLOT
35.82	Total repair of total anomalous pulmonary venous connection	TOTAL REPAIR OF TAPVC
35.83	Total repair of truncus arteriosus	TOT REP TRUNCUS ARTERIOS

Table 5.11 Cardiac Surgery (cont.)		
Code	ICD-9-CM Description	Shortened Description

35.84	Total connection of transposition of great vessels, not elsewhere classified	TOT COR TRANSPOS GRT VES
35.91	Interatrial transposition of venous return	INTERAT VEN RETRN TRANSP
35.92	Creation of conduit between right ventricle and pulmonary artery	CONDUIT RT VENT-PUL ART
35.93	Creation of conduit between left ventricle and aorta	CONDUIT LEFT VENTR-AORTA
35.94	Creation of conduit between atrium and pulmonary artery	CONDUIT ARTIUM-PULM ART
35.98	Other operations on septa of heart	OTHER HEART SEPTA OPS
35.99	Other operations on valves of heart	OTHER HEART VALVE OPS
36.03	Open chest coronary artery angioplasty	OPEN CORONRY ANGIOPLASTY
36.10	Aortocoronary bypass for heart revascularization, not otherwise specified	AORTOCORONARY BYPASS NOS
36.11	Aortocoronary bypass of one coronary artery	AORTOCOR BYPASS-1 COR ART
36.12	Aortocoronary bypass of two coronary arteries	AORTOCOR BYPASS-2 COR ART
36.13	Aortocoronary bypass of three coronary arteries	AORTOCOR BYPASS-3 COR ART
36.14	Aortocoronary bypass of four or more coronary arteries	AORTOCOR BYPASS-4+ COR ART
36.15	Single internal mammary-coronary artery bypass	1 INT MAM-COR ART BYPASS
36.16	Double internal mammary-coronary artery bypass	2 INT MAM-COR ART BYPASS
36.17	Abdominal-coronary artery bypass	ABD-CORON ARTERY BYPASS
36.19	Other bypass anastomosis for heart revascularization	HRT REVAS BYPS ANAS NEC
36.31	Open chest transmyocardial revascularization	OPEN CHEST TRANS REVASC
36.32	Other transmyocardial revascularization	OTH TRANSMYO REVASCULAR
36.39	Other heart revascularization	OTH REVASCULAR
36.91	Repair of aneurysm of coronary vessel	CORON VESS ANEURYSM REP
36.99	Other operations on vessels of heart	HEART VESSEL OP NEC
37.10	Incision of heart, not otherwise specified	INCISION OF HEART NOS
37.11	Cardiotomy	CARDIOTOMY
37.31	Pericardiectomy	PERICARDIECTOMY
37.32	Excision of aneurysm of heart	HEART ANEURYSM EXCISION
37.33	Excision or destruction of other lesion or tissue of heart, open approach	EXC/DEST HRT LESION OPEN
37.35	Partial ventriculectomy	PARTIAL VENTRICULECTOMY
37.41	Implantation of prosthetic cardiac support device around the heart	IMPL CARDIAC SUPPORT DEV
37.49	Other repair of heart and pericardium	HEART/PERICARD REPR NEC
37.51	Heart transplantation	HEART TRANSPLANTATION

37.52	Implantation of total replacement heart system	IMPLANT TOT REP HRT SYS
37.53	Replacement or repair of thoracic unit of total replacement heart system	REPL/REP THORAC UNIT HRT
37.54	Replacement or repair of other implants component of total replacement heart system	REPL/REP OTH TOT HRT SYS
37.62	Insertion of non-implantable heart assist system	INS NON-IMPL HRT ASSIST
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of heart assist system	REMOVE HEART ASSIST SYS
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.67	Implantation of cardiomyostimulation system	IMP CARDIOMYOSTIMUL SYS

Table 5.22 Elective Hip Replacement

Code	ICD-9-CM Description	Shortened Description
00.70	Revision of hip replacement, both acetabular and femoral components	REV HIP REPL-ACETAB/FEM
00.71	Revision of hip replacement, acetabular component	REV HIP REPL-ACETAB COMP
00.72	Revision of hip replacement, femoral component	REV HIP REPL-FEM COMP
00.73	Revision of hip replacement, acetabular liner and/or femoral head only	REV HIP REPL-LINER/HEAD
00.77	Hip bearing surface, ceramic-on-polyethylene	HIP SURFACE, CERMC/POLY
00.85	Resurfacing hip, total, acetabulum and femoral head	RESRF HIP,TOTAL-ACET/FEM
00.86	Resurfacing hip, partial, femoral head	RESRF HIP,PART-FEM HEAD
00.87	Resurfacing hip, partial, acetabulum	RESRF HIP,PART-ACETABLUM
81.51	Total hip replacement	TOTAL HIP REPLACEMENT
81.52	Partial hip replacement	PARTIAL HIP REPLACEMENT
81.53	Revision of hip replacement	REVISE HIP REPLACEMENT

Table 5.23 Elective Total Knee Replacement

Code	ICD-9-CM Description	Shortened Description
00.80	Revision of knee replacement, total (all components)	REV KNEE REPLACEMT-TOTAL
00.81	Revision of knee replacement, tibial component	REV KNEE REPL-TIBIA COMP
00.82	Revision of knee replacement, femoral component	REV KNEE REPL-FEMUR COMP
00.83	Revision of knee replacement, patellar component	REV KNEE REPLACE-PATELLA
00.84	Revision of total knee replacement, tibial insert (liner)	REV KNEE REPL-TIBIA LIN
81.54	Total knee replacement	TOTAL KNEE REPLACEMENT
81.55	Revision of knee replacement	REVISE KNEE REPLACEMENT

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 9.1 Elective Cardiac Surgery (Selected Codes from Table 5.25)		
Code	ICD-9-CM Description	Shortened Description
35.71	Other and unspecified repair of atrial septal defect	ATRIA SEPTA DEF REP NEC
36.03	Open chest coronary artery angioplasty	OPEN CORONRY ANGIOPLASTY
36.31	Open chest transmyocardial revascularization	OPEN CHEST TRANS REVASC
36.32	Other transmyocardial revascularization	OTH TRANSMYO REVASCULAR
36.39	Other heart revascularization	OTH HEART REVASCULAR
36.91	Repair of aneurysm of coronary vessel	CORON VESS ANEURYSM REP
36.99	Other operations on vessels of heart	HEART VESSEL OP NEC
37.10	Incision of heart, not otherwise specified	INCISION OF HEART NOS
37.11	Cardiotomy	CARDIOTOMY
37.32	Excision of aneurysm of heart	HEART ANEURYSM EXCISION
37.33	Excision or destruction of other lesion or tissue of heart, open approach	EXC/DEST HRT LESION OPEN
37.35	Partial ventriculectomy	PARTIAL VENTRICULECTOMY
37.36	Excision or destruction of left atrial appendage (LAA)	EXC LEFT ATRIAL APPENDAG
37.41	Implantation of prosthetic cardiac support device around the heart	IMPL CARDIAC SUPPORT DEV
37.49	Other repair of heart and pericardium	HEART/PERICARD REPR NEC
37.51	Heart transplantation	HEART TRANSPLANTATION
37.52	Implantation of total internal biventricular heart replacement system	IMP TOT INT BI HT RP SYS
37.53	Replacement or repair of thoracic unit of (total) replacement heart system	REPL/REP THR UNT TOT HRT
37.54	Replacement or repair of other implantable component of (total) replacement heart system	REPL/REP OTH TOT HRT SYS
37.55	Removal of internal biventricular heart replacement system	REM INT BIVENT HRT SYS
37.60	Implantation or insertion of biventricular external heart assist system	IMP BIVN EXT HRT AST SYS
37.62	Insertion of temporary non-implantable extracorporeal circulatory assist device	INSRT NON-IMPL CIRC DEV
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of external heart assist system(s) or device(s)	REMVE EXT HRT ASSIST SYS
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.67	Implantation of cardiomyostimulation system	IMP CARDIOMYOSTIMUL SYS

Table 9.2 Elective Gynecological		
Code	ICD-9-CM Description	Shortened Description
68.31	Other incision and excision of uterus, subtotal abdominal hysterectomy, other incision and excision of uterus, laparoscopic supracervical hysterectomy [LSH]	Lap scervic hysterectomy
68.39	Other incision and excision of uterus, subtotal abdominal hysterectomy, other incision and excision of uterus, other and unspecified subtotal	Subtotl abd hyst NEC/NOS

	abdominal hysterectomy	
68.41	Other incision and excision of uterus, total abdominal hysterectomy, laparoscopic total abdominal hysterectomy	Lap total abdominal hyst
68.49	Other incision and excision of uterus, total abdominal hysterectomy, other and unspecified total abdominal hysterectomy	Total abd hyst NEC/NOS
68.51	Vaginal hysterectomy, laparoscopically assisted vaginal hysterectomy [LAVH]	Lap ast vag hysterectomy
68.59	Vaginal hysterectomy, other and unspecified vaginal hysterectomy	Vag hysterectomy NEC/NOS
68.61	Radical abdominal hysterectomy, laparoscopic radical abdominal hysterectomy	Lap radical abdomnl hyst
68.69	Radical abdominal hysterectomy, other and unspecified radical abdominal hysterectomy	Radical abd hyst NEC/NOS
68.71	Radical vaginal hysterectomy, laparoscopic radical vaginal hysterectomy [LRVH]	Lap radical vaginal hyst
68.79	Radical vaginal hysterectomy, other and unspecified radical vaginal hysterectomy	Radical vag hyst NEC/NOS
68.9	Other and unspecified hysterectomy	Hysterectomy NEC/NOS

Table 9.3 Previously Donated Autologous Transfusion

Code	ICD-9-CM Description	Shortened Description
99.02	Other nonoperative procedures, transfusion of blood and blood components, transfusion of previously collected autologous blood	TRANSFUS PREV AUTO BLOOD

Table 9.4 Packed Red Blood Cell Transfusion

Code	ICD-9-CM Description	Shortened Description
99.04	Other nonoperative procedures, transfusion of blood and blood components, transfusion of packed cells	PACKED CELL TRANSFUSION

Table 9.5 Platelet Transfusion

Code	ICD-9-CM Description	Shortened Description
99.05	Other nonoperative procedures, transfusion of blood and blood components, transfusion of platelets	PLATELET TRANSFUSION

Table 9.6 Plasma Transfusion

Code	ICD-9-CM Description	Shortened Description
99.07	Other nonoperative procedures, transfusion of blood and blood components, transfusion of other serum	SERUM TRANSFUSION NEC

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 9.7 Trauma		
Code	ICD-9-CM Description	Shortened Description
800	Fracture of vault of skull	CLOSED SKULL VAULT FX
801	Fracture of base of skull	CLOS SKULL BASE FRACTURE
802	Fracture of face bones	NASAL BONE FX-CLOSED
803	Other and unqualified skull fractures	CLOSE SKULL FRACTURE NEC
804	Multiple fractures involving skull or face with other bones	CL SKUL FX W OTH BONE FX
805	Fracture of vertebral column without mention of spinal cord injury	FX CERVICAL VERT NOS-CL
806	Fracture of vertebral column with spinal cord injury	C1-C4 FX-CL/CORD INJ NOS
807	Fracture of rib(s), sternum, larynx, and trachea	FRACTURE RIB NOS-CLOSED
808	Fracture of pelvis	FRACTURE ACETABULUM-CLOS
809	III-defined fractures of bones of trunk	FRACTURE TRUNK BONE-CLOS
810	Fracture of clavicle	FX CLAVICLE NOS-CLOSED
811	Fracture of scapula	FX SCAPULA NOS-CLOSED
812	Fracture of humerus	FX UP END HUMERUS NOS-CL
813	Fracture of radius and ulna	FX UPPER FOREARM NOS-CL
814	Fracture of carpal bones(s)	FX CARPAL BONE NOS-CLOSE
815	Fracture of metacarpal bones(s)	FX METACARPAL NOS-CLOSED
816	Fracture of one or more phalanges of hands	FX PHALANX, HAND NOS-CL
817	Multiple fractures of hand bones	MULTIPLE FX HAND-CLOSED
818	III-defined fractures of upper limb	FX ARM MULT/NOS-CLOSED
819	Multiple fractures involving both upper limbs, and upper limb with rib(s) and sternum	FX ARMS W RIB/STERNUM-CL
820	Fracture of neck of femur	FX FEMUR INTRCAPS NOS-CL
821	Fracture of other and unspecified parts of femur	FX FEMUR NOS-CLOSED
822	Fracture of patella	FRACTURE PATELLA-CLOSED
823	Fracture of tibia and fibula	FX UPPER END TIBIA-CLOSE
824	Fracture of ankle	FX MEDIAL MALLEOLUS-CLOS
825	Fracture of one or more tarsal and metatarsal bones	FRACTURE CALCANEUS-CLOSE
826	Fracture of one or more phalanges of foot	FX PHALANX, FOOT-CLOSED
827	Other, multiple, and ill-defined fractures of lower limb	FX LOWER LIMB NEC-CLOSED
828	Multiple fractures involving both lower limbs, lower with upper limb, and lower limb(s) with rib(s) and sternum	FX LEGS W ARM/RIB-CLOSED
829	Fracture of unspecified bones	FRACTURE NOS-CLOSED
830	Dislocation of jaw	DISLOCATION JAW-CLOSED
831	Dislocation of shoulder	DISLOC SHOULDER NOS-

		CLOS
832	Dislocation of elbow	DISLOCAT ELBOW NOS-CLOSE
833	Dislocation of wrist	DISLOC WRIST NOS-CLOSED
834	Dislocation of finger	DISL FINGER NOS-CLOSED
835	Dislocation of hip	DISLOCAT HIP NOS-CLOSED
836	Dislocation of knee	TEAR MED MENISC KNEE-CUR
837	Dislocation of ankle	DISLOCATION ANKLE-CLOSED
838	Dislocation of foot	DISLOCAT FOOT NOS-CLOSED
839	Other, multiple, and ill-defined dislocations	DISLOC CERV VERT NOS-CL
840	Sprains and strains of shoulder and upper arm	SPRAIN ACROMIOCLAVICULAR
841	Sprains and strains of elbow and forearm	SPRAIN RADIAL COLLAT LIG
842	Sprains and strains of wrist and hand	SPRAIN OF WRIST NOS
843	Sprains and strains of hip and thigh	SPRAIN ILIOFEMORAL
844	Sprains and strains of knee and leg	SPRAIN LATERAL COLL LIG
845	Sprains and strains of ankle and foot	SPRAIN OF ANKLE NOS
846	Sprains and strains of sacroiliac region	SPRAIN LUMBOSACRAL
847	Sprains and strains of other and unspecified parts of back	SPRAIN OF NECK
848	Other and ill-defined sprains and strains	SPRAIN OF NASAL SEPTUM
850	Concussion	CONCUSSION W/O COMA
851	Cerebral laceration and contusion	CEREBRAL CORTX CONTUSION
852	Subarachnoid, subdural, and extradural hemorrhage, following injury	TRAUM SUBARACHNOID HEM
853	Other and unspecified intracranial hemorrhage following injury	TRAUMATIC BRAIN HEM NEC
854	Intracranial injury of other and unspecified nature	BRAIN INJURY NEC
860	Traumatic pneumothorax and hemothorax	TRAUM PNEUMOTHORAX-CLOSE
861	Injury to heart and lung	HEART INJURY NOS-CLOSED
862	Injury to other and unspecified intrathoracic organs	DIAPHRAGM INJURY-CLOSED
863	Injury to gastrointestinal tract	STOMACH INJURY-CLOSED
864	Injury to liver	LIVER INJURY NOS-CLOSED
865	Injury to spleen	SPLEEN INJURY NOS-CLOSED
866	Injury to kidney	KIDNEY INJURY NOS-CLOSED
867	Injury to pelvic organs	BLADDER/URETHRA INJ-CLOS
868	Injury to other intra-abdominal organs	INTRA-ABDOM INJ NOS-CLOS
869	Internal injury to unspecified or ill-defined organs	INTERNAL INJ NOS-CLOSED
870	Open wound of ocular adnexa	LAC EYELID SKN/PERIOCULR
871	Open wound of eyeball	OCULAR LAC W/O PROLAPSE
872	Open wound of ear	OPN WOUND EXTERN EAR

		NOS
873	Other open wound of head	OPEN WOUND OF SCALP
874	Open wound of neck	OPN WND LARYNX W TRACHEA
875	Open wound of chest (wall)	OPEN WOUND OF CHEST
876	Open wound of back	OPEN WOUND OF BACK
877	Open wound of buttock	OPEN WOUND OF BUTTOCK
878	Open wound of genital organs (external), including traumatic amputation	OPEN WOUND OF PENIS
879	Open wound of other and unspecified sites, except limbs	OPEN WOUND OF BREAST
880	Open wound of shoulder and upper arm	OPEN WOUND OF SHOULDER
881	Open would of elbow, forearm, and wrist	OPEN WOUND OF FOREARM
882	Open wound of hand except finger(s) alone	OPEN WOUND OF HAND
883	Open wound of finger(s)	OPEN WOUND OF FINGER
884	Multiple and unspecified open wound of upper limb	OPEN WOUND ARM MULT/NOS
885	Traumatic amputation of thumb (complete) (partial)	AMPUTATION THUMB
886	Traumatic amputation of other finger(s) (complete) (partial)	AMPUTATION FINGER
887	Traumatic amputation of arm and hand (complete) (partial)	AMPUT BELOW ELB, UNILAT
890	Open wound of hip and thigh	OPEN WOUND OF HIP/THIGH
891	Open wound of knee, leg [except thigh], and ankle	OPEN WND KNEE/LEG/ANKLE
892	Open wound of foot except toe(s) alone	OPEN WOUND OF FOOT
893	Open wound of toe(s)	OPEN WOUND OF TOE
894	Multiple and unspecified open wound of lower limb	OPEN WOUND OF LEG NEC
895	Traumatic amputation of toe(s) (complete) (partial)	AMPUTATION TOE
896	Traumatic amputation of foot (complete) (partial)	AMPUTATION FOOT, UNILAT
897	Traumatic amputation of leg(s) (complete) (partial)	AMPUT BELOW KNEE, UNILAT
900	Injury to blood vessels of head and neck	INJUR CAROTID ARTERY NOS
901	Injury to blood vessels of thorax	INJURY THORACIC AORTA
902	Injury to blood vessels of abdomen and pelvis	INJURY ABDOMINAL AORTA
903	Injury to blood vessels of upper extremity	INJ AXILLARY VESSEL NOS
904	Injury to blood vessels of lower extremity and unspecified sites	INJ COMMON FEMORAL ARTER
905	Late effects of musculoskeletal and connective tissue injuries	LATE EFFEC SKULL/FACE FX
906	Late effects of injuries to skin and subcutaneous tissues	LT EFF OPN WND HEAD/TRNK
907	Late effects of injuries to the nervous system	LT EFF INTRACRANIAL INJ
908	Late effects of other and unspecified injuries	LATE EFF INT INJUR CHEST
909	Late effects of other and unspecified external causes	LATE EFF DRUG POISONING
910	Superficial injury of face, neck, and scalp except eye	ABRASION HEAD
911	Superficial injury of trunk	ABRASION TRUNK
912	Superficial injury of shoulder and upper arm	ABRASION SHOULDER/ARM

913	Superficial injury of elbow, forearm, and wrist	ABRASION FOREARM
914	Superficial injury of hand(s) except finger(s) alone	ABRASION HAND
915	Superficial injury of finger(s)	ABRASION FINGER
916	Superficial injury of hip, thigh, leg, and ankle	ABRASION HIP & LEG
917	Superficial injury of foot and toe(s)	ABRASION FOOT & TOE
918	Superficial injury of eye and adnexa	SUPERFIC INJ PERIOCULAR
919	Superficial injury of other, multiple, and unspecified sites	ABRASION NEC
920	Contusion of face, scalp, and neck except eye(s)	CONTUSION FACE/SCALP/NCK
921	Contusion of eye and adnexa	BLACK EYE NOS
922	Contusion of trunk	CONTUSION OF BREAST
923	Contusion of upper limb	CONTUSION SHOULDER REG
924	Contusion of lower limb and of other and unspecified sites	CONTUSION OF THIGH
925	Crushing injury of face, scalp, and neck	
926	Crushing injury of trunk	CRUSH INJ EXT GENITALIA
927	Crushing injury of upper limb	CRUSH INJ SHOULDER REG
928	Crushing injury of lower limb	CRUSHING INJURY THIGH
929	Crushing injury of multiple and unspecified sites	CRUSH INJ MULT SITE NEC
930	Foreign body on external eye	CORNEAL FOREIGN BODY
931	Foreign body in ear	FOREIGN BODY IN EAR
932	Foreign body in nose	FOREIGN BODY IN NOSE
933	Foreign body in pharynx and larynx	FOREIGN BODY IN PHARYNX
934	Foreign body in trachea, bronchus, and lung	FOREIGN BODY IN TRACHEA
935	Foreign body in mouth, esophagus, and stomach	FOREIGN BODY IN MOUTH
936	Foreign body in intestine and colon	FB IN INTESTINE & COLON
937	Foreign body in anus and rectum	FOREIGN BODY ANUS/RECTUM
938	Foreign body in digestive system, unspecified	FOREIGN BODY GI NOS
939	Foreign body in genitourinary tract	FB BLADDER & URETHRA
940	Burn confined to eye and adnexa	CHEMICAL BURN PERIOCULAR
941	Burn of face, head, and neck	BURN NOS HEAD-UNSPEC
942	Burn of trunk	BURN NOS TRUNK-UNSPEC
943	Burn of upper limb, except wrist and hand	BURN NOS ARM-UNSPEC
944	Burn of wrist(s) and hand(s)	BURN NOS HAND-UNSPEC
945	Burn of lower limb(s)	BURN NOS LEG-UNSPEC
946	Burns of multiple specified sites	BURN NOS MULTIPLE SITE
947	Burn of internal organs	BURN OF MOUTH & PHARYNX
948	Burns classified according to extent of body surface involved	BDY BRN < 10%/3D DEG NOS
949	Burn, unspecified	BURN NOS
950	Injury to optic nerve and pathways	OPTIC NERVE INJURY
951	Injury to other cranial nerve(s)	INJURY OCULOMOTOR NERVE
952	Spinal cord injury without evidence of spinal bone injury	C1-C4 SPIN CORD INJ NOS

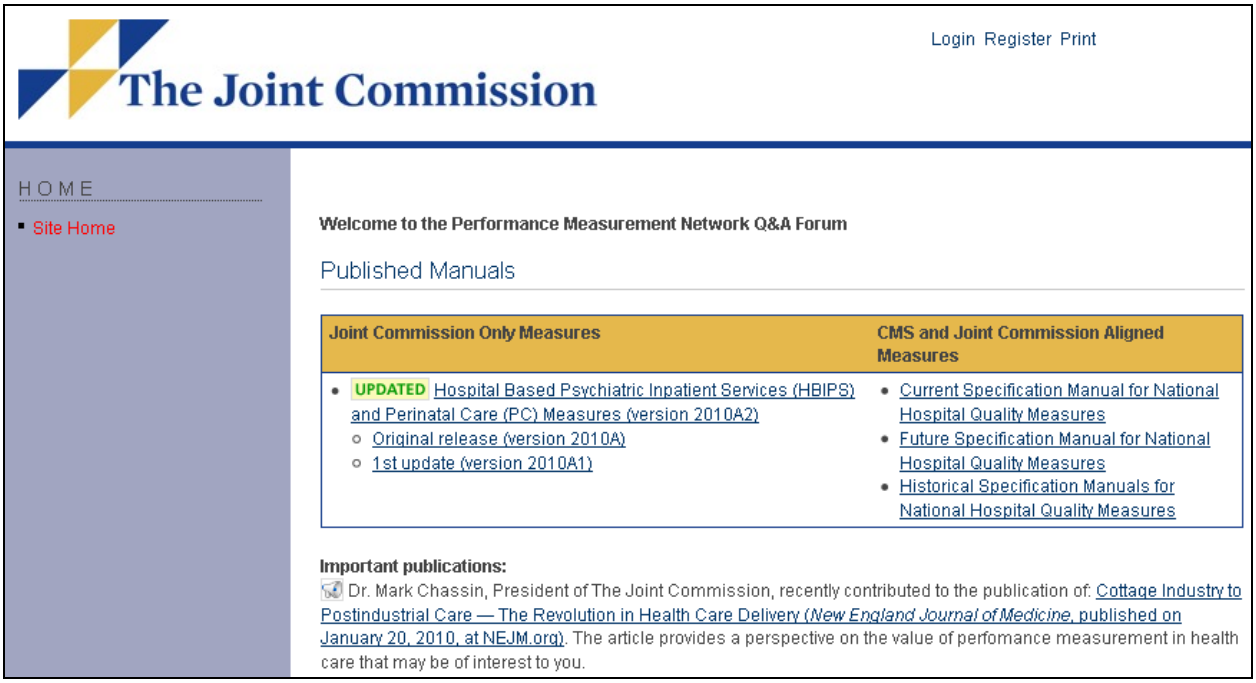
953	Injury to nerve roots and spinal plexus	CERVICAL ROOT INJURY
954	Injury to other nerve(s) of trunk, excluding shoulder and pelvic girdles	INJ CERV SYMPATH NERVE
955	Injury to peripheral nerve(s) of shoulder girdle and upper limb	INJURY AXILLARY NERVE
956	Injury to peripheral nerve(s), of pelvic girdle and lower limb	INJURY SCIATIC NERVE
957	Injury to other and unspecified nerves	INJ SUPERF NERV HEAD/NCK
958	Certain early complications of trauma	AIR EMBOLISM
959	Injury, other and unspecified	
960	Poisoning by antibiotics	POISONING-PENICILLINS
961	Poisoning by other anti-infectives	POISONING-SULFONAMIDES
962	Poisoning by hormones and synthetic substitutes	POIS-CORTICOSTEROIDS
963	Poisoning by primarily systemic agents	POIS-ANTIALLRG/ANTIEMET
964	Poisoning by agents primarily affecting blood constituents	POISONING-IRON/COMPOUNDS
965	Poisoning by analgesics, antipyretics, and antirheumatics	POISONING-OPIUM NOS
966	Poisoning by anticonvulsants and anti-Parkinsonism drugs	POISON-OXAZOLIDINE DERIV
967	Poisoning by sedatives and hypnotics	POISONING-BARBITURATES
968	Poisoning by other central nervous system depressants and anesthetics	POIS-CNS MUSCLE DEPRESS
969	Poisoning by psychotropic agents	POISON-ANTIDEPRESNT NOS
970	Poisoning by central nervous system stimulants	POISONING-ANALEPTICS
971	Poisoning by drugs primarily affecting the autonomic nervous system	POIS-PARASYMPATHOMIMETIC
972	Poisoning by agents primarily affecting the cardiovascular system	POIS-CARD RHYTHM REGULAT
973	Poisoning by agents primarily affecting the gastrointestinal system	POIS-ANTACID/ANTIGASTRIC
974	Poisoning by water, mineral, and uric acid metabolism drugs	POIS-MERCURIAL DIURETICS
975	Poisoning by agents primarily acting on the smooth and skeletal muscles and respiratory system	POISONING-OXYTOCIC AGENT
976	Poisoning by agents primarily affecting skin and mucous membrane, ophthalmological, otorhinolaryngological, and dental drugs	POIS-LOCAL ANTI-INFECT
977	Poisoning by other and unspecified drugs and medicinal substances	POISONING-DIETETICS
978	Poisoning by bacterial vaccines	POISONING-BCG VACCINE
979	Poisoning by other vaccines and biological substances	POISON-SMALLPOX VACCINE
980	Toxic effect of alcohol	TOXIC EFF ETHYL ALCOHOL
981	Toxic effect of petroleum products	TOXIC EFF PETROLEUM PROD
982	Toxic effect of solvents other than petroleum-based	TOXIC EFFECT BENZENE
983	Toxic effect of corrosive aromatics, acids, and caustic alkalis	TOX EFF CORROSIVE AROMAT

984	Toxic effect of lead and its compounds (including fumes)	TX EFF INORG LEAD COMPND
985	Toxic effect of other metals	TOXIC EFFECT MERCURY
986	Toxic effect of carbon monoxide	TOX EFF CARBON MONOXIDE
987	Toxic effect of other gases, fumes, or vapors	TOXIC EFF LIQ PETROL GAS
988	Toxic effect of noxious substances eaten as food	TOXIC EFF FISH/SHELLFISH
989	Toxic effect of other substances, chiefly nonmedicinal as to source	TOXIC EFFECT CYANIDES
990	Effects of radiation, unspecified	EFFECTS RADIATION NOS
991	Effects of reduced temperature	FROSTBITE OF FACE
992	Effects of heat and light	HEAT STROKE & SUNSTROKE
993	Effects of air pressure	BAROTRAUMA, OTITIC
994	Effects of other external causes	EFFECTS OF LIGHTNING
995	Certain adverse effects not elsewhere classified	ANAPHYLACTIC SHOCK
996	Complications peculiar to certain specified procedures	MALFUNC CARD DEV/GRF NOS
997	Complications affecting specified body systems, not elsewhere classified	NERVOUS SYST COMPLC NOS
998	Other complications of procedures, not elsewhere classified	POSTOPERATIVE SHOCK
999	Complications of medical care, not elsewhere classified	GENERALIZED VACCINIA

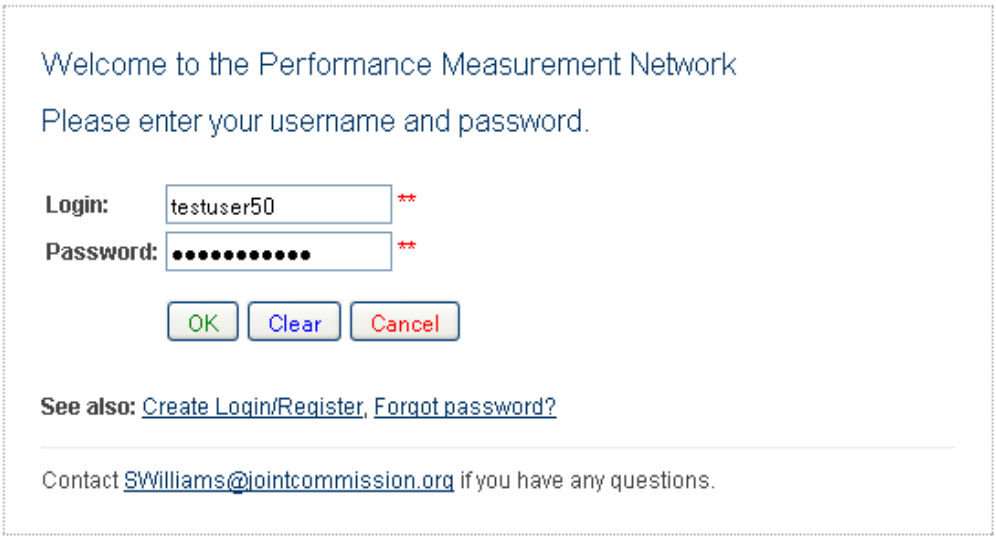
Navigating the Blood Management Project
Data Collection Tool

How to Log In and Get Started

1) Once you have registered and received your confirmation to submit data for the Blood Management Project, you may access the project website at: http://manual.jointcommission.org
2) Click on "Login" in the upper right hand corner.



3) Enter your Login and Password and click "ok".



Navigating the Blood Management Project
Data Collection Tool

4) Welcome to the Performance Measurement Network. Select the "Blood Mgmt Project" link from the left hand navigation bar.

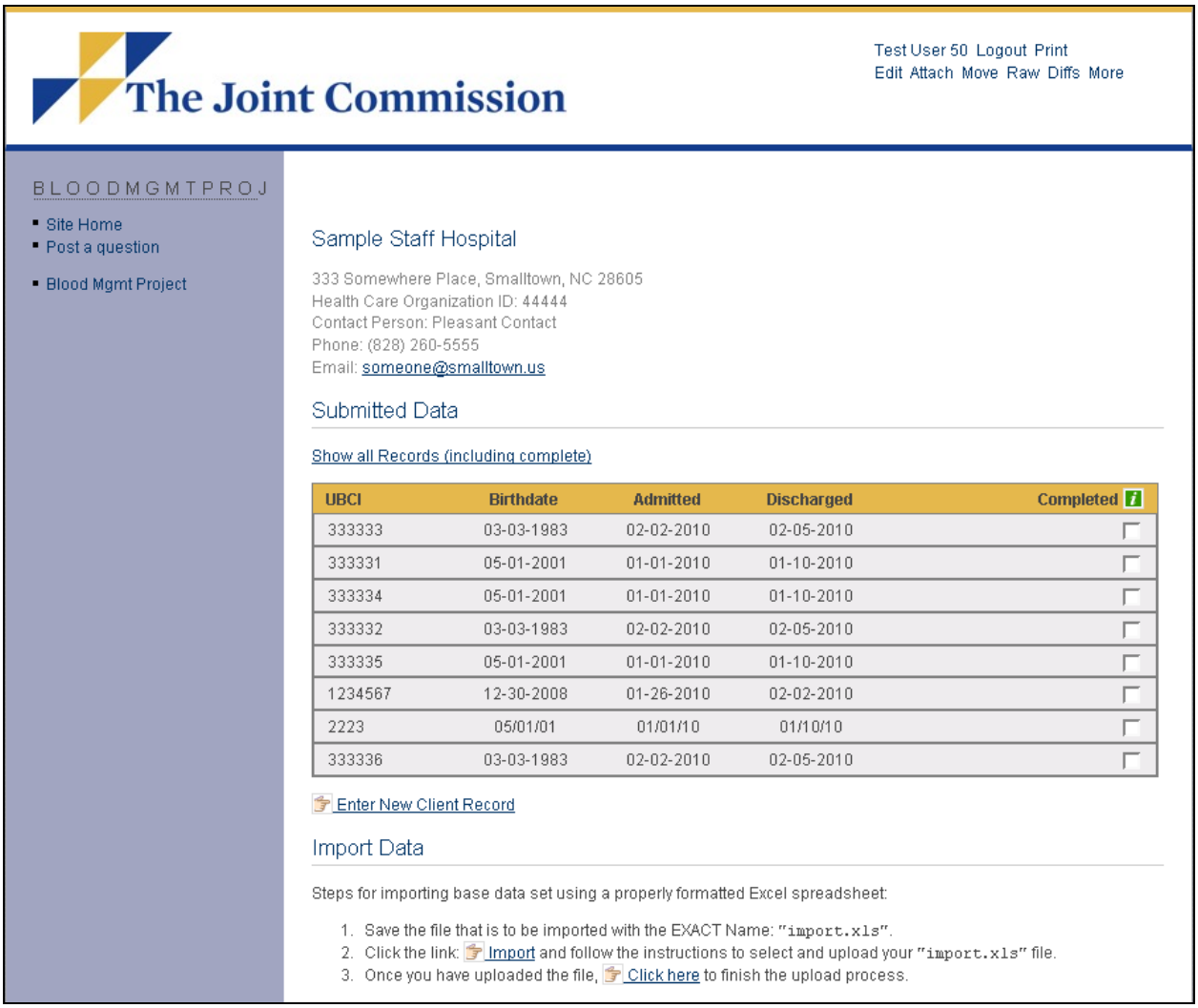
5) You are now on the Blood Management Project Page. You will see your hospitals(s) listed here. In the Project Help section, you will find a link to the measure specifications, an example of the import file template, and other material intended to assist you with your participation in this project. Please click on the hospital name to enter blood management data.

Navigating the Blood Management Project
Data Collection Tool

6) You are now on your hospital page. From this page, you can:

- update your hospital demographic information
- enter new records
- import new records
- view and update existing records
- add RBC, Plasma and Platelet events
- mark records as "complete"
- review records that have been completed
- view import attachments

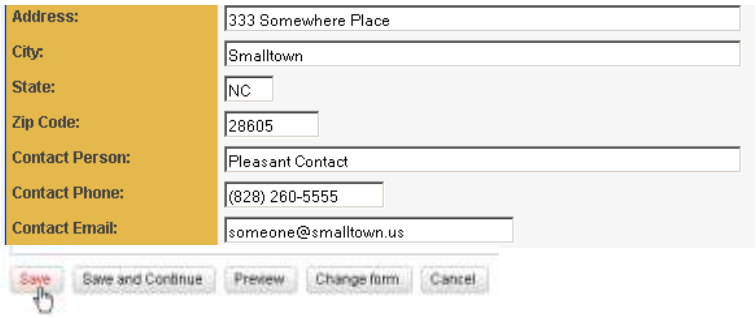
Each function will be discussed in detail below.



Navigating the Blood Management Project
Data Collection Tool
Updating your Hospital Demographic Information

a) To update your hospital's demographic information, click the "Edit" link, Fill out the form that appears, and click the "Save" button at the bottom of the form.

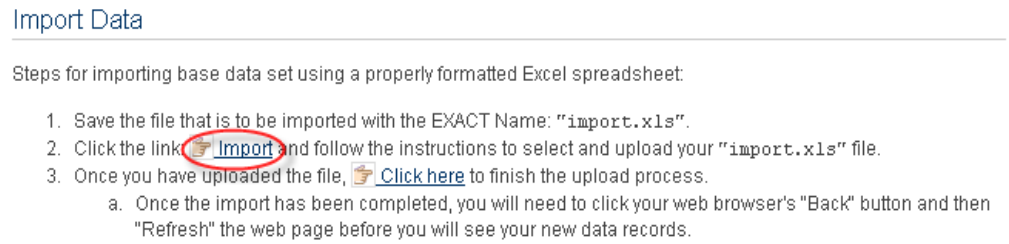
You will be directed to the Edit form, and you can change your hospital's contact details here. Click "Save" to save your changes, or "Cancel" to exit without saving.



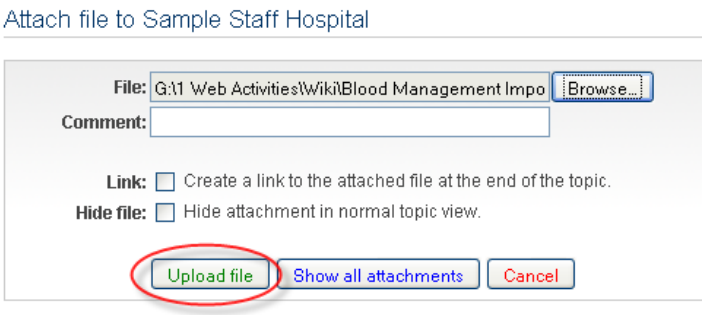
Navigating the Blood Management Project
Data Collection Tool

Importing Records

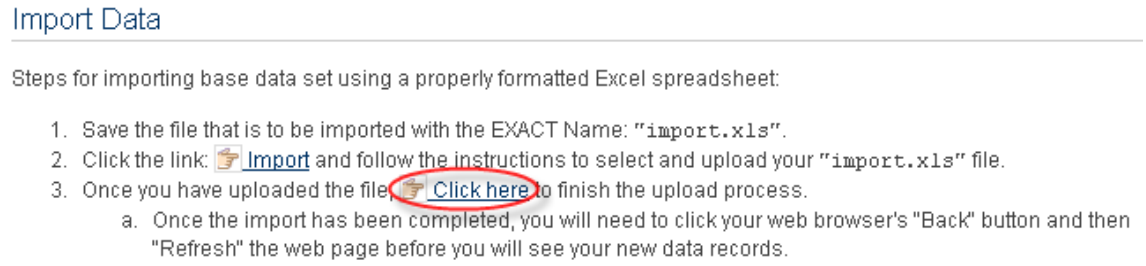
a) To import data, click on the "Import" link on your hospital home page. The template for this import file can be found on the project home page.



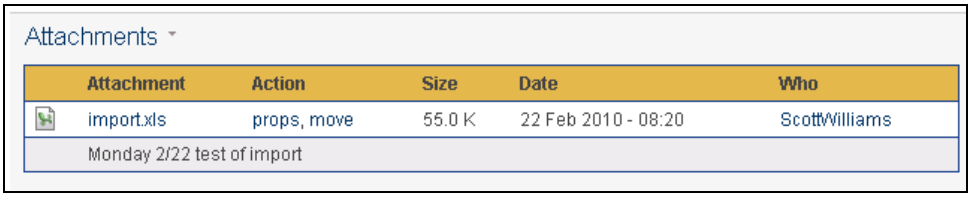
b) Click on "browse" to find and select your import file (which must be named "import.xls"), and click on "Upload File". You do not need to check the checkboxes, but <u>you may want to add a comment to keep track of your imports (e.g., April 2010 discharges; 51 records)</u>



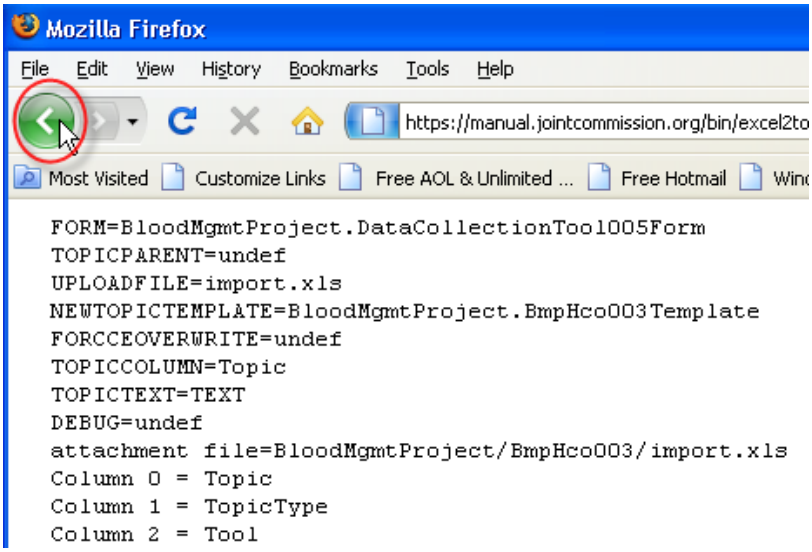
c) Once you have uploaded your file, you will need to click on the "Click here" link to finish the upload process. You'll then need to click your browser's "Back" button and "Refresh" your hospital page.



d) You may notice a form at the bottom of your hospital page. It displays the most recently imported file. This area will only be used to verify that your import was successful (note the date, time and comments to ensure that it represents the file you imported.



e) Your uploaded records are shown here (in a rather unappealing format!) and you will need to click on your browser's "Back" button to return to your hospital home page.



f) You are now back on your hospital's home page. Please click on your browser's "Refresh" button to view the records you just imported. Your records have been imported, but you will not be able to see them until the page is refreshed (or you navigate away from it and then back to it).

g) Your uploaded files should now viewable in the "Submitted Data" section of your hospital home page.

Navigating the Blood Management Project
Data Collection Tool

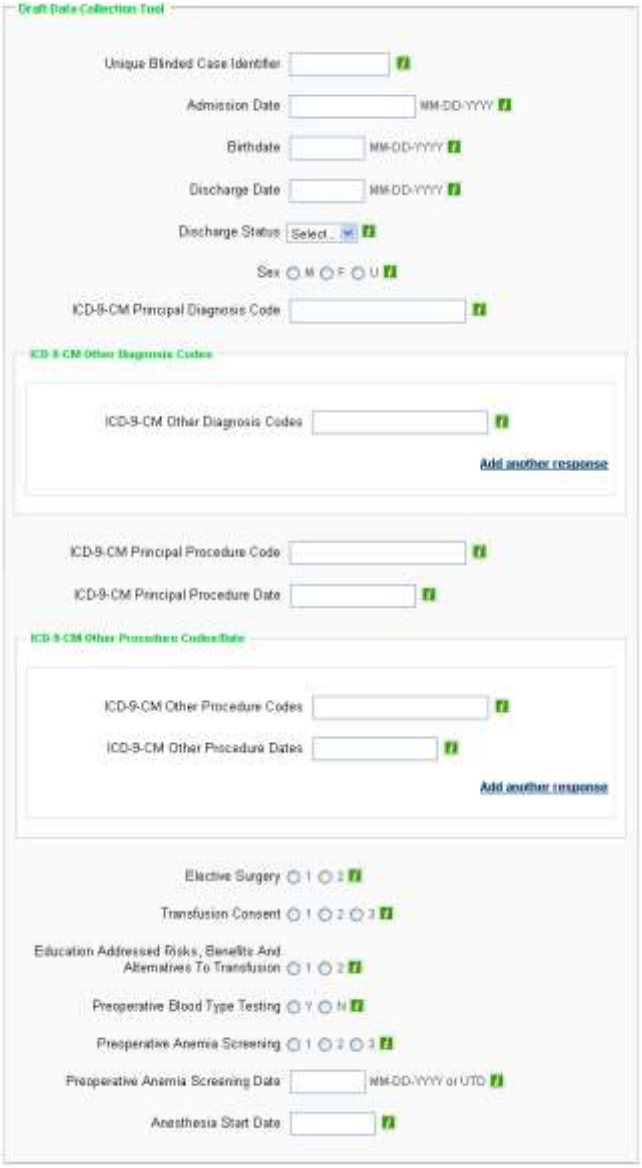
Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

Navigating the Blood Management Project
Data Collection Tool
Enter New Records (without using the file import

a) To enter a new record, click on the "Enter New Client Record" link (right below the data record table).

b) You are now viewing the data collection tool for Blood Management. Enter data for the client record. Note: hovering over the green "i" next to a data element will show you the question and allowable values associated with that data element as well as a link to the data element page.



c) Once you have completed data entry for this record, click on "Save Data Record".

Navigating the Blood Management Project
Data Collection Tool
To View and Update Existing Records

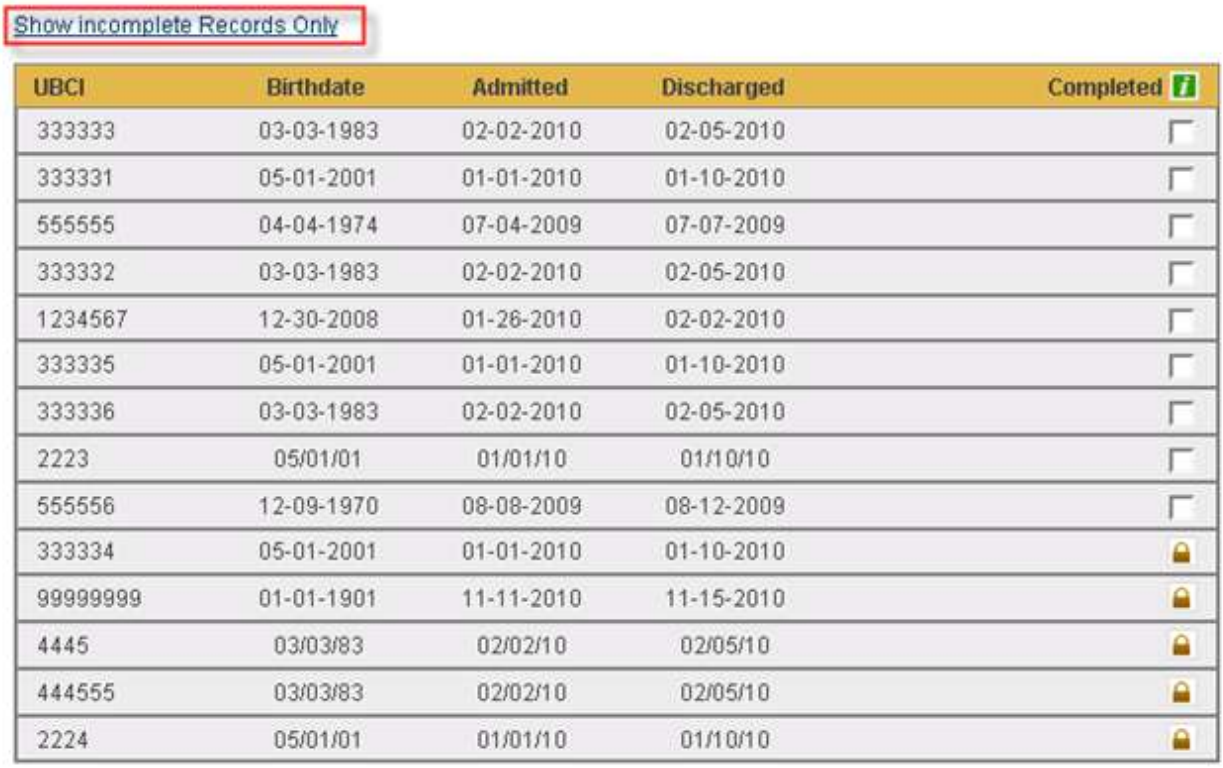
a) There are two ways to view the list of submitted records. The default view is of all incomplete records. If you would like to view all records, including completed (locked) records, click the link "Show all Records (including complete)".

View of the default setting showing a list of only incomplete records:

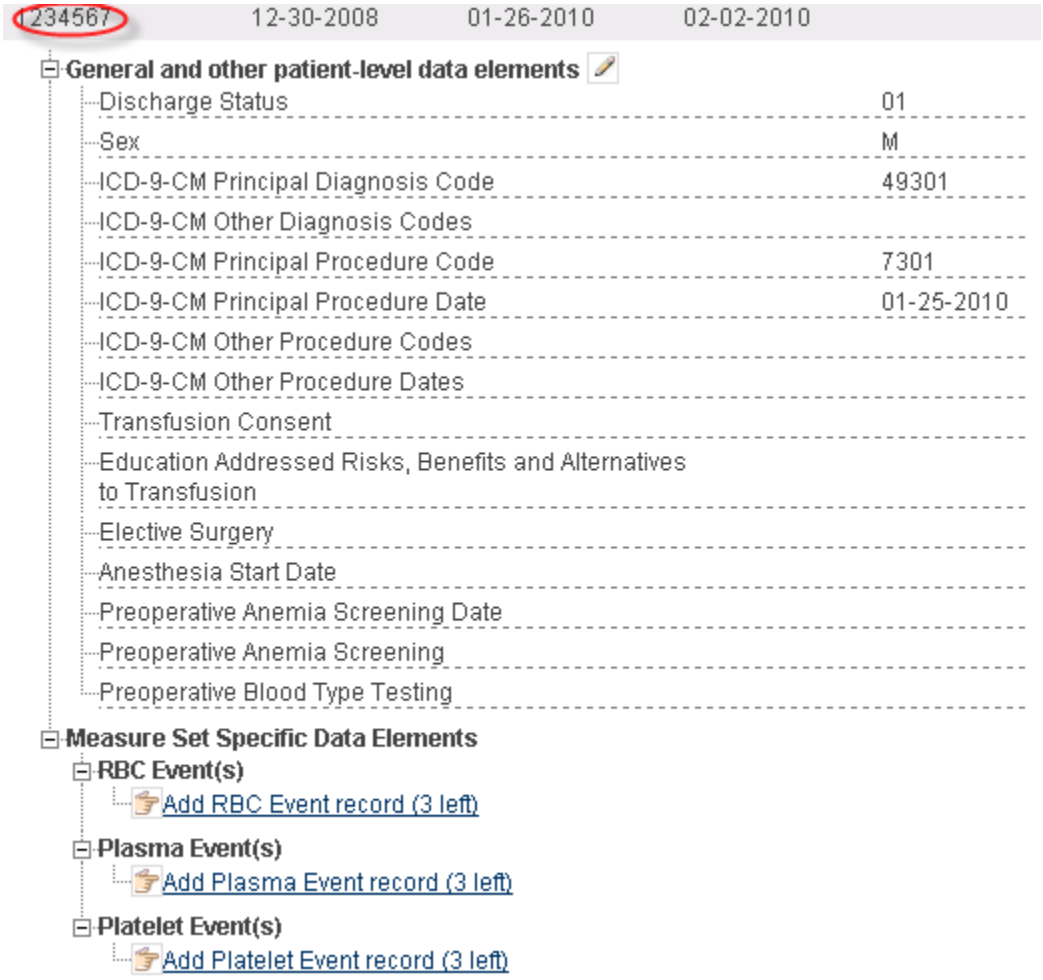
Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

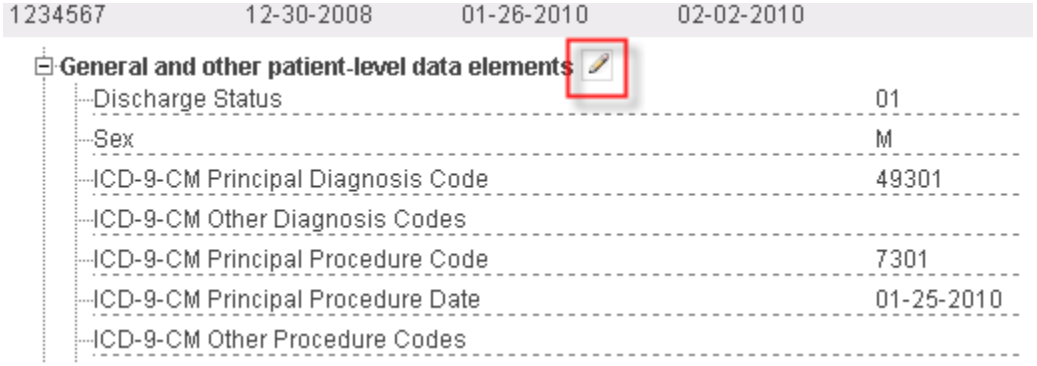
View of alternate setting showing list of all records (both incomplete and complete). To return the default setting, click the link "Show Incomplete Records Only"



b) To view or update data in an existing record, click on the UBCI number. This will create a drop down that includes all of the information for that client record. You can contract the drop down by clicking on the "-"or expand by clicking on the "+" before the different sections.

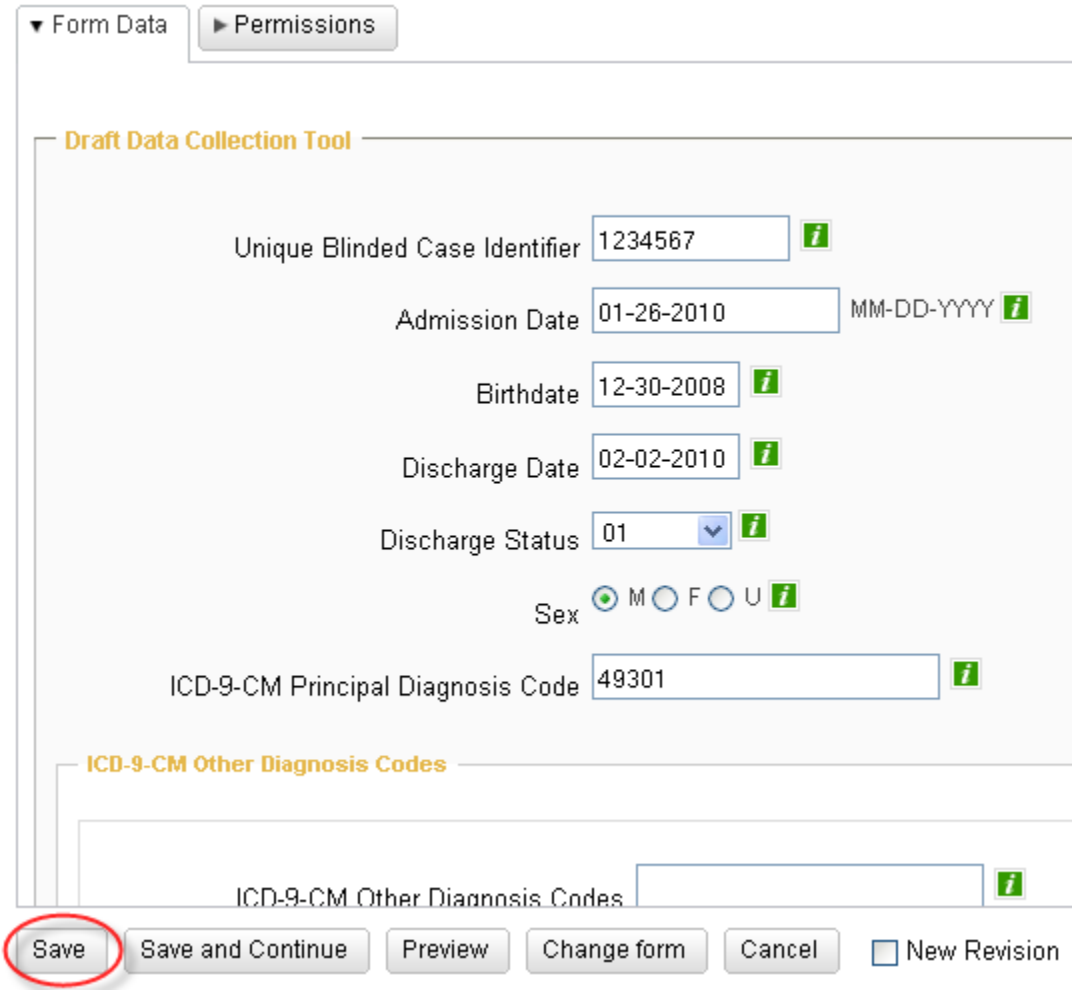


c) To edit the "General and other patient-level data elements", click on the pencil icon.



d) Make changes to the "General and other patient-level data elements" and click "Save" when you are done.

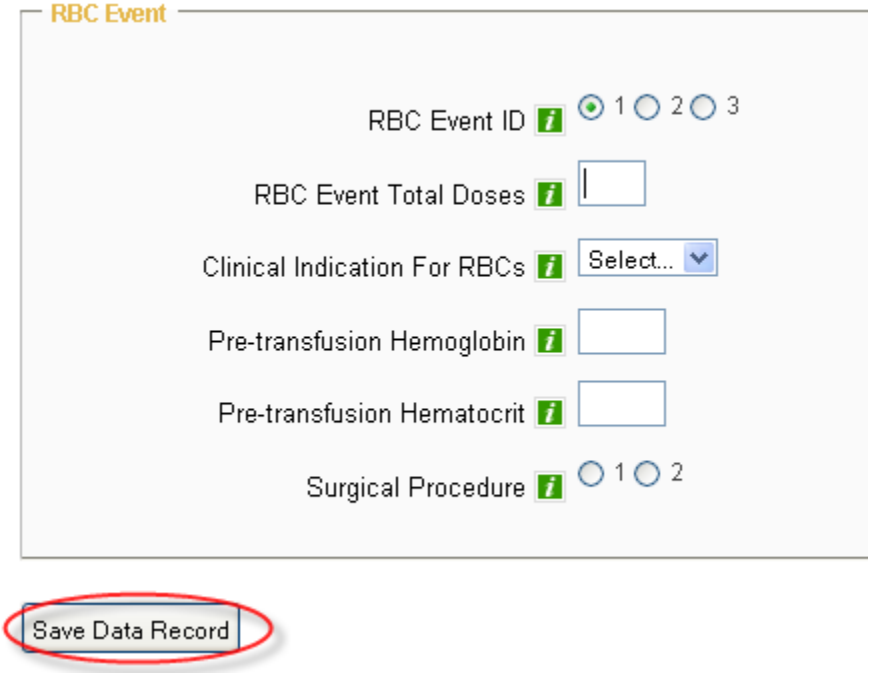
Navigating the Blood Management Project
Data Collection Tool



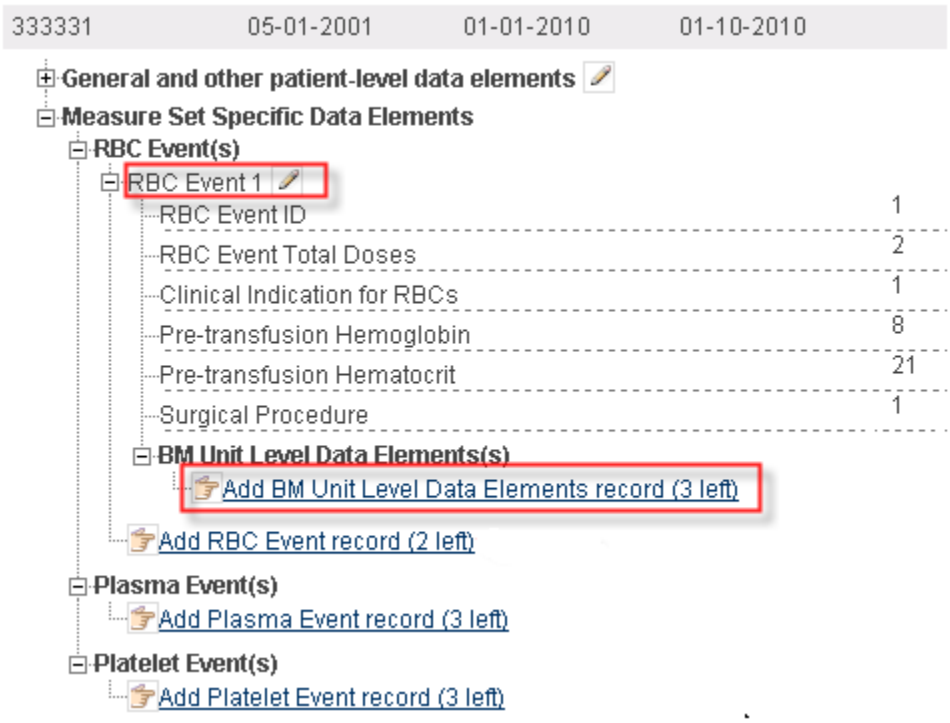
Navigating the Blood Management Project
Data Collection Tool
Add RBC Events and BM Unit Level Data Elements

a) To add a RBC event (NOTE: you can add up to three RBC events), click on the "Add RBC Event Record" Link.

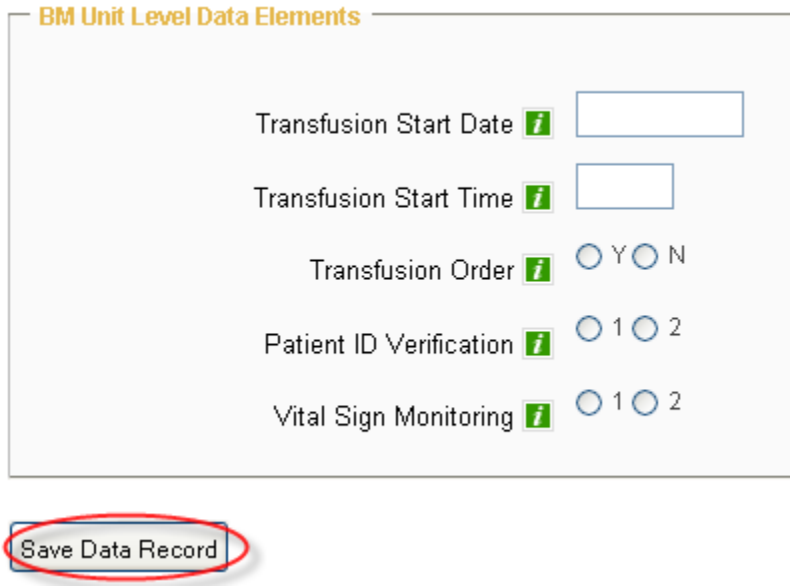
b) Enter data for RBC Event 1 and click "Save Data Record"



c) Data for "RBC Event 1" is now included with this client record. To edit the RBC Event data that you just entered, click on the pencil icon next to the event. To add unit level data for RBC Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)

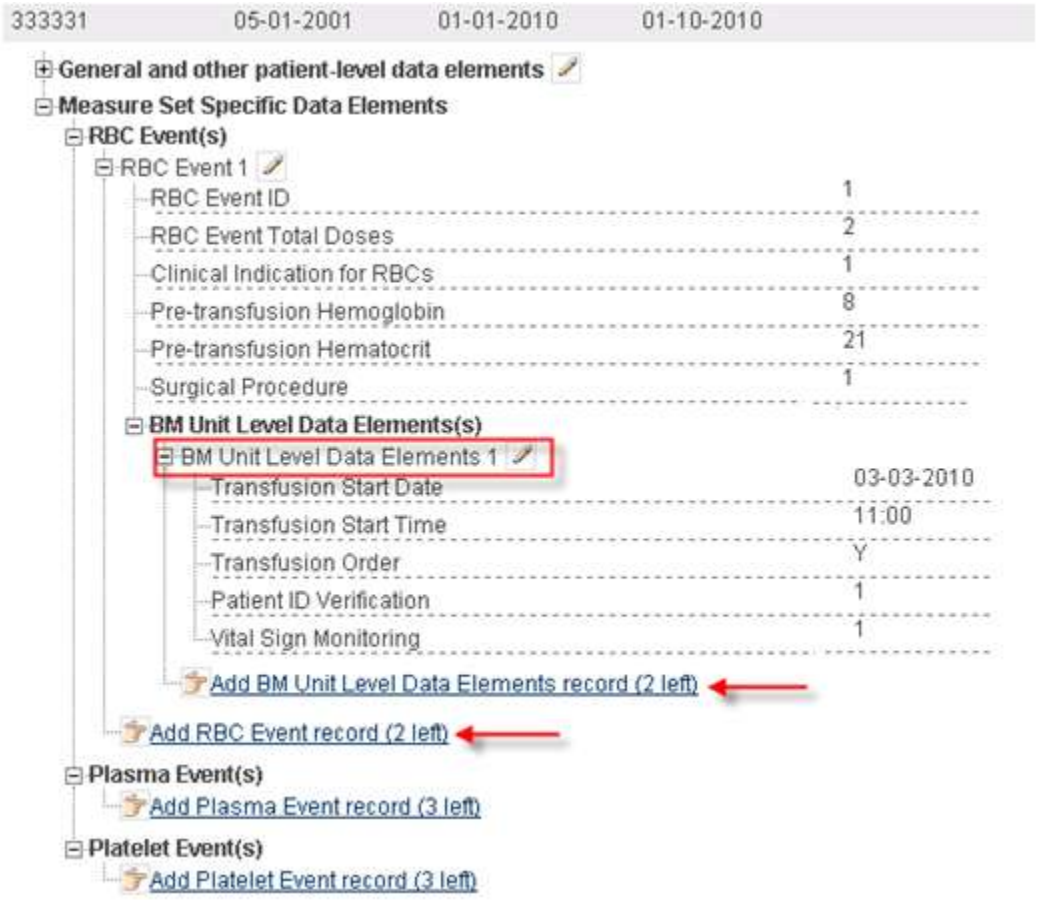


d) Enter data for the BM Unit Level Record for RBC Event 1 and click "Save Data Record"



e) Data for "BM Unit 1" for "RBC Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for RBC Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another RBC Event, click on "Add RBC Event Record".

Navigating the Blood Management Project Data Collection Tool

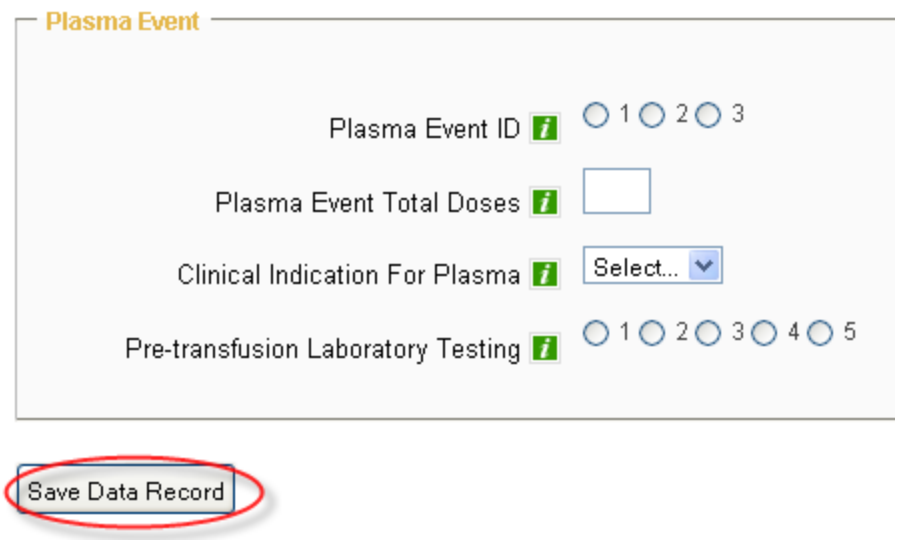


Navigating the Blood Management Project Data Collection Tool

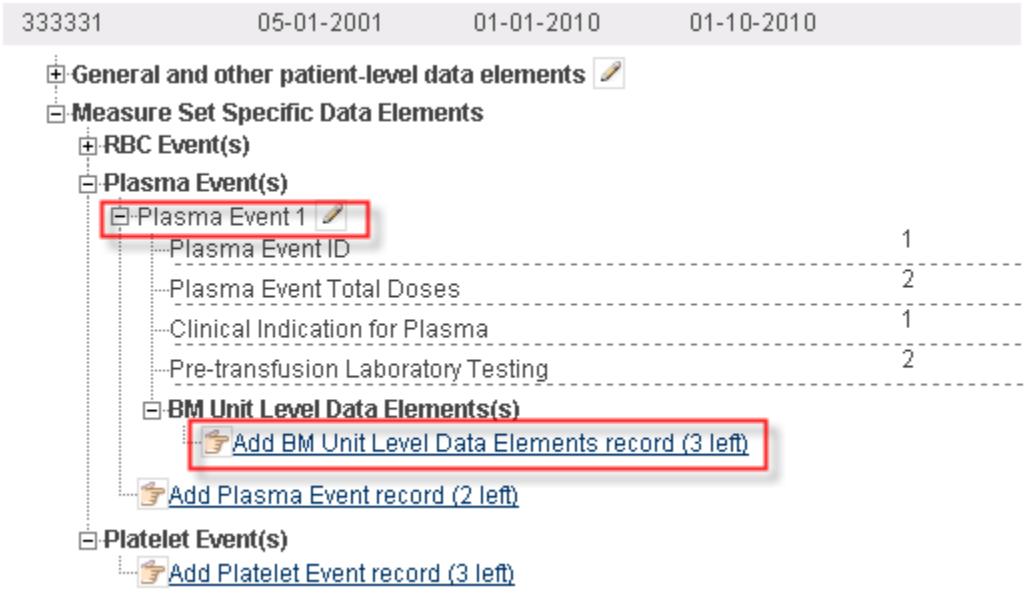
Add Plasma Events and BM Unit Level Data Elements

a) To add a Plasma event, click on the "Add Plasma Event Record" Link

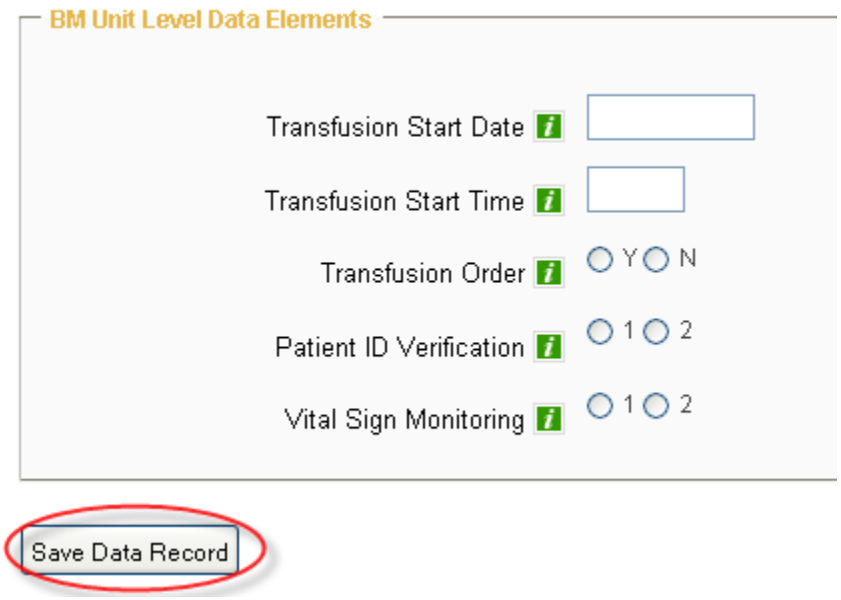
b) Enter data for Plasma Event 1 and click "Save Data Record"



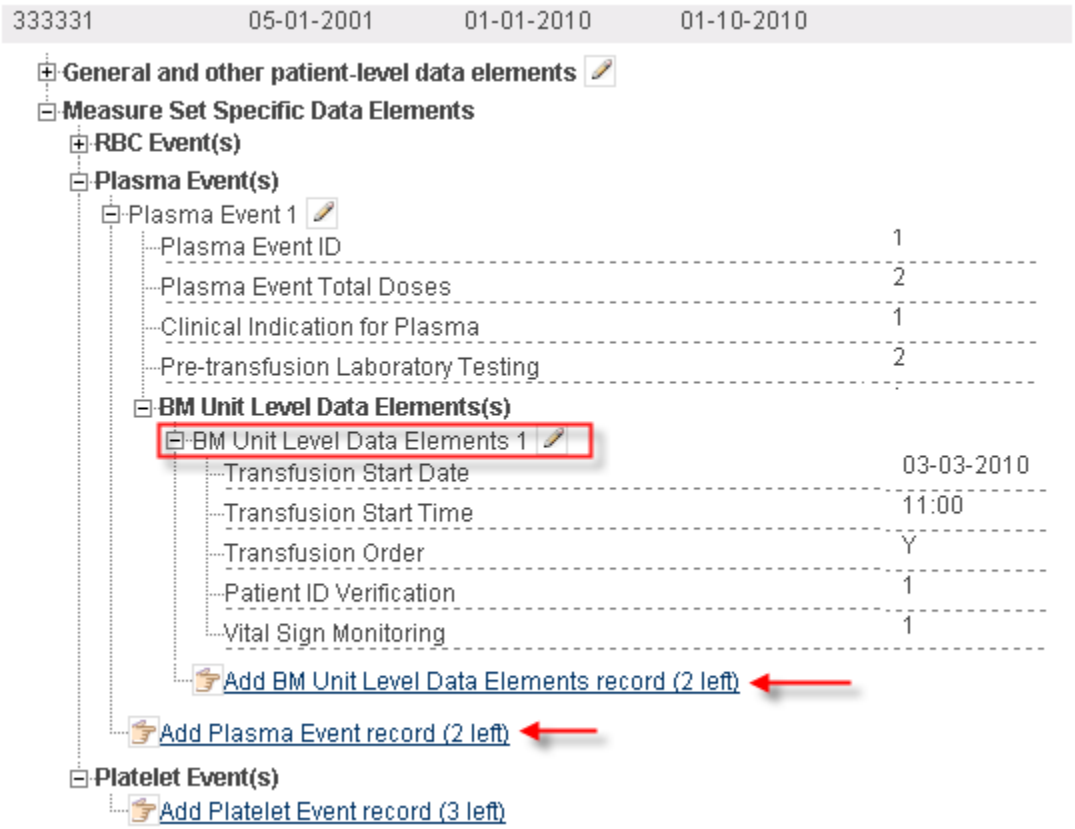
c) Data for "Plasma Event 1" is now included with this client record. To edit the Plasma Event data that you just entered, click on the pencil icon next to the event. To add unit level data for Plasma Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)



d) Enter data for the BM Unit Level Record for Plasma Event 1 and click "Save Data Record"



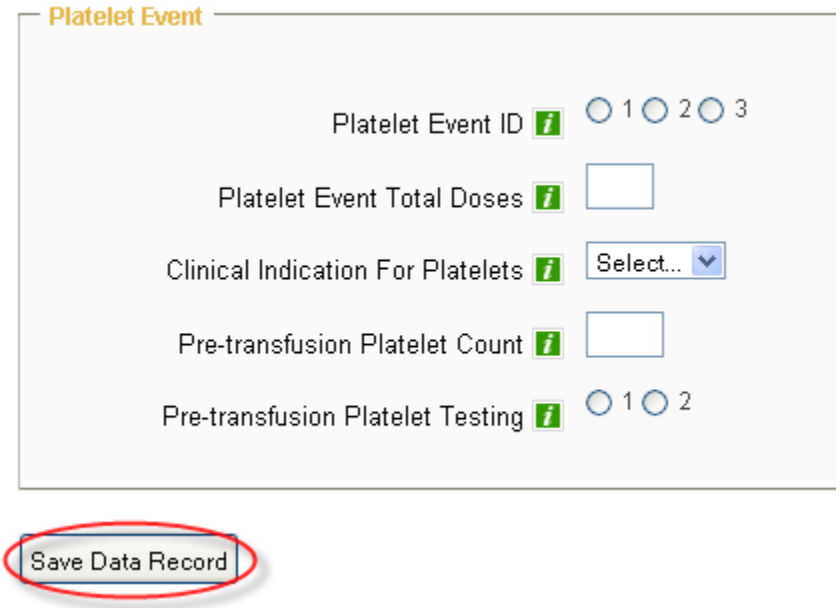
e) Data for "BM Unit Level 1" for "Plasma Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for Plasma Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another Plasma Event, click on "Add Plasma Event Record".



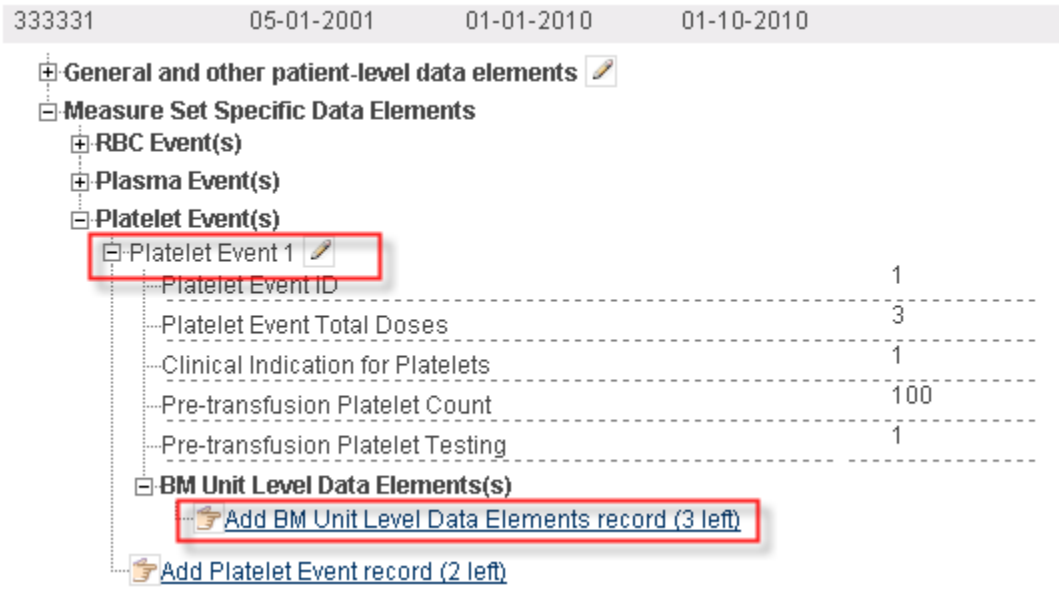
Navigating the Blood Management Project
Data Collection Tool
Add Platelet Events and BM Unit Level Data Elements

a) To add a Platelet event, click on the "Add Platelet Event Record" Link

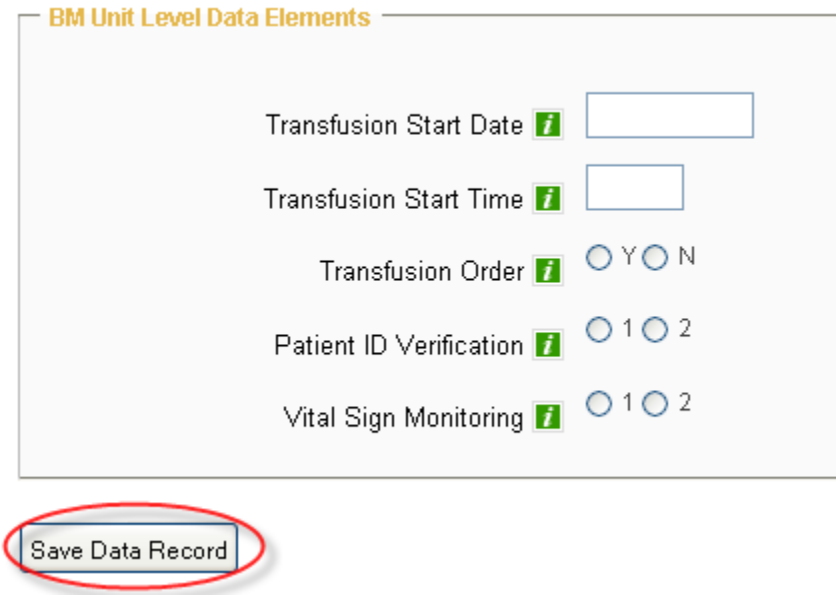
b) Enter data for Platelet Event 1 and click "Save Data Record"



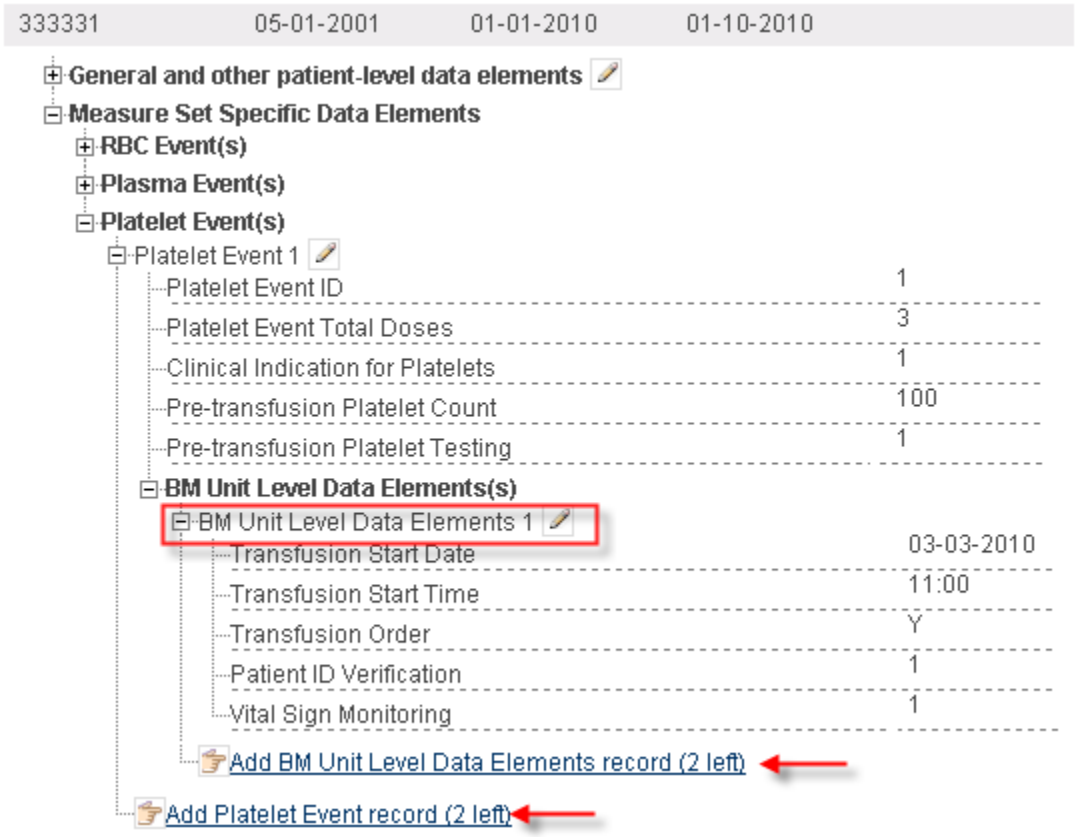
c) Data for "Platelet Event 1" is now included with this client record. To edit the Platelet Event data that you just entered, click on the pencil icon next to the event. To add unit level data for Platelet Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)



d) Enter data for the BM Unit Level Record for Platelet Event 1 and click "Save Data Record"



e) Data for "BM Unit Level 1" for "Platelet Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for Platelet Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another Platelet Event, click on "Add Platelet Event Record".



Marking Records As "Complete"

a) Once you are done entering and editing data for a record, you will need to mark the record as complete. **Please note: Once you check the box for a record under "Complete" you are BOTH marking the record as complete AND locking that record for any further editing**. When you click on the checkbox, the record will "disappear" from view. Do not be alarmed. The default view of the table is to only show incomplete records. To view the record you just completed, click on the link to "Show all Records (including complete)"

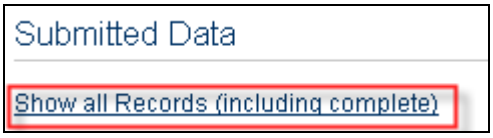

Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

Navigating the Blood Management Project
Data Collection Tool

Reviewing Records That Have Been Completed

a) To review a record that has been marked complete, switch the view on your hospital home page by clicking on the "Show all Records (including complete)" link.

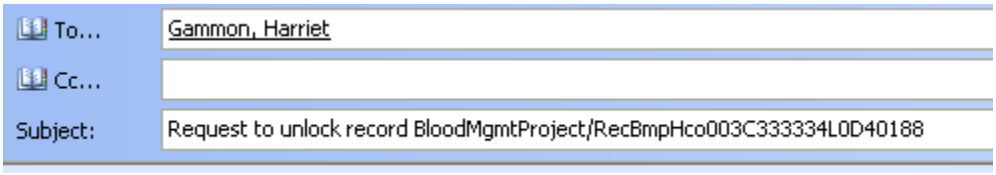


b) In this view you can see all records both complete and incomplete. Completed records are now LOCKED and can not be edited.

Show incomplete Records Only

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐
333334	05-01-2001	01-01-2010	01-10-2010	🔒
99999999	01-01-1901	11-11-2010	11-15-2010	🔒
4445	03/03/83	02/02/10	02/05/10	🔒
444555	03/03/83	02/02/10	02/05/10	🔒
2224	05/01/01	01/01/10	01/10/10	🔒

b) If, for any reason, you need to unlock a record, you will need to send an e-mail to the project leader, Harriet Gammon. To send your e-mail request, click on the "lock" icon, and an e-mail form should appear. It will be addressed to Harriet, and the subject line will contain a reference to the specific record.



c) In your e-mail, please briefly explain why the record needs to be unlocked (e.g., Accidentally clicked the "Complete" checkbox).

PATIENT BLOOD MANAGEMENT PERFORMANCE MEASURES PROJECT - Technical Advisory Panel

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NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 1527 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** RBC Transfusion Indication
De.2 **Brief description of measure:** Percentage of transfused red blood cell units (bags) with pre-transfusion hemoglobin or hematocrit result and clinical indication documented - applicable to inpatients of all ages
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** PBM-02 is part of the Patient Blood Management (PBM) measure set: PBM-01 (Transfusion Consent), PBM-03 (Plasma Transfusion Indication), PBM-04(Platelet Transfusion Indication),PBM-05 (Blood Administration Documentation), PBM-06 (Preoperative Anemia Screening), PBM-07 (Preoperative Blood Type Testing and Anitbody Screening).
De.4 **National Priority Partners Priority Area:** Care coordination, Safety, Overuse De.5 **IOM Quality Domain**: Effectiveness, Patient-centered, Safety De.6 **Consumer Care Need:** Getting better, Living with illness

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	NQF Staff
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Agreement will be signed and submitted prior to or at the time of measure submission A.4 **Measure Steward Agreement attached:**	**A** Y☐ N☐

B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	**B** Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement Accountability	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers, Leading cause of morbidity/mortality, High resource use, Severity of illness, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** Blood saves lives, but recent evidence and other management options should influence transfusion decisions today. Blood is a scarce resource due to an aging population of donors and blood usage is likely to rise due to an older population that is expected to need more blood that continues to increase in cost. Most importantly, accumulating literature demonstrates a strong (often dose-dependent) association between transfusion and adverse outcomes such as increased length of stay, postoperative infection, morbidity and mortality. As a result, many advocate the importance of transfusing a single unit followed by an assessment to determine if more blood is needed. 1a.4 **Citations for Evidence of High Impact:** Thomson A, Farmer S, Hofmann A, Isbister J, Shander A. Patient blood management - a new paradigm for transfusion medicine. ISBT Science Series (2009) 4, 423-435. NHMRC/ABST. Clinical practice guidelines on the use of blood and blood components. Commonwealth of Australia, NHMRC/ABST,2001. Madjdpour C, Spahn DR, Weiskopf RB. Anemia and perioperative red blood cell transfusion: A matter of tolerance. Crit Care Med 2006;34:S102-S106.	**1a** C☐ P☐ M☐ N☐

1b. Opportunity for Improvement

1b.1 Benefits (improvements in quality) envisioned by use of this measure: Almost 20 years ago, a study reported significant variability in transfusion practice in 540 patients who underwent cardiac surgery. Despite consensus guidelines, there continues to be a wide variation in transfusion practice for similar procedures that varies between hospitals and clinicians today. If all hospitals adopted current best practice guidelines, there would be an opportunity to reduce transfusion exposure as reported by one surgical intensive care unit that implemented an evidence-based guideline and reduced the number of units infused and patients transfused without an increase in mortality.

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
Several studies reported a wide variation in transfusion practice. An Austrian study found that orthopedic patients in 18 hospitals had transfusion rates from 12 to 87%. Another study of cardiac surgery patients in 12 Australasian teaching hospitals had red blood cell transfusion rates of 17 to 79%. A recent observational co-hort study in 2008 of 102,470 patients undergoing primary isolated cardiac artery bypass graft (CABG) surgery also showed wide variability in the red blood cell (RBC) transfusion rates independent of case mix. Another study showed that even with restrictive transfusion practice, 26% of intensive care patients received RBC transfusions to increase their hemoglobin when there was no evidence of bleeding.

1b.3 Citations for data on performance gap:
University HeatlthSystem Consortium. Blood use benchmarking project (2002) executive summary retrieved at www.uhc.edu, March 2008.
Brandt MM, Rubenfeld IL, Jordan J, Trivedi D, Horst HM. Transfusion insurgency: practice change through education and evidence-based recommendations. Amer J of Surg 2009;197:279-283.
Goodnough LT, Johnston MF, Toy PT. Transfusion Medicine Academic Award Group. The variability of transfusion practice in coronary artery bypass surgery. JAMA 1991;265(1):86-90.
Guerrero EB, Zhao Y, Obrien SM, Ferguson TB, Peterson ED, et al. Variation in use of blood transfusion in coronary artery bypass graft surgery. JAMA 2010;304(14) 1568-1575.
Stover EP, Siegel LC, Parks R, et al. Variability in transfusion practice for coronary artery bypass surgery persists despite national consensus guidelines: a 24-institution study. Institutions of the Multicenter Study of Perioperative Ischemia Research Group. Anesthesiology 1998:88;327-333.
Rao SV, Chiswell K, Sun JL, et al. International variation in the use of blood transfusion in patients with bnon-ST-segment elevation acute coronary syndromes. Am J Cardiol 2008:101;25-29.
Gombotz H, Rehak PH, Shander A, Hoffmann A. Blood use in elective surgery: The Austrian benchmark study. Transfusin 2007;47:1468-1480.
Daly DJ, Myles PS, Smith JA, et al. Anticoagulation , bleeding and blood transfusion practices in Australasian cardiac surgical practice. Anaesth Intensive Care 2007;35:760-768.
Walsh TS, Garrioch M, Maciver C, Lee RJ, MacKirdy F, et al. Red cell requirements for intensive care units adhering to evidence-based transfusion guidelines. Transfusion 2004;44:1405-1410.

1b.4 Summary of Data on disparities by population group:
Patients who have a CABG surgery are more likely to receive a RBC transfusion if they are women, older, received adenosine diphosphate inhibitors (anti-platelet drug-plavix, ticlid), had lower preoperative hematocrit and had other traditional risk factors for morbidity and mortality compared with patients that did not receive RBCs.

1b.5 Citations for data on Disparities:
Guerrero EB, Zhao Y, Obrien SM, Ferguson TB, Peterson ED, et al. Variation in use of blood transfusion in coronary artery bypass graft surgery. JAMA 2010;304(14) 1568-1575.

1b
C☐ **P**☐ **M**☐ **N**☐

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Many experts concur that there is minimal evidence that blood will improve patient outcomes in many clinical situations and encourage other options be employed. Most advocate that blood transfusions should be avoided as much as possible except for patients in whom the benefit is greater than the risk due to the accumulating association between transfusion and adverse outcomes. Numerous patient populations have been identified

1c
C☐ **P**☐ **M**☐ **N**☐

with a growing list of adverse outcomes associated with RBC transfusions.

1c.2-3. Type of Evidence: Cohort study, Observational study, Evidence-based guideline, Randomized controlled trial, Expert opinion, Systematic synthesis of research, Meta-analysis

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
The incidence of adverse events that are common in medical literature include: increased incidence of postoperative infection, increased intensive (ICU) and hospital length of stay, increased rates of acute respiratory distress syndrome and multi-organ failure in the IUC and trauma patients and increased morbidity and mortality. There may also be a possibility that an RBC transfusion can affect tumor growth and cancer progression or recurrence.
Even though there are minimal evidence-based randomized controlled studies to guide when to transfuse, there are an increasing number of data-based analyses related to transfusion outcomes that can be used as an important tool in establishing evidence and identifying patient safety issues when the results are interpreted with caution. However, a recent randomized control trial among patients undergoing cardiac surgery showed that the use of a restrictive perioperative transfusion strategy compared to a more liberal strategy resulted in non-inferior rates of the combined outcome of 30-day all-cause mortality and severe mortality.
One systematic review of the literature published in 2002, found that patients randomized to a restrictive transfusion trigger group had the probability of receiving a RBC transfusion reduced by 42% and the volume reduced by 0.93 units. Mortality, rates of cardiac events, morbidity and length of hospital stay were unaffected. However, most of the data on clinical outcomes was based on a single randomized control trial. As a result, the evidence supported the use of restrictive triggers in patients who were free of severe cardiac disease.

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):**
NA

1c.6 Method for rating evidence: UTD

1c.7 Summary of Controversy/Contradictory Evidence: A study by Wu et al provides evidence that patients with an ischemic organ at risk are affected adversely by the underuse of transfusion.
Wu WC, Rathore SS, Wang Y, et al. Blood transfusion in elderly patients with acute myocardial infarction. N Engl J Med 2001;345:1230-6.

1c.8 Citations for Evidence (*other than guidelines***):** Hill GE, Frawley WH, Griffith KE, Forestner JE, Minei JP. Allogeneic blood transfusion increases the risk of postoperative bacterial infection: a meta-analysis. J Trauma 2003;54:908-914.
Shander A, Spence RK, Adams D, Shore-Lesserson L, Walawander CA. Timing and incidence of postoperative infections associated with blood transfusion: analysis of 1,489 orthopedic and cardiac surgery patients. Surg Infect (Lachmt) 2009;10-277-283.
Murphy GJ, Reeves BC, Rogers CA, Rizvi SI, Culliford L, Angelini GD. Increased mortality, postoperative morbidity, and cost after red blood cell transfusion in patients having cardiac surgery. Circulation 2007;116:2544-2552.
Hajjar LA, Vincent JL, Galas FRBG, Nakamura RE, Silva CMP, et al. Transfusion requirements after cardiac surgery; the TRACS randomized controlled trial. .JAMA 2010;304(14):1559-1567.
Vlahakes GJ. The value of phase 4 clinical testing. N Engl J Med 2006;354:413-415.
Reuters. Available at http://www.reuters.com/article/idUSTRE5115YF20090203 (accessed December 2010).
Hebert PC, Wells G, Blajchman MA, et al: A multicenter, randomized, controlled clinical trial of transfusion requirements in Critical Care Trials Group. N Engl J Med 1999;340:409-417.
Carson JL. Hill S, Carless P, Hebert P, Henry D. Transfusion Triggers: A systematic review of the literature. Transfusion Medicine Reviews 2002; 16 (3);187-199.
Thomson A, Farmer S, Hofmann A, Isbister J, Shander A. Patient blood management - a new paradigm for transfusion medicine. ISBT Science Series (2009) 4, 423-435.
Boucher BA, Hannon TJ. Review of therapeutics, Blood management: a primer for clinicians. Pharmacotherapy 2007;27(10):1394-1411.

Friedman MT, Ebrahim A. Adequacy of physician documentation of red blood cell transfusion and correlation with assessment of transfusion appropriateness. Arch Pathol Lab Med. 2006;130: 474-79.
Corwin HL, Parsonnet KC, Gettinger A. RBC transfusion in the ICU: is there a reason? Chest 1995;108: 767-771.
Tobin SN, Campbell DA, Boyce NW. Durability of response to a targeted intervention to modify clinician transfusion practices in a major teaching hospital. MJA. 2001;174:445-448.
Clinical practice guideline: Red blood cell transfusion in adult trauma and critical care. Crit Care Med 2009 Vol.37, No.12.
Guerrero EB, Zhao Y, Obrien SM, Ferguson TB, Peterson ED, et al. Variation in use of blood transfusion in coronary artery bypass graft surgery. JAMA 2010;304(14)1568-1575.
Hajjar LA, Vincent JL, Galas FRBG, Nakamura RE, Silva CMP, et al. Transfusion requirements after cardiac surgery: the TRACS randomized controlled trial. JAMA 2010; 304(14)1559-1567.
Shander AS, Goodnough LT. Blood transfusion as a quality indicator in cardiac surgery. JAMA 2010;(14)1610-1611.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number***):**
A. Recommendations Regarding Indications for RBC Transfusion in the General Critically Ill Patient
RBC transfusion may be indicated for patients with evidence of acute hemorrhage and hemodynamic instability or inadequate oxygen delivery p.3127

1c.10 Clinical Practice Guideline Citation: Napalitano LM, Kurek S, Luchette FA et al., American College of Critical Care Medicine of the Society of Critical Care Medicine and the Eastern Association for the Surgery of Trauma Practice Management Workgroup. Clinical practice guideline:Red blood cell transfusion in adult trauma and critical care. Crit Care Med 2009 Vol.37, No.12.
1c.11 National Guideline Clearinghouse or other URL: NA

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom***):**
Level 1

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*:
All relevant empirical data were evaluated for clinical benefits and harms of the various interventions. Attempts were made to collect as much quality scientific data as possible. Previously published national consensus based guidelines were included. Proper methods including a variety of databases and cross checking of citations were used to ensure that these standards are met and biases avoided. Reference sections of articles identified were also utilized to gather additional articles and the Cochrane database was utilized to ensure that all prospective, randomized, controlled trials were identified and collected for review. The scientific evidence assessment methods employed by the Canadian and U.S. Preventive Task Force were applied when classifying the articles for review.

1c.14 Rationale for using this guideline over others:
This guideline focuses on the most recent evidence base for critically ill and injured patients with anemia and hemodynamic stability which includes both medical and surgical patients that tend to receive multiple units of blood during hospitalization. Some of these recommendations could also apply to patients that receive blood in lower level of care units outside of the ICU.

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**

2a. MEASURE SPECIFICATIONS

S.1 Do you have a web page where current detailed measure specifications can be obtained?
S.2 If yes, provide web page URL:

2a. Precisely Specified

2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*):
Number of RBC units with pre-transfusion hemoglobin or hematocrit result and clinical indication documented

2a.2 Numerator Time Window (*The time period in which cases are eligible for inclusion in the numerator*):
Episode of care

2a.3 Numerator Details (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*):
The units in the numerator are a subset of the units in the denominator. The following data elements are collected for the numerator; Clinical Indication for RBCs, Pre-transfusion hemoglobin or hematocrit, and RBC ID. Detailed descriptions are provided in attachment for Section 2a.30.

2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured*):
Number of transfused red blood cell(RBC) units evaluated

2a.5 Target population gender: Female, Male
2a.6 Target population age range: All ages

2a.7 Denominator Time Window (*The time period in which cases are eligible for inclusion in the denominator*):
Episode of care

2a.8 Denominator Details (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions*):
The units in the numerator are a subset of the denominator units. The following data elements are collected for the numerator: Admission Date, Blood Administration Location, Discharge Date, ICD-9-CM Principal or Other Procedure Codes or Blood Bank Records. Detailed descriptions are provided in attachment for Section 2a.30.

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population*): None

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions*):

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions*):
This measure can be stratified using the data element Blood Administration Location. The definition is the location where the blood transfusion started. Allowable values are: Intraoperative or Non-intraoperative Setting

2a.12-13 Risk Adjustment Type: No risk adjustment necessary

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method*):

2a.15-17 Detailed risk model available Web page URL or attachment:

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Higher score

2a-specs
C ☐
P ☐
M ☐
N ☐

2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**
Algorithms are provided in attachment for Section 2a.30.

2a.22 Describe the method for discriminating performance *(e.g., significance testing)***:**
During the six-month pilot, the distribution of the hospital rates was reviewed over time.

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
For pilot testing, hospitals were requested to submit 10 cases of patients with RBCs transfusions that were discharged per the designated six months in 2009. Post pilot, the sample size will be based on the number of RBC units transfused per discharge month or quarter.
Hospitals that choose to sample have the option of sampling quarterly or monthly. A hospital may choose to use a larger sample size than required. Hospitals with an initial population size less than the minimum number of units/doses transfused per quarter/month for the measure, cannot apply sampling to the measure.

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested)*
Paper medical record/flow-sheet, Electronic administrative data/claims, Lab data

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
The Joint Commission developed a web-based data collection tool that was used by hospitals and for reliability testing during the pilot test. When the measures are made part of The Joint Commission's ORYX data collection and reporting program, the data would be collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy of the data collection tool with the specifications.

2a.26-28 Data source/data collection instrument reference web page URL or attachment: Attachment The_Patient Blood_Management_Tool [1]-634278822541039354.pdf

2a.29-31 Data dictionary/code table web page URL or attachment: Attachment PBMSpecifications-634279402627152086.pdf

2a.32-35 Level of Measurement/Analysis (*Check the level(s) for which the measure is specified and tested)*
Facility/Agency, Can be measured at all levels

2a.36-37 Care Settings (*Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 Clinical Services (*Healthcare services being measured, check all that apply*)
Clinicians: PA/NP/Advanced Practice Nurse, Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)***:** A sample of 194 medical records were reabstracted at 12 randomly selected acute care hospitals of different sizes and locations from July through September 2010.

2b.2 Analytic Method *(type of reliability & rationale, method for testing)***:**
Hospitals for reliability testing were randomly selected based on multiple characteristics, including region (west, south, north central, northeast), hospital type (teaching/non-teaching, rural/urban), and bed size (0-99, 100-199, 200-299, 300+). The objectives of the reliability site visits included: evaluation of the reliability of the individual measures and associated data elements, assessment of data collection effort including abstraction time and estimated cost, assessment of measure specifications including definitions, abstraction guidelines, etc. and assessment of sampling strategies. To prepare for the reliability site visits, the data collection tool that was used by the pilot hospitals was enhanced and tested. During the reliability

2b
C ☐
P ☐
M ☐
N ☐

site visit, Joint Commission staff re-abstracted a sub-set of records that had been previously submitted by the hospital into the enhanced data collection tool without knowing the measure specific data values that the hospital had submitted. When reabstraction was completed for each record, the results from the hospital and Joint Commission staff were compared and differences adjudicated in the program. Focus group interviews were conducted at each hospital and findings were discussed with each hospital to understand what aspects could be improved. A comparison of calculated indicator rates using data originally abstracted by hospitals and the data that were reabstracted by The Joint Commission staff was adjudicated on each measure and the individual data elements. Statistical analysis utilized Kappa scores and p values.

2b.3 Testing Results *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
The number of originally abstracted denominator events was 152 with a computed original measure rate of 83%. The number of re-abstracted denominator events was 151 with a re-abstracted measure rate of 83%. The absolute difference was -0.5% with a Kappa score of 0.436. The percent of hospital identified population verified was 89%. The match rate for 160 events for the individual data elements was: Clinical Indication for RBCs 60%, Pre-transfusion Hemoglobin 75%, RBC Event ID 99% and RBC Event Total Doses 81%. Measure specifications have been revised to strengthen and provide additional clarity to the data element definitions and abstraction guidelines.

2c. Validity testing

2c.1 Data/sample *(description of data/sample and size)*: Face validity was tested by a total of 63 hospitals of various sizes and geographic locations across the country that represented over 300 individuals during August and May 2009. Measure specifications were sent to the test hospitals for review. In addition, on-site focus interviews were conducted at five hospitals. Criterion validity was evaluated during the reliability site visits mentioned above as well as through an online survey that the participating hospitals completed.

2c.2 Analytic Method *(type of validity & rationale, method for testing)*:
The measure information form and the data dictionary were evaluated for face validity. The following parts of the measure information form were evaluated: numerator statement, numerator inclusions, numerator exclusions, denominator statement, denominator inclusions, denominator exclusions and an overall understanding of the measure information form. Each area was scored utilizing a five-point Likert scale. For each data element, the hospitals were asked to comment on the clarity and understanding of the abstraction guidelines and data definitions. In addition, the data dictionary was reviewed for overall understanding, usefulness and clarity utilizing a five-point Likert scale. Qualitative analysis was performed on measure feedback received during the focus group interviews and from the online surveys.

2c.3 Testing Results *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
A total of 58 hospitals completed the face validity evaluation and rated the overall understanding of the numerator and denominator statements an average 4.3% that ranked the measure 4th out of the 10 measures. Modifications to improve the understanding and clarity of the measure specifications were made prior to pilot testing based on feedback received from the hospitals during the face validity evaluation. Analysis of the online survey revealed 98% (57/58) of the pilot hospitals recommended moving the measure forward to the pilot test with suggested modifications. Note: For alpha testing, samples of all three blood products were proposed for one measure population.

2c
C ☐
P ☐
M ☐
N ☐

2d. Exclusions Justified

2d.1 Summary of Evidence supporting exclusion(s):

2d.2 Citations for Evidence:

2d.3 Data/sample *(description of data/sample and size)*:

2d.4 Analytic Method *(type analysis & rationale)*:

2d
C ☐
P ☐
M ☐
N ☐
NA ☐

2d.5 Testing Results *(e.g., frequency, variability, sensitivity analyses)*:	
2e. Risk Adjustment for Outcomes/ Resource Use Measures **2e.1 Data/sample** *(description of data/sample and size)*: **2e.2 Analytic Method** *(type of risk adjustment, analysis, & rationale)*: **2e.3 Testing Results** *(risk model performance metrics)*: **2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:**	**2e** C☐ P☐ M☐ N☐ NA☐
2f. Identification of Meaningful Differences in Performance **2f.1 Data/sample from Testing or Current Use** *(description of data/sample and size)*: A random sample of patients > 4 months of age was selected from the eligible measure population of inpatient discharges from 7/1/09 – 12/31/09. For each patient, a maximum of the first three 'events' (based on transfusion order) that could include up to three units or doses of blood from each of the three types of blood products were used for measurement purposes from each hospital. **2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*: Z-scores were used to determine hospital measure rates that were significantly different from the overall average. **2f.3 Provide Measure Scores from Testing or Current Use** *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*: Mean Rate for All Hospitals = 81.2% Overall Rate for All Hospitals = 80.6% Standard Deviation = 20.5% Median Rate for All Hospitals = 85.9% Min. = 8.6% Max. = 100% Lower Quartile = 73% Upper Quartile = 97% Z< -2* = 2 Z< 2** = 0	**2f** C☐ P☐ M☐ N☐
2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: **2g.2 Analytic Method** *(type of analysis & rationale)*: **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*:	**2g** C☐ P☐ M☐ N☐ NA☐
2h. Disparities in Care **2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**	**2h** C☐ P☐ M☐ N☐ NA☐

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	**2** **C☐** **P☐** **M☐** **N☐**
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information 3a.1 **Current Use:** Not in use but testing completed 3a.2 **Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:** We intend to incorporate these Patient Blood Management measures into our ORYX initiative with associated public reporting on Quality Check when there is a national call for these measures. 3a.3 **If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** The specifications will be posted on the Joint Commission website for public use in 2011. **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) 3a.4 **Data/sample** *(description of data/sample and size)***:** 3a.5 **Methods** *(e.g., focus group, survey, QI project)***:** 3a.6 **Results** *(qualitative and/or quantitative results and conclusions)***:**	**3a** **C☐** **P☐** **M☐** **N☐**
3b/3c. Relation to other NQF-endorsed measures 3b.1 **NQF # and Title of similar or related measures:**	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): 3b.2 **Are the measure specifications harmonized? If not, why?**	**3b** **C☐** **P☐** **M☐** **N☐** **NA☐**
3c. Distinctive or Additive Value 3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** 5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:**	**3c** **C☐** **P☐** **M☐** **N☐** **NA☐**

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** **C☐** **P☐** **M☐** **N☐**
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	**Eval Rating**
4a. Data Generated as a Byproduct of Care Processes **4a.1-2 How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	**4a** **C☐** **P☐** **M☐** **N☐**
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) No **4b.2 If not, specify the near-term path to achieve electronic capture by most providers.** The project will begin Phase III in January 2011 to retool the specifications for retrieval from an electronic health record.	**4b** **C☐** **P☐** **M☐** **N☐**
4c. Exclusions **4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No **4c.2 If yes, provide justification.**	**4c** **C☐** **P☐** **M☐** **N☐** **NA☐**
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** None noted during the pilot	**4d** **C☐** **P☐** **M☐** **N☐**
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** Abstraction time for PBM-02 varied based on whether the patient received blood and the number of RBC units transfused to each patient. During testing, there was confusion and lack of information to accurately abstract RBCs by event based on the order to transfuse. This extra layer of abstraction can decrease reliability if the 'event' is incorrectly abstracted or unable to be determined. As a result, this measure will be abstracted by unit and will evaluate the initial four RBC units that were transfused. The data element Clinical Indication for RBCs confirmed that hospitals use a variety of indications to document blood use. If an indication was documented, abstractors sometimes had difficulty determining which of the three allowable values of; bleeding, not bleeding but documentation of oxygen deficit or 'other', they should select even though they all flowed to the numerator. Post pilot, hospitals will pass if	**4e** **C☐** **P☐** **M☐** **N☐**

there is documentation of an indication without having to categorize it to a pre-defined list of reasons. Abstractors reported it was difficult to abstract RBC (99.00 procedure code) cell salvage units since the hemoglobin value and clinical indication are implicit in the decision to utilize the cell salvage process. So due to this issue, and data that showed that only 2% of the units were identified as 99.00, RBCs with this code will not be an included population.
Intraoperatively, documentation of a blood transfusion pre-transfusion lab results and clinical indication was lacking in most paper-based records. So, in order to assist hospitals to focus their efforts on areas with low rates of compliance, this measure will be stratified so that hospitals can track results based on administration location. The "closest" hemoglobin values will be abstracted without a "within 24 hour timeframe" requirement since pre-transfusion labs for chronic transfusion patients and surgical patient labs may be drawn more than 24 hours prior to the transfusion.
Pilot hospitals were requested to estimate the time to abstract one unit of blood red blood cells (RBCs), for the six-month pilot. Twenty hospitals estimated an average time of 30 minutes to abstract a unit of blood with an average cost of $21-25 per hour. However, these costs do not include the time or cost involved in identifying the patient population, staff training or data collection tool instruction. It should also be noted that the learning curve varied widely due to the staff experience and expertise that were utilized for a 'time-limited' project.
Due to the amount of time needed to manually abstract the volume of blood transfusions, we believe that these measures are most suitable for abstraction from an electronic medical record (EHR). Retrieval from an EHR could capture 100% of all units that were transfused and would decrease or eliminate the associated abstraction burden. This method would also improve the identification of patients who received blood since procedure codes to document blood use are not standardized across the country. In the meantime, patients can be identified using blood bank records or procedure codes.
During the 12 reliability site visits, two Joint Commission staff also found that the abstraction time varied widely based on the method of record retrieval (e.g., paper record, scanned record or electronic information) at each hospital and the amount of blood transfused per case. Based on hospital feedback, measure specifications have been revised to strengthen and provide additional clarity to data element definitions and abstraction guidelines. The timing and frequency of data collection will remain monthly or quarterly as it does for the other Joint Commission measure sets. Maintaining patient confidentially was not an issue during the pilot test, since blinded hospital and patient identifiers are used on all data received by The Joint Commission staff for data quality reviews.

4e.2 **Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:**
The majority of hospitals already have processes in place to abstract measures if the patients are identified using procedure codes. However, some hospitals document total hospital blood use using blood bank records that would have to be cross-referenced by the patient medical record number to determine how much and the type of blood product each patient received which adds to the abstraction burden.
There are no Joint Commission fees to abstract the measures, but the abstraction cost for this measure would depend on the amount of blood transfused at each hospital. This measure would evaluate the first six units of RBCs regardless of the number of RBC units transfused. Hospitals with Blood Management or conservation programs may have fewer units to review and those with efficient or electronic processes to document blood may have lower abstraction costs.

4e.3 **Evidence for costs:**

4e.4 **Business case documentation:** There continues to be considerable unexplained variation in transfusion practices across organizations, products and patient populations. Evidence is mounting that demonstrates significant harm from unnecessary blood transfusions. Monitoring transfusions will provide information so hospitals can begin to identify patients who are transfused outside of the guidelines. It has been found that hospitals that track blood use at the patient specific level have a higher percentage of appropriate transfusions than those that do not track blood use at that level. Measuring blood use should decrease the amount of blood transfused and improve patient safety.

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met?	**4**

Rationale:	C☐ P☐ M☐ N☐
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	Time-limited ☐
Steering Committee: Do you recommend for endorsement? **Comments:**	Y☐ N☐ A☐

CONTACT INFORMATION

Co.1 Measure Steward (Intellectual Property Owner)
Co.1 Organization
The Joint Commission, One Renaissance Boulevard, Oakbrook Terrace, Illinois, 60181

Co.2 Point of Contact
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Measure Developer If different from Measure Steward
Co.3 Organization
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Co.4 Point of Contact
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Co.5 Submitter If different from Measure Steward POC
Harriet, Gammon, MSN, RN, CPHQ, hgammon@jointcommission.org, 630-792-5926-, The Joint Commission

Co.6 Additional organizations that sponsored/participated in measure development

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.
The technical advisory panel determined priority areas in blood management for measure development. They reviewed public comments and were actively involved in all phases of the project to identify and develop the numerator and denominator statements. Measure recommendations for National Quality Forum endorsement were made after careful review of the pilot results and site feedback.

Ad.2 If adapted, provide name of original measure:
Ad.3-5 If adapted, provide original specifications URL or attachment

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 Year the measure was first released:
Ad.7 Month and Year of most recent revision: 12, 2010
Ad.8 What is your frequency for review/update of this measure? Biannually
Ad.9 When is the next scheduled review/update for this measure? 06, 2011

Ad.10 Copyright statement/disclaimers: No royalty or use fee is required for copying or reprinting this manual, but the following are required as a condition of usage: 1) disclosure that the Specifications Manual is periodically updated, and that the version being copied or reprinted may not be up-to-date when used unless the copier or printer has verified the version to be up-to-date and affirms that, and 2) users participating in Joint Commission accreditation, including performance measures systems, are required to update their software and associated documentation based on the published manual production timelines.
Example Acknowledgement: The Specifications Manual for National Hospital Inpatient Quality Measures Patient Blood Management Performance Measure Set is periodically updated by The Joint Commission. Users of the

Specifications Manual for National Hospital Inpatient Quality Measures Patient Blood Management Performance Measure Set must update their software and associated documentation based on the published manual production timelines.
Ad.11 -13 Additional Information web page URL or attachment: Attachment TAPLISTWEBc-634276846462990426.doc
Date of Submission (*MM*/*DD*/*YY*)**:** 12/29/2010

Patient Blood Management (PBM)

Set Measures

Set Measure ID	Measure Short Name
PBM-01	Transfusion Consent
PBM-02	RBC Transfusion Indication
PBM-03	Plasma Transfusion Indication
PBM-04	Platelet Transfusion Indication
PBM-05	Blood Administration Documentation
PBM-06	Preoperative Anemia Screening
PBM-07	Preoperative Blood Type Testing and Antibody Screening

Measure Set Specific Data Elements

Element Name	Collected For
Admission From Home	PBM-06,
Anesthesia Start Date	PBM-06,
Blood Administration Location	PBM-02, PBM-03, PBM-04, PBM-05,
Blood Bank Records	PBM-01, PBM-02, PBM-03, PBM-04, PBM-05,
Blood ID Number	PBM-05,
Blood Type Testing Ordered	PBM-07,
Clinical Indication for Plasma	PBM-03,
Clinical Indication for Platelets	PBM-04,
Clinical Indication for RBCs	PBM-02,
Education Addressed Risks, Benefits and Alternatives to Transfusion	PBM-01,
Patient ID Verification	PBM-05,
Plasma ID	PBM-03, PBM-05,
Platelet ID	PBM-04, PBM-05,
Pre-transfusion Hematocrit	PBM-02,
Pre-transfusion Hemoglobin	PBM-02,
Pre-transfusion PT/INR Result	PBM-03,
Pre-transfusion Platelet Count	PBM-04,
Preoperative Anemia Screening Date	PBM-06,
Preoperative Blood Type Testing	PBM-07,
RBC ID	PBM-02, PBM-05,
RBC Unit Exclusions	PBM-02, PBM-05,
Surgery Scheduled Timeframe	PBM-06,
Transfusion Consent	PBM-01,
Transfusion Order	PBM-05,
Transfusion Start Date	PBM-05,
Transfusion Start Time	PBM-05,
Vital Sign Monitoring	PBM-05,

Related Materials

Document Name
z. Appendix E - Miscellaneous Tables

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-01

Performance Measure Name: Transfusion Consent

Description: Patients with a signed consent who received information about the risks, benefits and alternatives of transfusion prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency.

Rationale: Planning a discussion with a licensed practitioner regarding the risks, benefits and alternatives of transfusion is an opportunity for the patient to participate in decisions about his or her care. It is a process that takes into consideration, each patient's preferences, clinical needs and provides information in compliance with the regulations and policies of the state and facility. Even though policies related to informed consent may vary among hospitals, all hospitals require some type of consent prior to treatment unless emergency care is needed. The elements of performance for the Joint Commission Standard RI.01.03.01 related to the informed consent process include a discussion about the risks, benefits and alternatives, and a discussion about the risk, if care is not received. This measure is also supported by the Joint Commission's National Patient Safety Goal (NPSG) 13 that encourages patients' active involvement in their own care as a patient safety strategy.

For many years, the American Association of Blood Banks (AABB) organization has supported the consent process for transfusion and has developed several standards such as AABB Standard 5.19.1. AABB requires that at a minimum, a recipient consent for transfusion and that should include; a description of the risks, benefits and treatment alternatives, the opportunity to ask questions and the right to accept or refuse transfusion.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with a signed consent who received information about the risks, benefits and alternatives prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Education Addressed Risks, Benefits and Alternatives to Transfusion*
- *Transfusion Consent*

Denominator Statement: Patients who received red blood cell, plasma or platelet transfusions

Included Populations: Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.3-9.6 or a transfusion documented from Blood Bank Records.

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data collection sources for required data elements include administrative data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document tranfusions may use blood bank records to identify the population.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Hospitals may want to evaluate the cases according to medical or surgical designation that were not included in the numerator in order to determine if the consent was signed and/or if all or only part of the educational components were given or if documentation was insufficient. Based on this information, hospitals may assess the barriers impacting this measure that could be improved.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

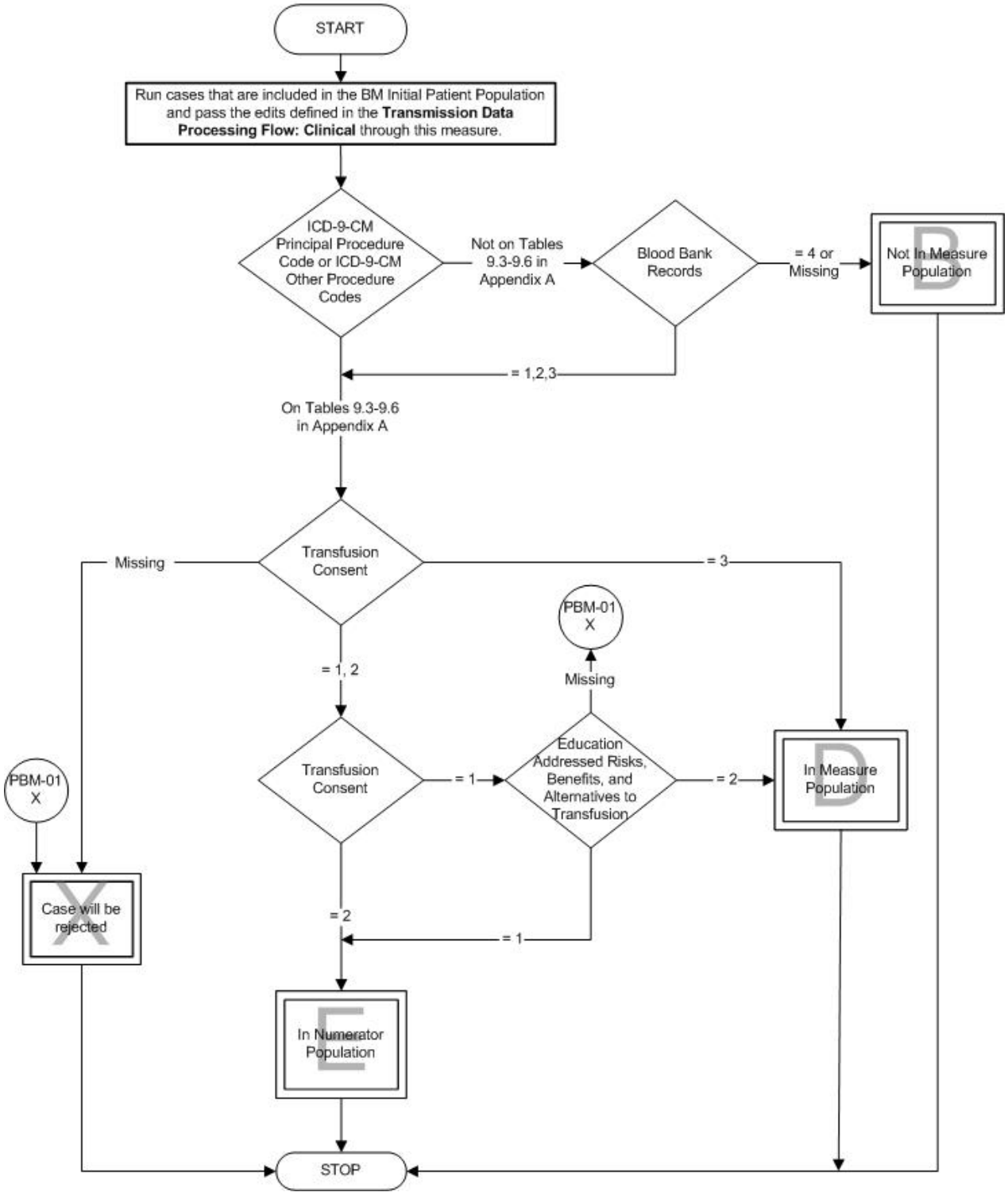
- Speiss BD, Counts RB, Gould SA. Perioperative Transfusion Medicine, Williams and Wilkins; 1998; 201-204.
- Stowell C, Sazama K. Informed Consent in Blood Transfusion and Cellular Therapies: Patients, Donors and Research Subjects. AABB Press; 2007; ISBN #978-1-56395-254-8.
- Burch JW, Uhl L. Guidelines for Informed Consent in Transfusion Medicine. AABB Press; 2006; ISBN #1-56395-146-0.2008.
- Standards for Blood Banks and Transfusion Services, 25th ed. Bethseda, MD: AABB 2008.
- The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL. Joint Commission Resources, Inc, 2009.
- The Joint Commission, “National Patient Safety Goals (NPSG)”, IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.

Measure Algorithm:

PBM–01: Transfusion Consent

Numerator: Patients with a signed consent who received information about the risks, benefits and alternatives prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency

Denominator: Patients who received red blood cells, platelets or plasma



Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-02

Performance Measure Name: RBC Transfusion Indication

Description: The number of transfused red blood cell (RBC) units with a pre-transfusion hemoglobin (hgb) or hematocrit (hct) result and clinical indication documented from patients of all ages who received RBCs.

Rationale: Improvement of the safety and quality of care that a hospital provides includes the review of the use of blood and blood products. Despite current evidence and best practice guidelines, clinical practice regarding when to transfuse varies among physicians and institutions even though most would agree that blood products should only be given when the benefits outweigh the harm. Many advocate that transfusion decisions should be based on a clinical assessment and not on laboratory values alone to avoid inappropriate over-or-under transfusion. Measuring whether an "indication for transfusion" and a pre-transfusion laboratory value was documented may improve the utilization of blood components. In addition, implementing such a process may simplify the hospital's review for appropriateness of the transfusion when auditing records for accreditation and regulatory agencies. In a study by Friedman and Ebrahim, there was a significant correlation between red blood cell transfusions that lacked documentation of the clinical necessity for transfusion and justification of the transfusion.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of RBC units with pre-transfusion hemoglobin or hematocrit result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for RBCs*
- *Pre-transfusion Hematocrit*
- *Pre-transfusion Hemoglobin*
- *RBC ID*

Denominator Statement: Number of transfused red blood cell units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Tables 9.3 or 9.4 or a RBC transfusion documented from Blood Bank Records.
- The first six RBCs units transfused after hospital arrival

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*
- *RBC Unit Exclusions*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received RBCs.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Hospitals may want to use the data to further evaluate the process for determining the need for blood products based on the clinical indications and correlating it with the pre-transfusion value that was documented. This information may assist hospitals to determine if the patients were transfused appropriately or if efforts should be directed toward additional documentation efforts for monitoring blood product usage. Data may be grouped by service designation or by blood products to identify specific areas for staff review.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

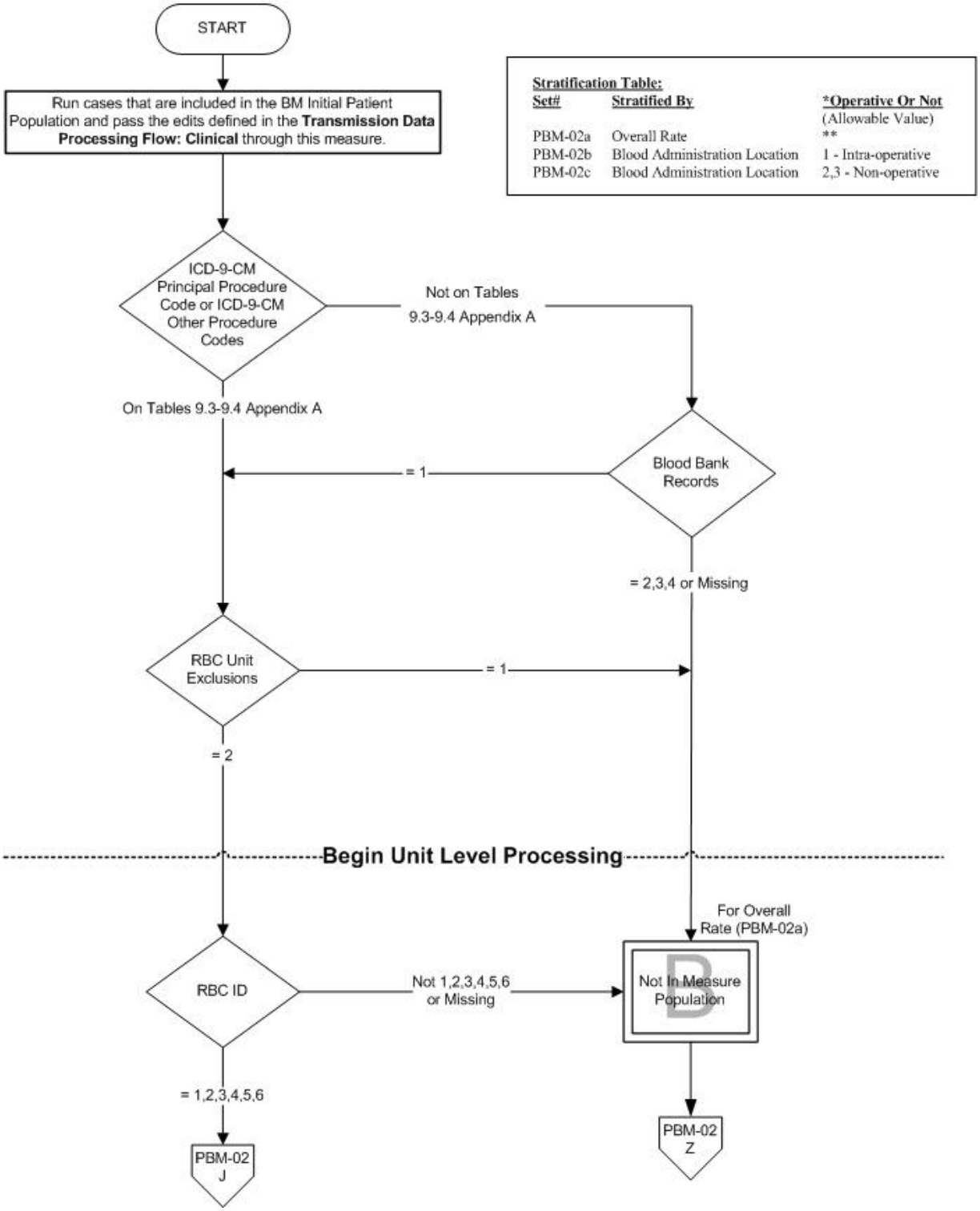
- Friedman MT, Ebrahim A. Adequacy of physician documentation of red blood cell transfusion and correlation with assessment of transfusion appropriateness. Arch Pathol Lab Med. 2006;130: 474-79.
- Corwin HL, Parsonnet KC, Gettinger A. RBC transfusion in the ICU: is there a reason? Chest. 1995;108: 767-771.
- Tobin SN, Campbell DA, Boyce NW. Durability of response to a targeted intervention to modify clinician transfusion practices in a major teaching hospital. MJA. 2001;174:445-448.
- Clinical practice guideline: Red blood cell transfusion in adult trauma and critical care. Crit Care Med 2009 Vol.37, No.12.

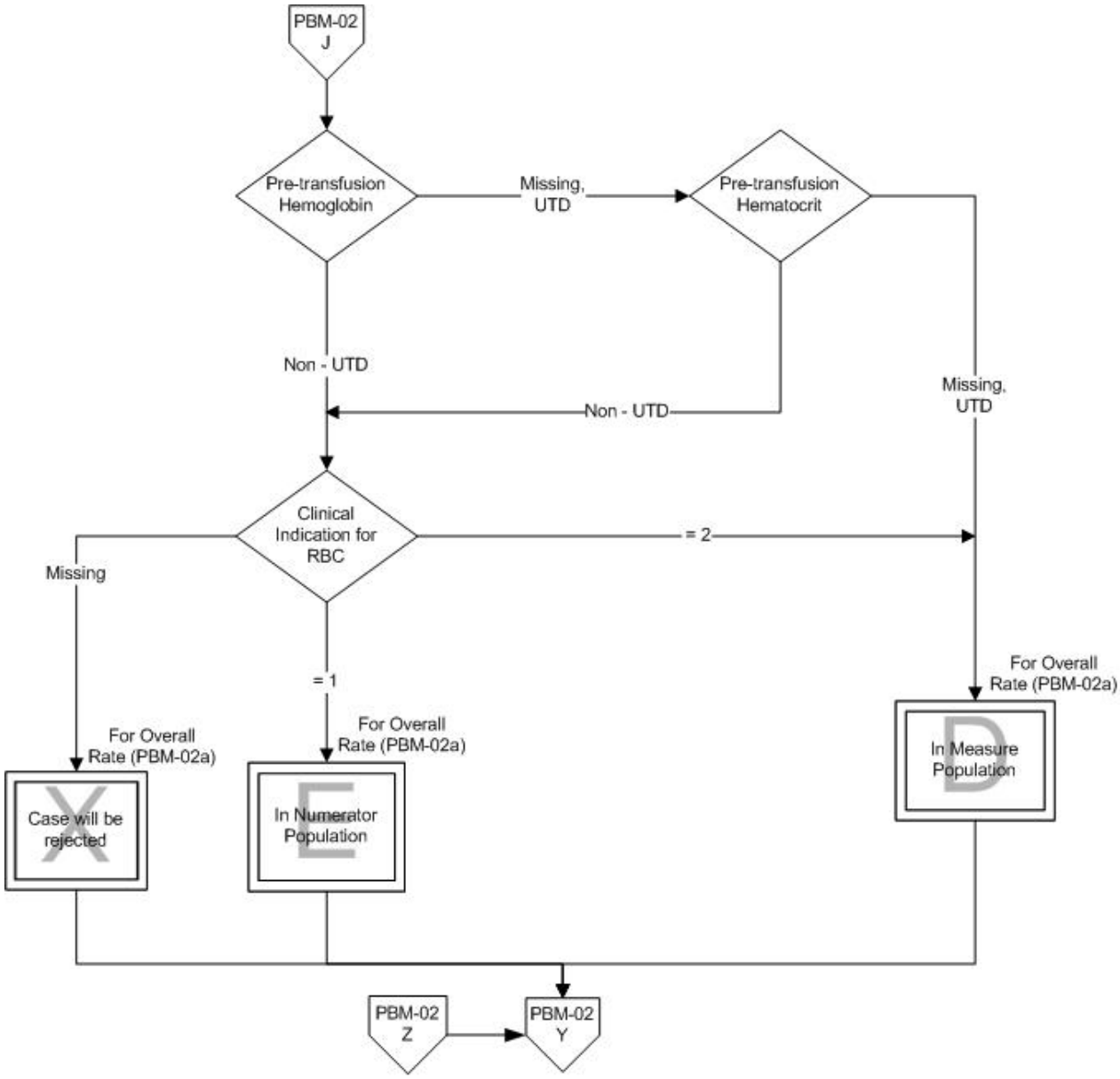
Measure Algorithm:

PBM–02: RBC Transfusion Indication

Numerator: Number of RBC units (bags) with pre-transfusion hemoglobin or hematocrit result and clinical indication documented

Denominator: Number of transfused red blood cell units evaluated





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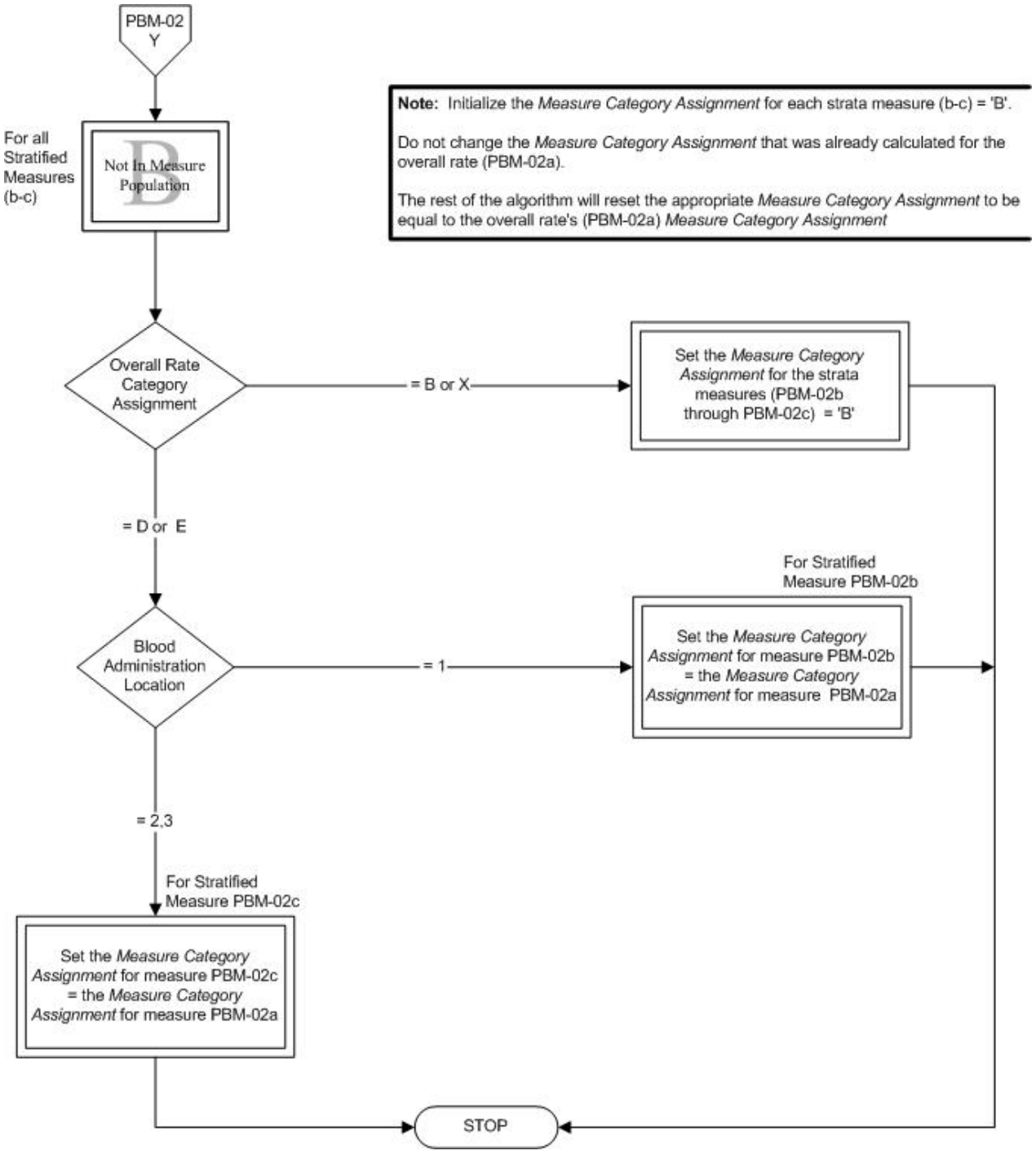


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-03

Performance Measure Name: Plasma Transfusion Indication

Description: The number of transfused plasma units with a pre-transfusion PT/INR result and clinical indication documented from patients of all ages who received plasma.

Rationale: The use of plasma has increased and is disproportionally high compared to other countries with similar levels of health care. Indications for transfusing plasma are very limited, and as a result, published studies often show unjustifiable use of plasma. According to the National Heart Lung and Blood Institute, plasma should be administered only to increase the level of clotting factors in patients with a demonstrated deficiency. If the prothrombin time (PT) and partial thromboplastin time (PTT) are < 1.5 times normal, a plasma transfusion is rarely needed. However, plasma is frequently transfused to patients with mild-to moderate elevations in PT despite numerous studies that have not shown a correlation between the risk of bleeding and mild-to moderate test results. In a study by Wahab et al, transfusion of plasma for mild abnormalities of coagulation values resulted in a partial normalization in a minority of patients, and failed to correct the PT in 99% of the patients. In a 2004 study by Hui, the need to correct prolonged international normalized ratios (INRs) for patients on warfarin emerged as the primary indication for plasma followed by massive transfusions.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of plasma units with pre-transfusion PT/INR result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for Plasma*
- *Plasma ID*
- *Pre-transfusion PT/INR Result*

Denominator Statement: Number of transfused plasma units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.6 or a plasma transfusion documented from Blood Bank Records
- The first three plasma units transfused from hospital arrival

Excluded Populations:

- Discharges with an ICD-9-CM Principal Diagnosis Code of trauma as defined in Appendix A, Table 9.7.

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Diagnosis Code*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received plasma.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Data from this measure may be used to review the type of invasive procedures or surgeries that use plasma in order to further evaluate appropriateness of use.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

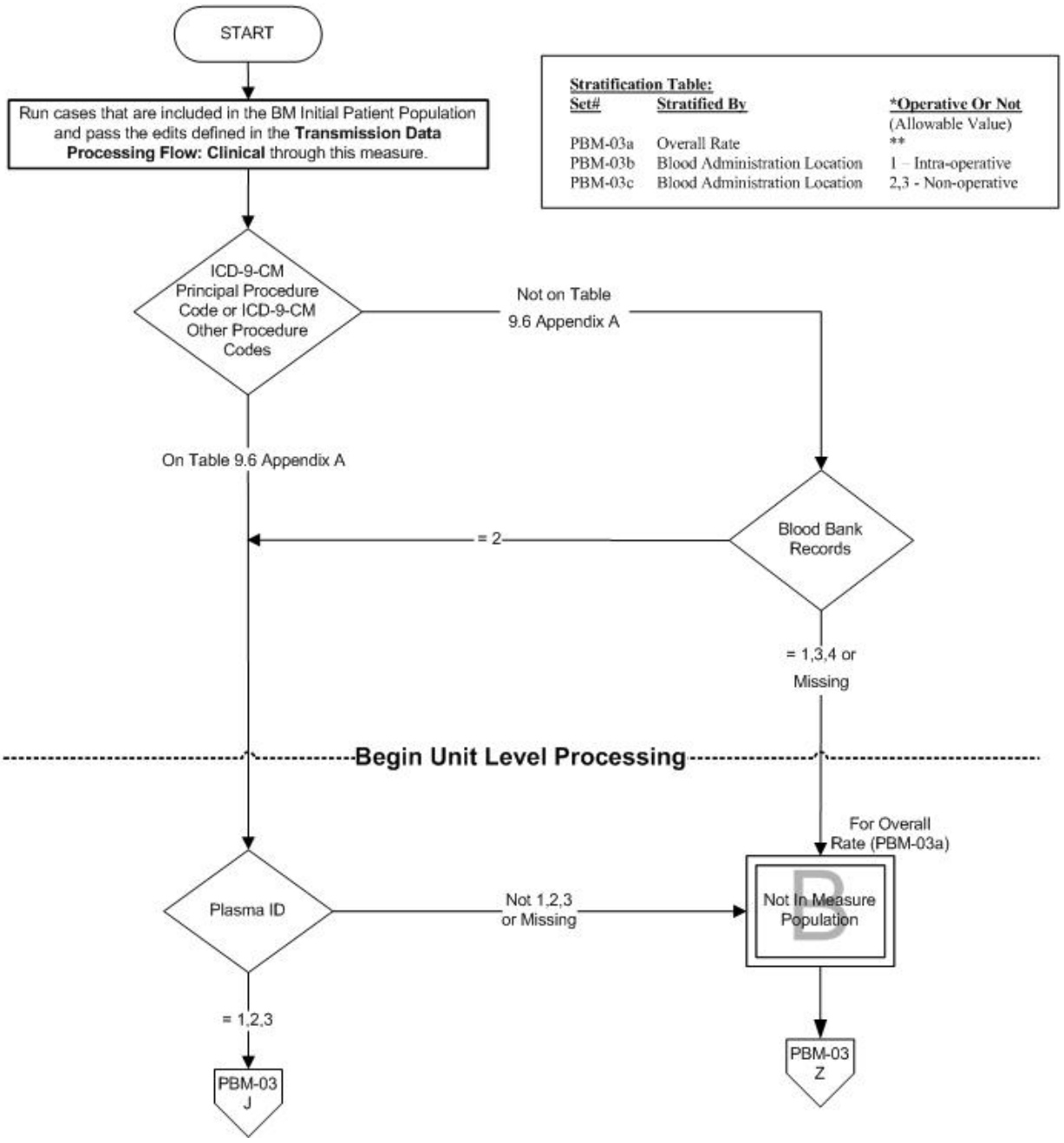
- Hui C, Williams I, Davis K. Clinical audit of the use of fresh-frozen plasma and platelets in a tertiary teaching hospital and the impact of a new transfusion request form. Int Med J. 2005;35:283-288.
- Wallis JP, Dzik S. Is fresh frozen plasma overtransfused in the United States? Transfusion. 2004;44:1674-75.
- Ardel-Wahab OI, Healy B, Dzik WH. Effect of fresh-frozen plasma transfusion on prothrombin time and bleeding in patients with mild coagulation abnormalities. Transfusion. 2006;46:1479-1285.
- Segal J, Dzik WH; Transfusion Medicine/Hemostasis Clinical Trials Network. Paucity of studies to support that abnormal coagulation test results predict bleeding in the setting of invasive procedures: an evidenced-based review. Transfusion. 2005;45:1413-25.

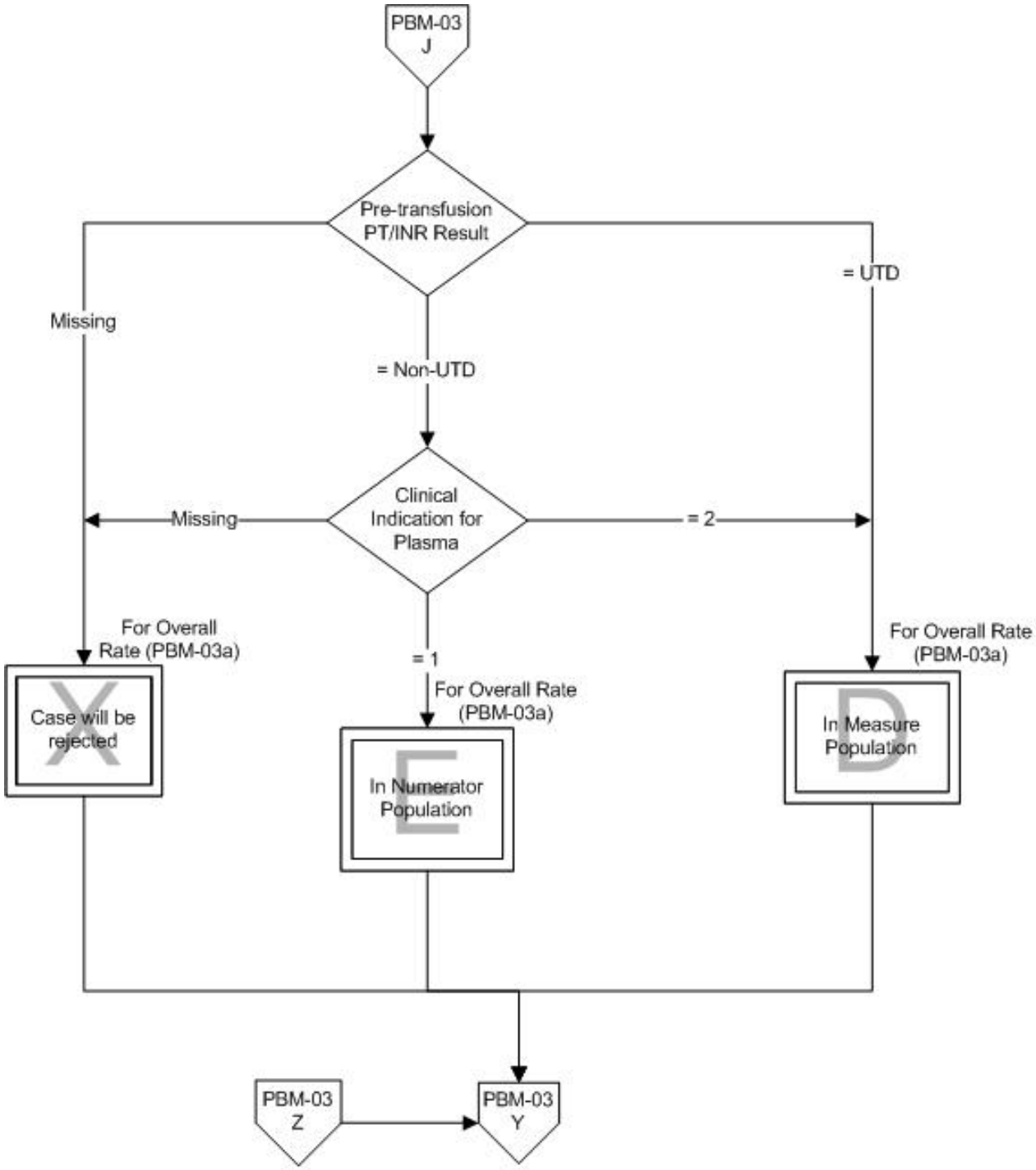
Measure Algorithm:

PBM–03: Plasma Transfusion Indication

Numerator: Number of plasma units with pre-transfusion PT/INR result and clinical indication documented

Denominator: Number of transfused plasma units evaluated





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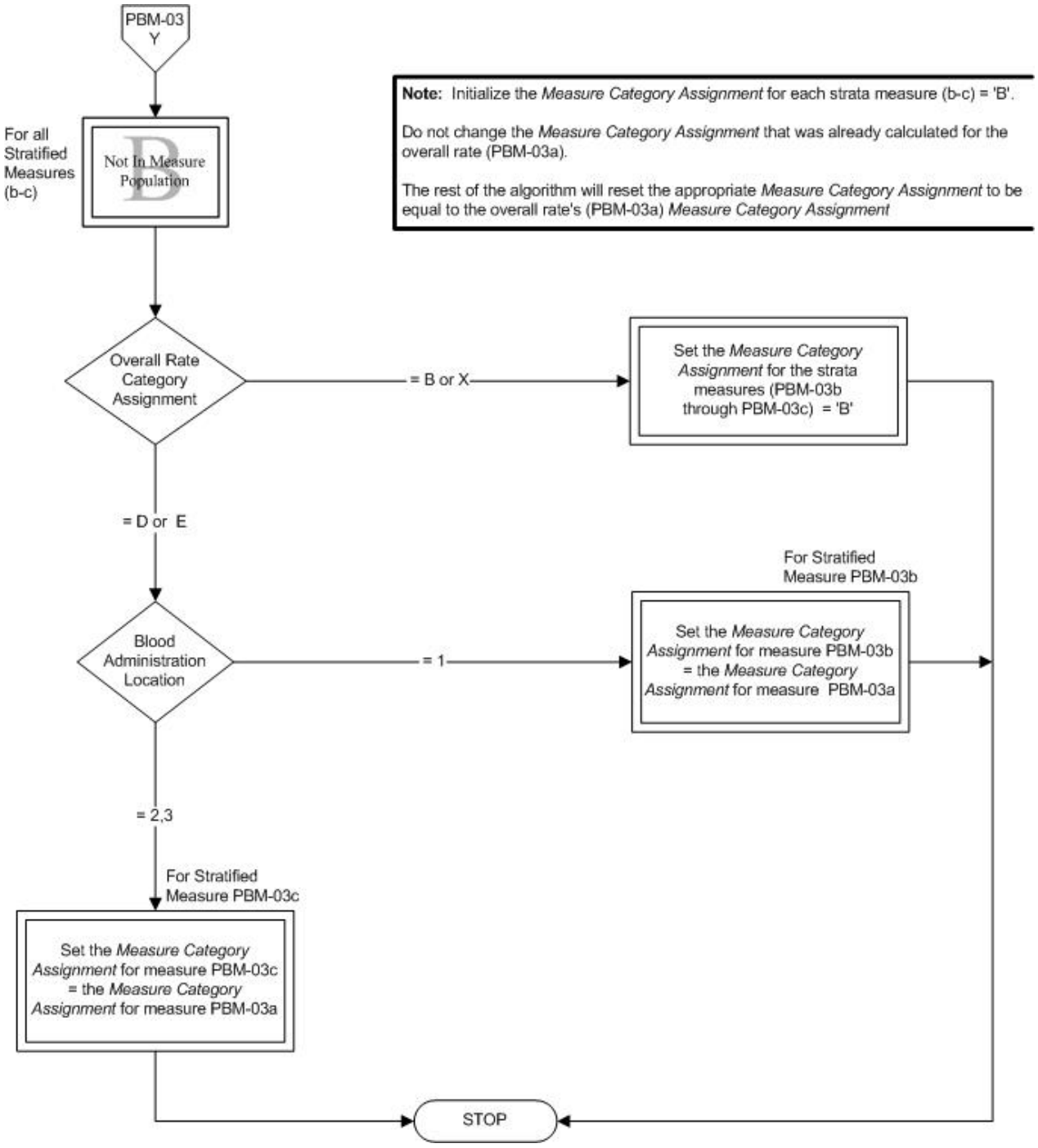


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-04

Performance Measure Name: Platelet Transfusion Indication

Description: The number of transfused platelet units with pre-transfusion platelet count and clinical indication documented from patients of all ages who received platelets.

Rationale: Platelets are transfused to treat or prevent bleeding associated with thrombocytopenia and/or platelet dysfunction. Platelets given therapeutically should help stop the bleeding, and if given prophylactically, post transfusion platelet counts should be obtained to monitor the response to determine the effectiveness of the transfusion. Repeated platelet transfusions can cause alloimmunization and cause platelet refractoriness to future transfusions. Multiple infectious risks are associated with platelet transfusions so patients should only be exposed to the least amount needed.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of platelet units with pre-transfusion platelet count result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for Platelets*
- *Platelet ID*
- *Pre-transfusion Platelet Count*

Denominator Statement: Number of transfused platelet units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.5 or a platelet transfusion documented from Blood Bank Records
- The first three platelet units transfused after hospital arrival

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Blood Administration Location*
- *Blood Bank Records*

- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received platelets.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Data from this measure may be used to evaluate the utilization and approriateness of platelets used by an organization.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

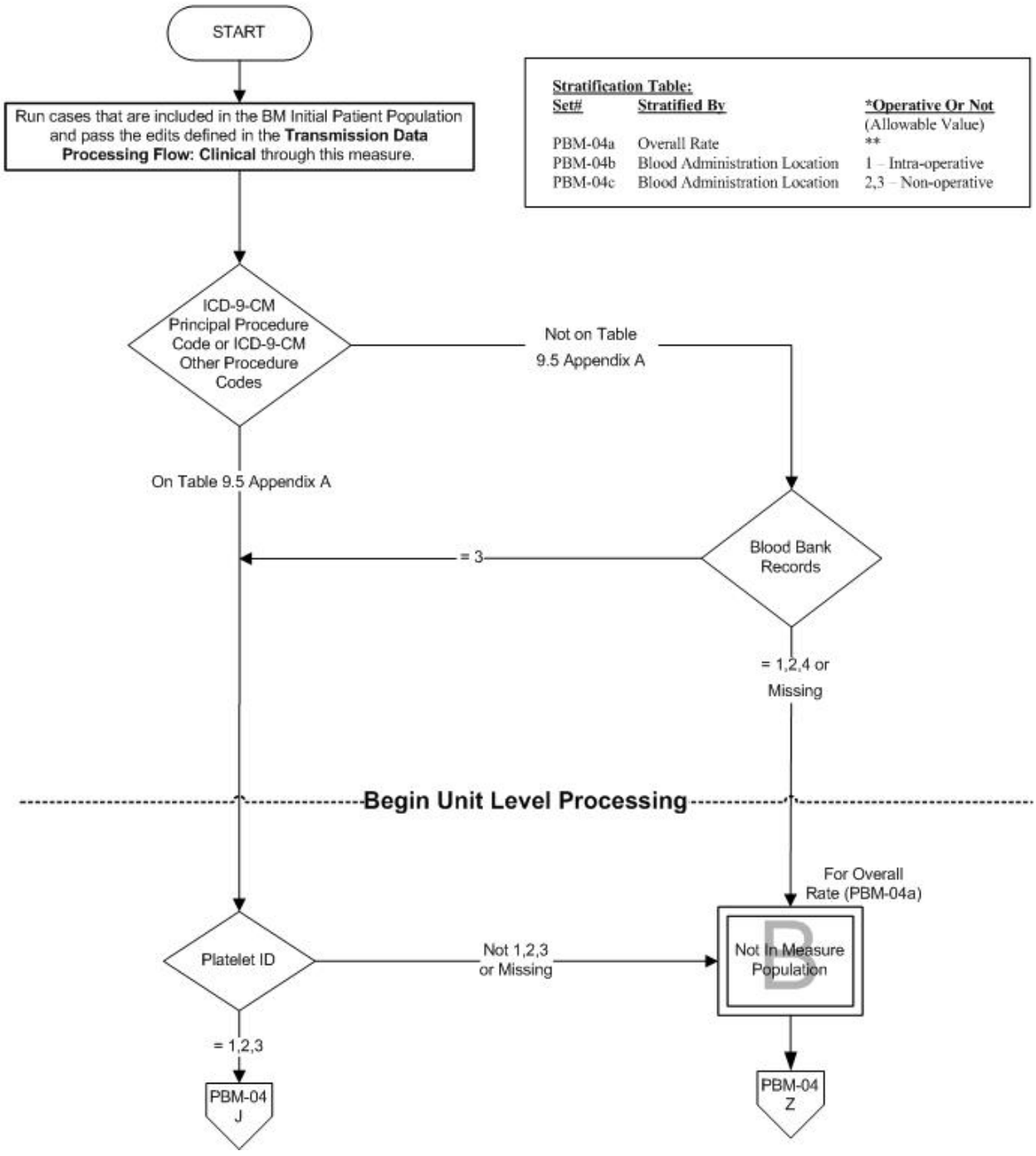
- Garrioch M, Sandbach J, Pirie E, Morrison A, Todd A, Green R. Reducing red cell transfusion by audit, education and a new guideline in a large teaching hospital. Transfusion Med. 2004;14:25-31.
- Petrides M. Red cell transfusion “trigger”: A review. Southern Med J. 2003; 96:664-667.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- BR J Haematol 1998, 101:609 - 617.

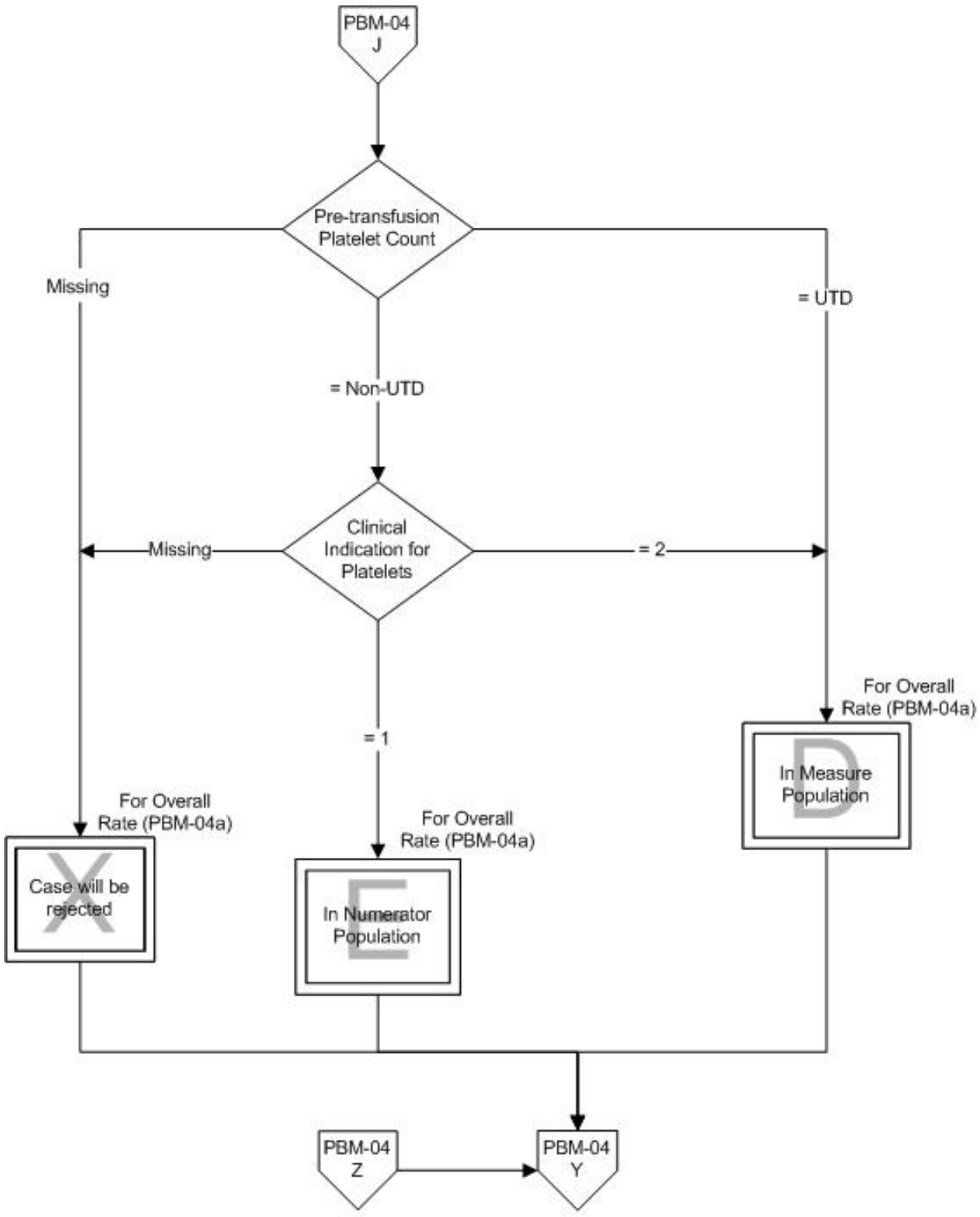
Measure Algorithm:

PBM–04: Platelet Transfusion Indication

Numerator: Number of platelet doses with pre-transfusion platelet count result and clinical indication documented

Denominator: Number of transfused platelet units evaluated





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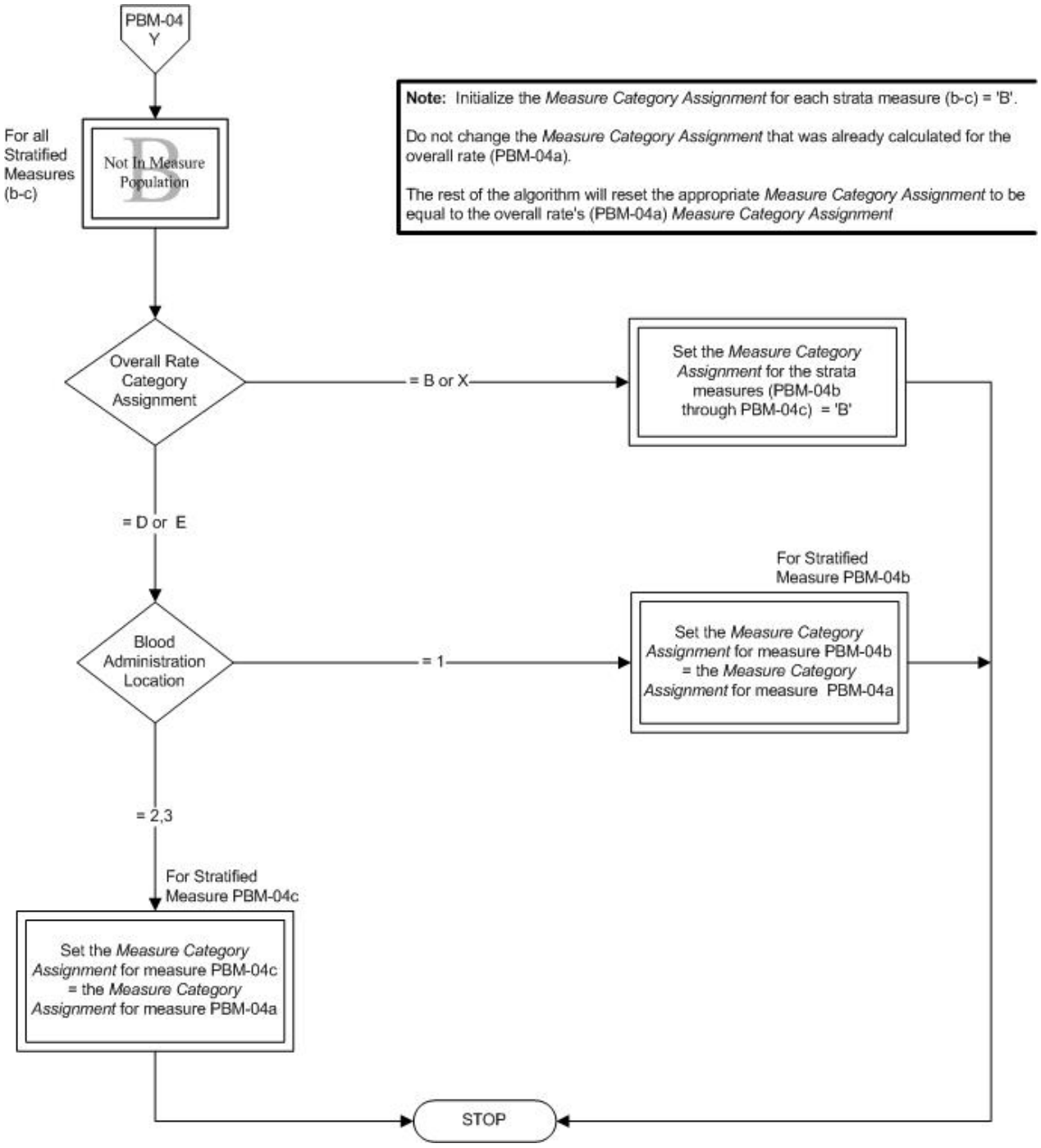


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-05

Performance Measure Name: Blood Administration Documentation

Description: The number of transfused red blood cells, plasma or platelet transfusion units/doses (bags) that had documentation of the following: patient identification and an order to transfuse (Blood ID Number) confirmed prior to the initiation of transfusion, transfusion start date and time, and blood pressure, pulse and temperature recorded at specific intervals.

Rationale: Since the majority of blood units are transfused in hospitals, specific policies and procedures have been developed by each hospital to address documentation of blood administration standards in accordance with their state and federal regulations. Though documentation components vary among organizations, identification of the patient and confirmation of the order to transfuse are common indicators used for all blood products since incomplete patient identification could result in an adverse outcome. Prior to administering blood or blood products, patient identification by two identifiers is required by numerous organizations including the AABB Standard 5.19.3, and the Joint Commission National Patient Safety Goal (NPSG) 1. In addition, numerous organizations require or advise that the licensed staff confirm that there is a transfusion order as directed by the AABB Standard 5.19.6 and the elements of performance for the Joint Commission NPSG.01.01.01.

Patient monitoring during the transfusion is an important component related to patient safety. The first 10 to 15 minutes of the transfusion are considered the most critical to assess for a potential transfusion reaction and close observation during this time is recommended in the AABB Primer. Monitoring of vital signs at baseline, during and at the completion of the transfusion in addition to observation are used to assess the patient's condition for any changes.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of units/doses (bags) with documentation for all of the following:

- patient identification and transfusion order (Blood ID Number) confirmed prior to the initiation of transfusion
- transfusion start date and time
- blood pressure, pulse and temperature recorded pre, during and post transfusion

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Blood ID Number*
- *Patient ID Verification*
- *Plasma ID*

- *Platelet ID*
- *RBC ID*
- *Transfusion Order*
- *Transfusion Start Date*
- *Transfusion Start Time*
- *Vital Sign Monitoring*

Denominator Statement: Number of transfused red blood cells, plasma or platelet units/doses (bags) evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.3-9.6 or a transfusion documented from Blood Bank Records

Excluded Populations:

- Units used in massive transfusion protocols
- Uncrossmatched units
- Units used to prime equipment

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*
- *RBC Unit Exclusions*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: The data from this measure may be used to evaluate the adherence to organizational policies and procedures for blood administration for each of the blood products. Data could be evaluated by unit or service in order to identify areas for staff education. The data could also be used during accreditation surveys to document the hospital's efforts to improve the accuracy of patient identification when administering blood related to the Joint Commission National Patient Safety Goal #1.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

- Whitsett CF, Robichaux MG. Assessment of blood administration procedures: problems identified by direct observation and administrative incident reporting. Transfusion. 2001;41:581-86.
- Saxena S, Ramer L, Shulman IA. A comprehensive assessment program to improve blood-administering practices using the FOCUS-PDCA model. Transfusion. 2004; 44:1350-56.
- Novis DA, Miller KA, Howanitz PJ, Renner SW, Walsh MK; College of American Pathologists. Audit of transfusion procedures in 660 hospitals. A College of American Pathologists Q–Probes study of patient identification and vital sign monitoring frequencies in 16494 transfusions. Arch Pathol Lab Med. 2003;127:541-8.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009.
- The Joint Commission, “National Patient Safety Goals (NPSG)”, IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.
- AABB Primer of Blood Administration. Revised August 2008. Bethseda, Maryland. [Available at http://www.aabb.org/Content/Professional_Development/Education_and_Training_Material/edtr (accessed November 2009).]

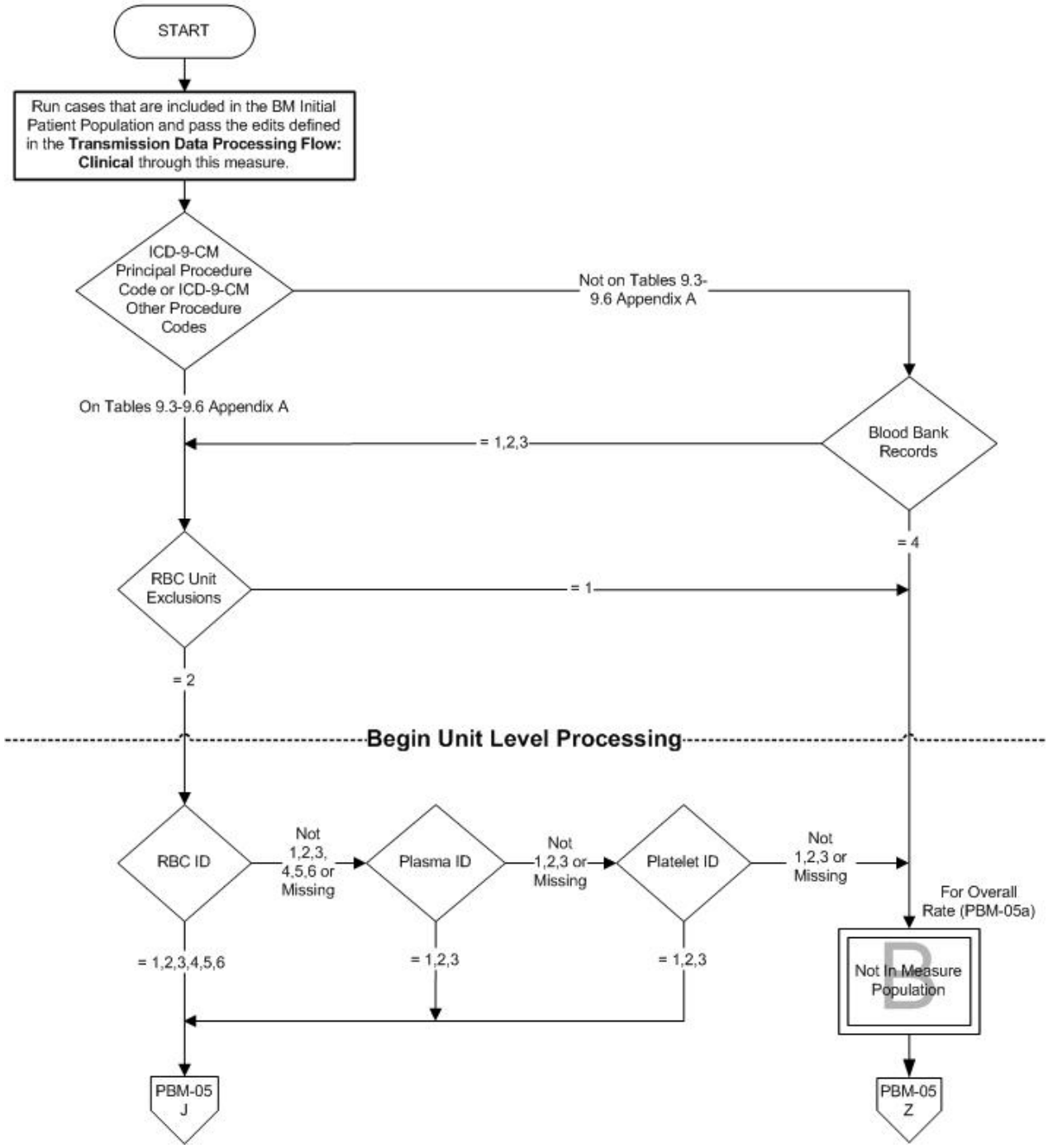
Measure Algorithm:

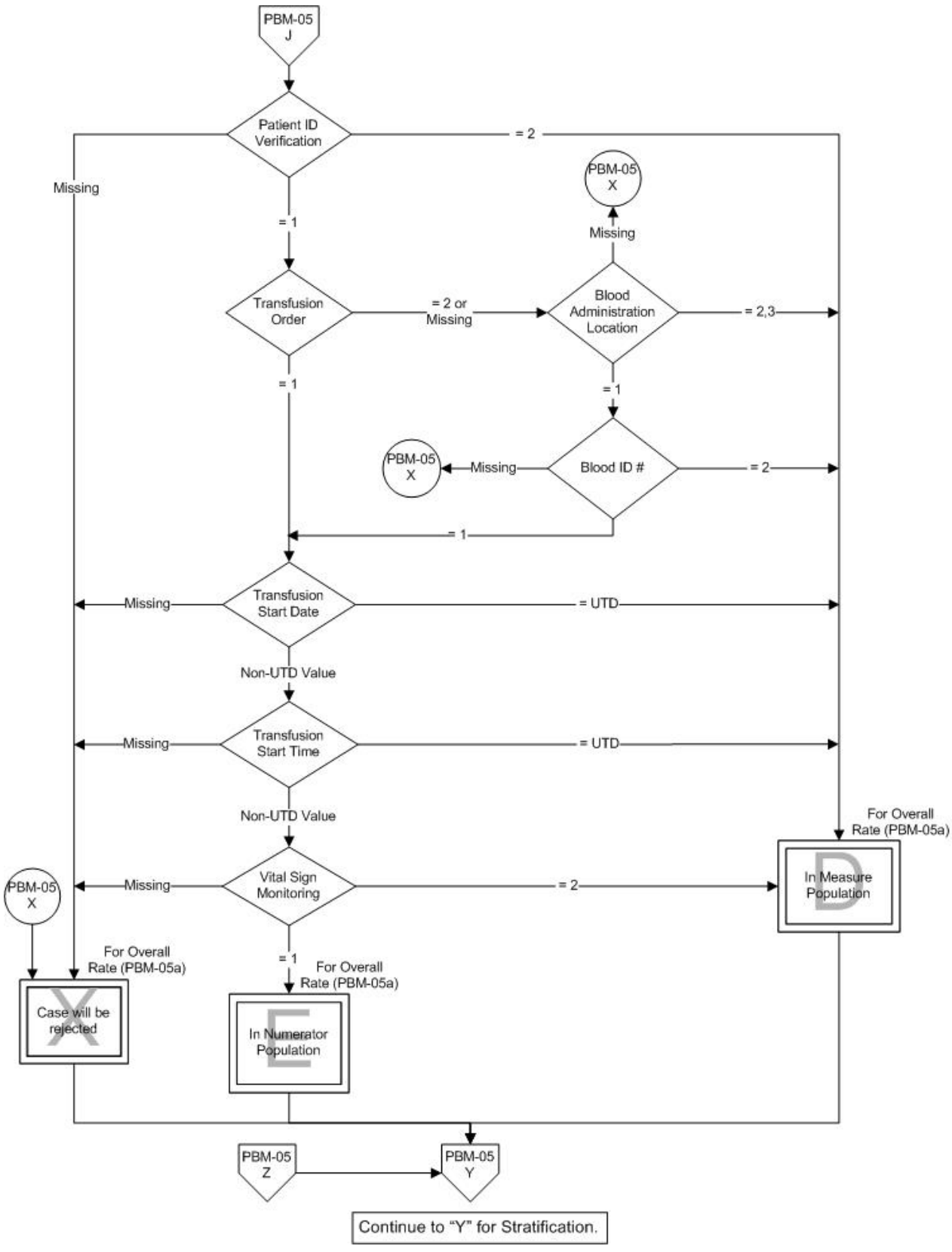
PBM–05: Blood Administration Documentation

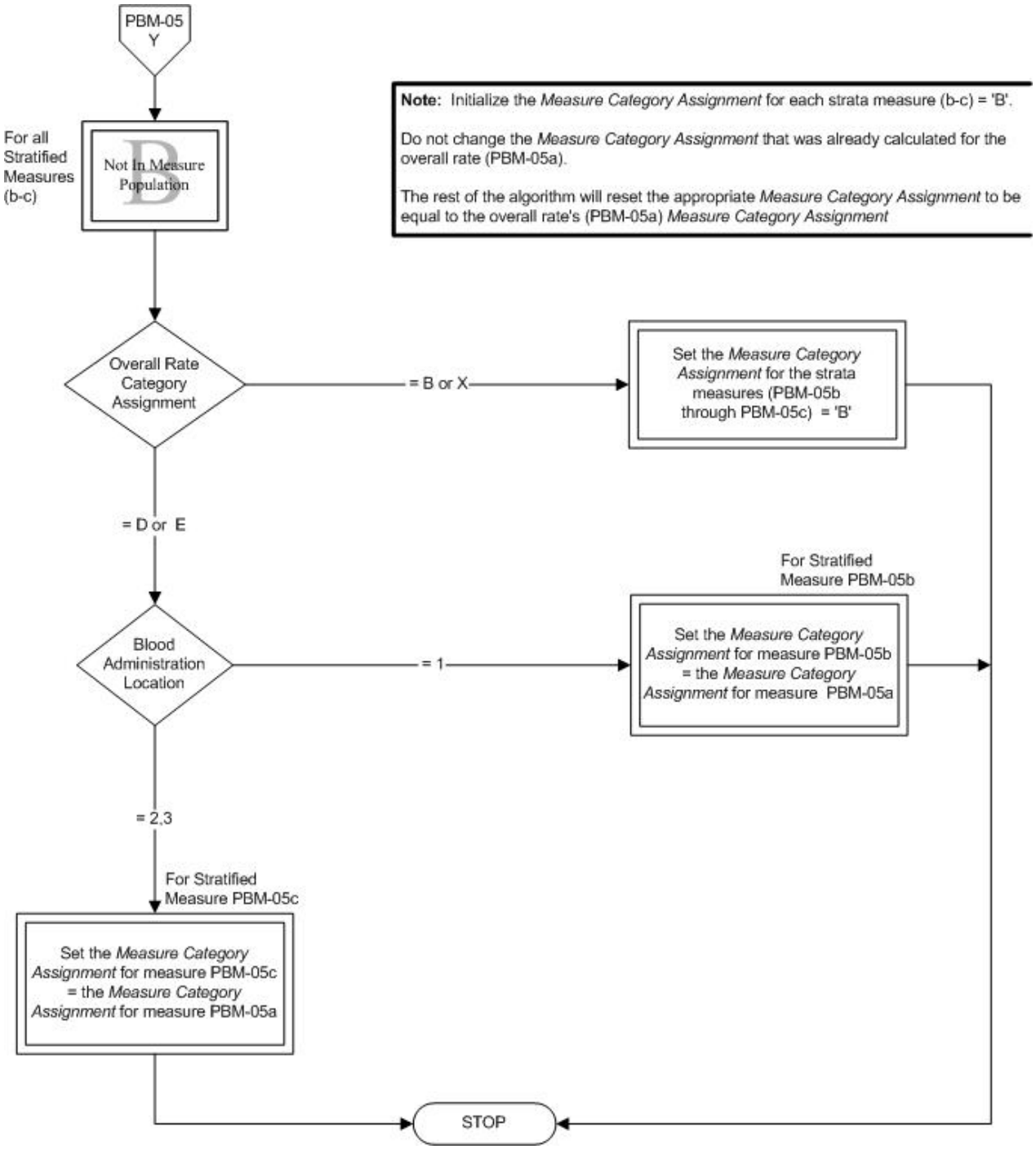
Numerator: Number of blood transfusion units (bags) or doses with documentation for all of the following:

- patient identification (ID) and transfusion order (blood ID number) confirmed prior to the initiation of blood
- date and time of transfusion
- blood pressure, pulse and temperature recorded pre, during and post transfusion

Denominator: Number of transfused red blood cells, plasma and platelet units (bags) or doses evaluated




PBM-05 J
Patient ID Verification
= 2
Missing
PBM-05 X
= 1
Missing
Transfusion Order
= 2 or Missing
Blood Administration Location
= 2,3
= 1
= 1
PBM-05 X
Missing
Blood ID #
= 2
= 1
Transfusion Start Date
Missing
= UTD
Non-UTD Value
Transfusion Start Time
Missing
= UTD
Non-UTD Value
For Overall Rate (PBM-05a)
PBM-05 X
Vital Sign Monitoring
Missing
= 2
In Measure Population
D
For Overall Rate (PBM-05a)
= 1
For Overall Rate (PBM-05a)
Case will be rejected
X
In Numerator Population
E
PBM-05 Z
PBM-05 Y
Continue to "Y" for Stratification.



Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-06

Performance Measure Name: Preoperative Anemia Screening

Description: Selected elective orthopedic, cardiac and hysterectomy surgical patients with documentation of preoperative anemia screening date 14 – 45 days before surgery start date for procedures scheduled 14 or more days before surgery.

Rationale: Development of formal protocols for preoperative testing of hemoglobin (hgb) for potential high-blood loss elective surgeries could be used to identify and intervene for optimal management of blood resources. Preoperative anemia often goes unrecognized and untreated unless tests are ordered in advance of a planned surgery. Early recognition of anemia offers patients an opportunity to receive the most appropriate transfusion-sparing strategy, and avoid the risk of a potential transfusion. Researchers have shown that preoperative hgb and hematocrit can be used as predictors of outcome for specific types of patients such as cardiac artery bypass graft or orthopedic surgery. In a study by Salido, orthopedic patients with a preoperative hemoglobin <13 g/dL had four times the risk of transfusion than those with a hemoglobin level between 13 g/dL and 15 g/dL.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with preoperative anemia screening 14 - 45 days before Anesthesia Start Date

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Preoperative Anemia Screening Date*

Denominator Statement: Selected elective surgical patients

Included Populations:

- Discharges with an ICD-9-CM Principal Procedure Codes of selected surgeries as defined in Appendix A, Tables 2.2, 5.01, 5.02, 5.08, 5.11, 5.22, 5.23, 9.1 or 9.2.

Excluded Populations:

- Patients less than 18 years of age
- Patients with surgery scheduled less than 14 days before Anesthesia Start Date
- Patients not admitted from home

Data Elements:

- *Admission Date*
- *Admission From Home*
- *Birthdate*
- *Discharge Date*
- *ICD-9-CM Principal Procedure Code*
- *ICD-9-CM Principal Procedure Date*
- *Surgery Scheduled Timeframe*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: These data may be used to evaluate specific patient groups at high risk for a blood transfusion that did not have their pre-operative hemoglobin and/or transfusion testing completed and/or documented prior to surgery. The data could be further analyzed based on physician or type of procedure. Patients who are not included in the numerator could be tracked to see if there were any adverse outcomes due to the lack of preoperative anemia screening.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References: * Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.

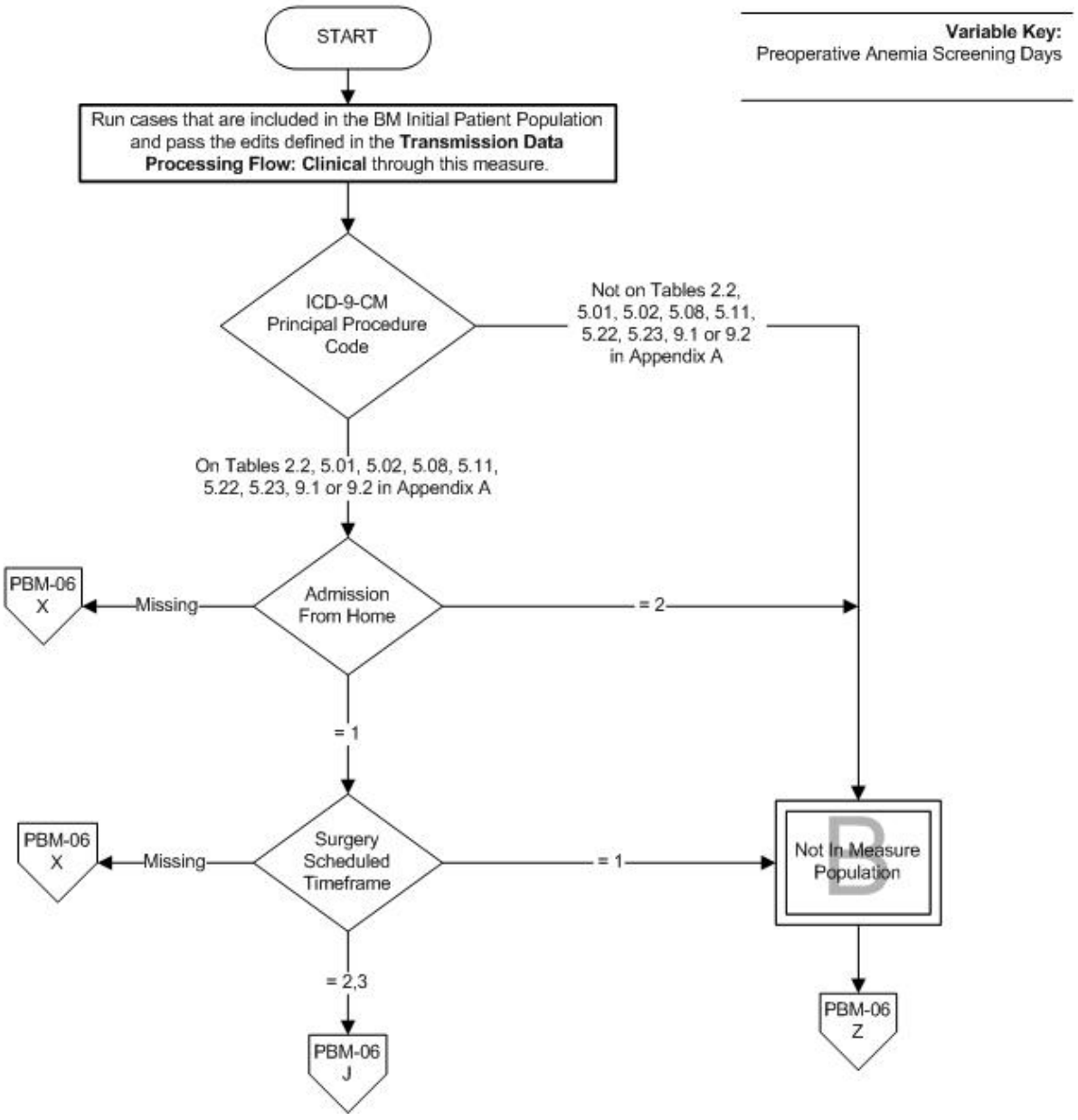
- Salido JA, Martin LA, Gomez LA, et al. Preoperative hemoglobin levels and the need for transfusion after prosthetic hip and knee surgery; analysis of predictive factors. J Bone Joint Surg. 2002;84: 216-20.
- Rady MY, Ryan T, Starr NJ. Perioperative determinants of morbidity and mortality in elderly patients undergoing cardiac surgery. Crit Care Med. 1998;26: 225-235.
- Magovern JA, Sakert T, Magovern GJ et al. A model that predicts morbidity and mortality after coronary artery bypass graft surgery. J Am Coll Cardiol. 1996;28: 1147-1153.
- Campbell DA, Henderson WG, Englesbe, MJ, Hall BL, O'Reilly M, Bratzler D et al. Surgical site infection prevention: the importance of operative duration and blood transfusion-results of the first american college of surgeons –national surgical quality improvement program best practices initiative. J AM Coll Surg 2008;207:810-820.

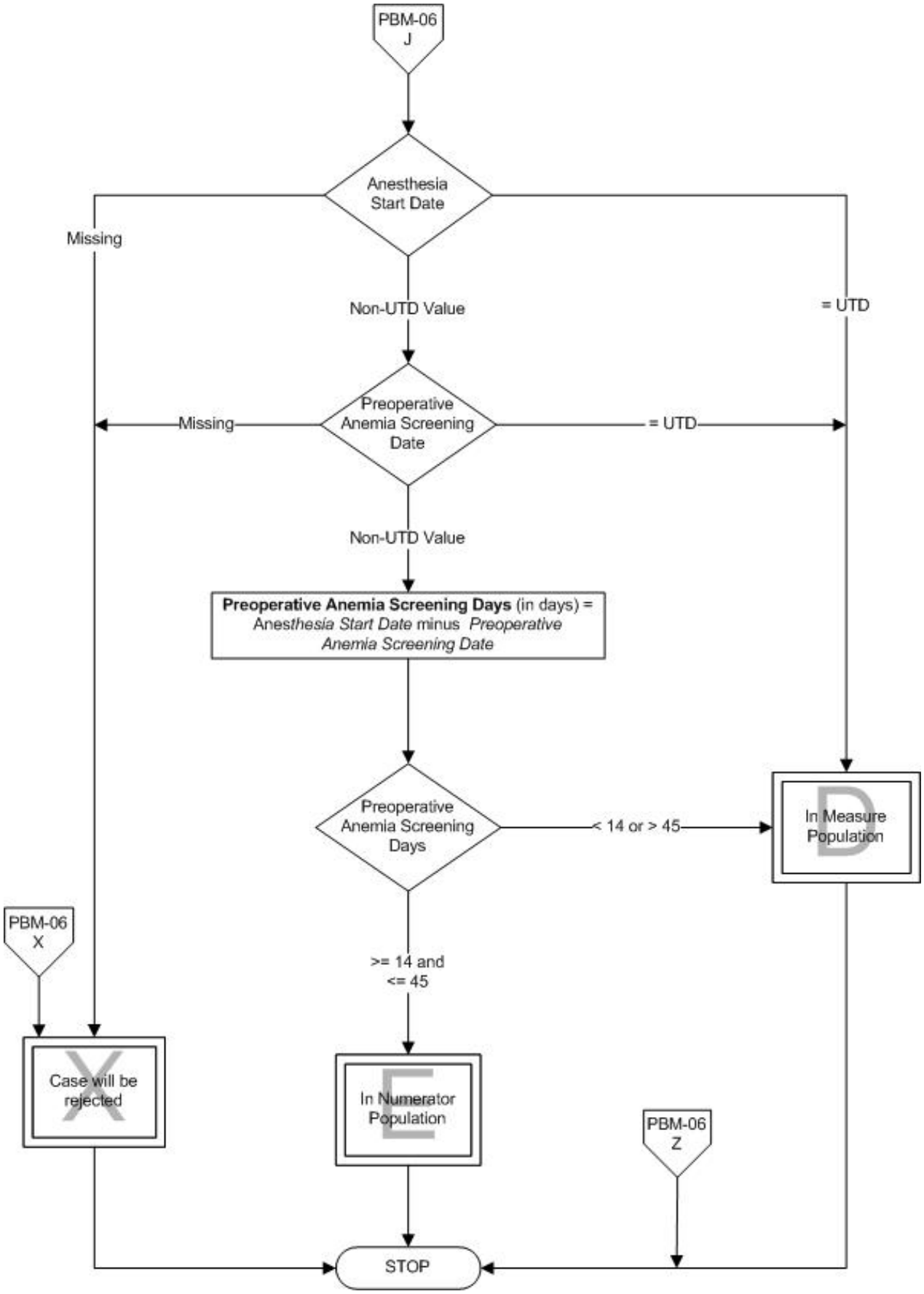
Measure Algorithm:

PBM–06: Preoperative Anemia Screening

Numerator: Patients with documentation of preoperative anemia screening 14 - 45 days before Anesthesia Start Date

Denominator: Selected elective surgical patients





Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-07

Performance Measure Name: Preoperative Blood Type Testing and Antibody Screening

Description: Selected elective orthopedic, cardiac and hysterectomy surgical patients who had preoperative blood type testing and antibody screening (type and screen or type and crossmatch) completed prior to surgery start time if ordered preoperatively.

Rationale: Hospitals need to ensure that sufficient compatible blood is available for each scheduled procedure. Since about 3% of specimens have a serologic finding that requires further investigation that may cause a delay in the availability of the blood, patient screening of ABO group and Rh type should be collected in sufficient time to complete all pretransfusion testing before surgery begins. According to the Joint Commission's Pre-publication National Patient Safety Goal UP.01.01.01 for 2010, a preprocedure verification process should be conducted to identify items that must be available for the procedure and use a standardized list to verify their availability. Documentation of any required blood products for the procedure is required. Development of formal protocols to ensure that patients have blood testing completed prior to surgery start time for potential high-blood loss elective surgeries may optimize management of blood resources and maximize patient safety.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with preoperative type and crossmatch or type and screen completed prior to surgery start time

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Preoperative Blood Type Testing*

Denominator Statement: Selected elective surgical patients

Included Populations:

- Discharges with an ICD-9-CM Principal Procedure Code of selected surgeries as defined in Appendix A, Tables 2.2, 5.01, 5.02, 5.08, 5.11, 5.22, 5.23, 9.1 or 9.2.

Excluded Populations:

- Patients less than 18 years of age
- Patients with type and screen or type and crossmatch ordered preoperatively

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Type Testing Ordered*
- *Discharge Date*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data collection sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: These data may be used to evaluate specific patient groups at high risk for a blood transfusion that did not have pre-operative transfusion testing completed and/or documented prior to surgery start time. The data could be further analyzed based on physician or type of procedure. Patients who are not included in the numerator could be tracked to see if there were any adverse outcomes due to the lack of preoperative testing.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References: * Saxena S, Nelson JM, Osby M, Shah M, Kempf R, Shulman IA. Ensuring timely completion of type and screen testing and the verification of ABO/Rh status for elective surgical patients. Arch Pathol Lab Med. 2007;131:576-81.

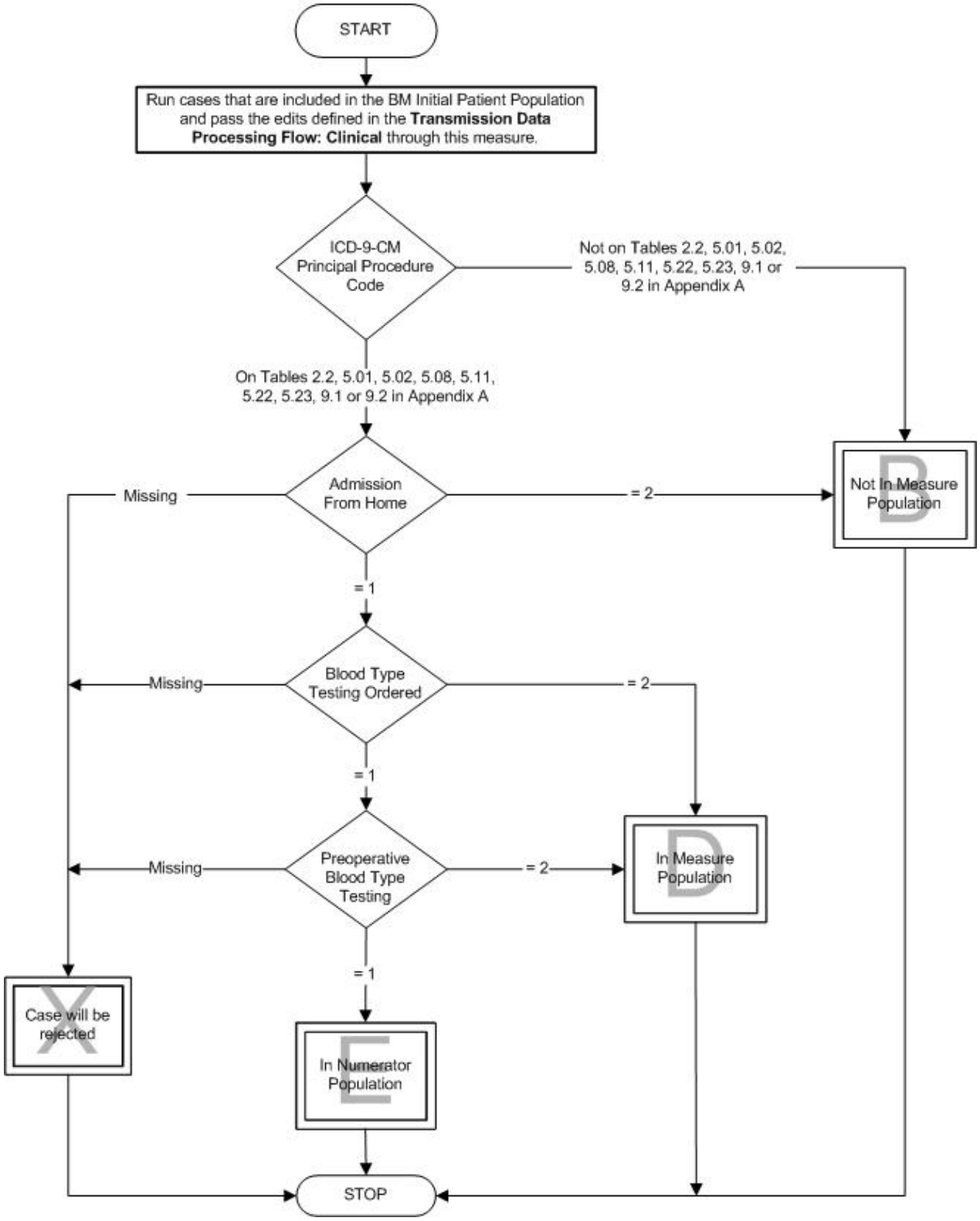
- Friedberg RC, Jones BA, Walsh MK. Type and screen completion for scheduled surgical procedures. A College of American Pathologists Q-Probes study of 8941 type and screen tests in 108 institutions. Arch Pathol Lab Med. 2003;127:533-40.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- Magovern JA, Sakert T, Magovern GJ et al. A model that predicts morbidity and mortality after coronary artery bypass graft surgery. J Am Coll Cardiol. 1996;28: 1147-1153.
- The Joint Commission 2010 National Patient Safety Goals, Oakbrook Terrace, IL [Available at http://www.jointcommission.org/NR/rdonlyres/868C9E07-037F-433D-8858-0D5FAA4322F2/0/RevisedChapter_HAP_NPSG_20090924.pdf (accessed January 27, 2010).]

Measure Algorithm:

PBM–07: Preoperative Blood Type Testing and Antibody Screening

Numerator: Patients with documentation of preoperative type and crossmatch or type and screen completed prior to Anesthesia Start Time

Denominator: Selected elective surgical patients



Related Topics

Data Element Name: *Admission From Home*

Collected For: PBM-06,

Definition: Patient was admitted for the pre-scheduled elective surgery procedure from home.

Suggested Data Collection Question: Was the patient admitted from home?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 Patient was admitted from home.

2 Patient was not admitted from home or unable to determine from medical record documentation.

Notes for Abstraction:

- Patients who have to stay overnight at a location other than their primary residence due to long distance travel for procedure are considered admitted from home.

Suggested Data Sources:

- Face sheet
- Nursing admission assessment
- Physician's notes
- Preop checklist

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Anesthesia Start Date*
Collected For:	PBM-06,
Definition:	The date the anesthesia for the procedure started.
Suggested Data Collection Question:	On what date did the anesthesia for the procedure start?
Format:	**Length:** 10 – MM-DD-YYYY (includes dashes) **Type:** Date **Occurs:** 1
Allowable Values:	MM-DD-YYYY MM = Month (01-12) DD = Day (01-31) YYYY = Year (2001-Current Year) Leave Blank if Unable to Determine
Notes for Abstraction:	If the Anesthesia Start Date cannot be determined from medical record documentation, enter UTD. When the date documented is obviously invalid (not a valid format/range [12-39-20xx] or after the Discharge Date or Anesthesia End Date) and no other documentation can be found that provides the correct information, the abstractor should select "UTD." Example: Patient expires on 02-12-20xx and documentation indicates the Anesthesia Start Date was 03-12-20xx. Other documentation in the medical record supports the date of death as being accurate, but no other documentation of the Anesthesia Start Date can be found. Since the Anesthesia Start Date is outside of the parameter for care (after the Discharge Date [death]) and no other documentation is found, the abstractor should leave blank. If the Anesthesia Start Date is incorrect (in error) but it is a valid date and the correct date can be supported with other documentation in the medical record, the correct date may be entered. If supporting documentation of the correct date cannot be found, the medical record must be abstracted as documented or at "face value." Examples: The anesthesia form is dated 12-10-2007, but other documentation in the medical record supports that the correct date was 12-10-2009. Enter the correct date of 12-10-2009 as the Anesthesia Start Date. An Anesthesia End Date of 11-20-20xx is documented but the Anesthesia Start Date is documented as 11-10-20xx. If no other documentation can be found to support another Anesthesia Start Date, then it must be abstracted as 11-10-20xx because the date is not considered invalid or outside the parameter of care.

Suggested Data Sources:

Other Suggested Sources:

- Intraoperative record
- Circulator record
- Post-anesthesia evaluation record
- Operating room notes

Additional Notes:

Suggested Data Sources:

Note: The anesthesia record is the priority data source for this data element, if a valid Anesthesia Start Date is found on the anesthesia record, use that date. If a valid date is not on the anesthesia record, other suggested data sources may be used in no particular order to determine the Anesthesia Start Date.

Priority Source:

- Anesthesia record

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Blood Administration Location*
Collected For:	PBM-02, PBM-03, PBM-04, PBM-05,
Definition:	The hospital setting (intraoperative or non-intraoperative) where the blood product began infusing.
Suggested Data Collection Question:	In what setting did the blood product begin infusing?
Format:	**Length:** 1 **Type:** Alphanumeric **Occurs:** 1-12

Allowable Values:

1 Intraoperative setting

2 Non-introperative setting

3 Unable to determine

Notes for Abstraction:

- Select setting for each unit transfused based on the physical location of the patient.
- Intraoperative setting is anytime during the operation.
- Non-intraoperative setting is any area outside of the operating room. For example, setting such as the intensive care unit, surgical floor or emergency room.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Nursing notes
- Nursing flow sheet
- Nursing admission assessment
- Progress notes
- Physician's notes
- Operative notes
- Operating room notes
- Operative report
- Procedure notes
- ICU notes
- PACU/recovery room record

Blood Administration Documentation Sheet

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Blood Bank Records*

Collected For: PBM-01, PBM-02, PBM-03, PBM-04, PBM-05,

Definition: Documentation that the patient received red blood cells (RBCs), plasma or platelets after hospital arrival.

Suggested Data Collection Question: Was there documentation that the patient received RBCs, plasma or platelets after hospital arrival?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1-12

Allowable Values:

Select all that apply: 1 RBCs

2 Plasma

3 Platelets

4 None of the above or unable to determine from medical record documentation

Notes for Abstraction:

- Include transfusions given in the emergency room or observation area.

Suggested Data Sources: Blood Bank Records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name: *Blood ID Number*

Collected For: PBM-05,

Definition: Documentation of the actual blood bank identification number in the intraoperative record for the unit that was transfused.

Suggested Data Collection Question: Was there documentation of a blood bank identification number for the unit or dose of blood transfused during surgery?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 There is documentation of a blood bank identification number for the unit that was transfused.

2 There is no documentation of a blood bank identification number for the unit that was transfused or unable to determine from medical record documentation.

Notes for Abstraction:

Suggested Data Sources:

- Anesthesia record
- Operative report

Blood administration record

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Blood Type Testing Ordered*

Collected For: PBM-07,

Definition: A type and screen and/or type and crossmatch was ordered preoperatively for the elective surgery.

Suggested Data Collection Question: Was a type and screen and/or type and crossmatch ordered preoperatively?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 A type and screen and/or type and crossmatch was ordered preoperatively.

2 A type and screen and/or type and crossmatch was not ordered preoperatively or unable to determine

Notes for Abstraction:

Suggested Data Sources:

- Physician orders
- Preop checklist

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for Plasma*

Collected For: PBM-03,

Definition: Documentation by the physician/advance practice nurse/physician assistant or (physician/APN/PA) of the clinical indication for the plasma transfusion unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused plasma unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused plasma unit.

2 There was no documentation of a clinical indication for the transfusion or unable to determine from the medical record.

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first four plasma transfusion units closest to hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING BLOOD:

- Anesthesia record
- Consultation notes
- Emergency department record
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for Platelets*

Collected For: PBM-04,

Definition: Documentation by the physician/advance practice nurse/physician assistant (physician/APN/PA) of the clinical indication for the transfused platelet unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused platelet unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused platelet unit.

2 There was no documentation of clinical indication for the platelet transfusion or unable to determine from the medical record

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first three units transfused after hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING PLASMA:

- Anesthesia record
- Consultation notes
- Emergency department record
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for RBCs*

Collected For: PBM-02,

Definition: Documentation by the physician/advance practice nurse/physician assistant (physician/APN/PA) of the clinical indication for the tranfused red blood cell (RBCs) unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused RBC unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 6

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused RBC unit.

2 There was no clinical indication documented by the physician/APN/PA for the transfused RBC unit or unable to determine from medical record documentation.

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first six RBC transfusion units after hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING RBCs:

- Anesthesia record
- Consultation notes
- Emergency department record
- Operative notes
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Education Addressed Risks, Benefits and Alternatives to Transfusion*
Collected For:	PBM-01,
Definition:	Documentation that information addressing risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion or the initial transfusion was deemed a medical emergency after hospital arrival.
Suggested Data Collection Question:	Was there documentation that information regarding risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion event or was the initial transfusion deemed a medical emergency after hospital arrival?
Format:	**Length:** 1 **Type:** Numeric **Occurs:** 1

Allowable Values:

1 Information addressing the risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion after hospital arrival.

2 Information addressing the risks, benefits and alternatives to transfusion was not given to the patient/caregiver prior to the initial transfusion after hospital arrival or unable to determine from medical record documentation.

Notes for Abstraction:

- Use only documentation provided in the medical record.
- If the patient refused information about risks, benefits and alternatives to transfusion, select “1.”
- The caregiver is defined as the patient’s family or any other person (e.g., guardian) who will be responsible for care of the patient.

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Nursing notes
- Progress notes
- Operative notes
- Admission forms
- Consent form
- Emergency department record
- Progress notes
- Nursing notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Patient ID Verification*

Collected For: PBM-05,

Definition: Documentation that two unique patient identifiers were checked during a two-person verification process (or the use of automated identification technology may be used in place of one of the individuals) prior to the administration of the transfusion unit/dose (bag).

Suggested Data Collection Question: Was there documentation that two unique patient identifiers were checked or automated identification was used in place of one person during the verification process prior to the administration of the blood transfusion unit/dose (bag)?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 12

Allowable Values:

1 There was documentation that two unique patient identifiers were checked during the two person verification process or an automated identification system was used in place of one of the individuals prior to the administration of the transfusion unit/dose (bag).

2 There was no documentation that two unique patient identifiers or automated identification were used during the two-person identification check prior to the administration of the transfusion unit/dose (bag) or unable to determine from medical record documentation.

Notes for Abstraction:

- *Patient ID Verification* must be associated with the blood product and RBC ID that was selected for abstraction.
- *Patient ID Verification* can be documented by the signature of two persons that attest that two unique patient identifiers were checked to verify the identification of the patient prior to the transfusion or the signature of one person and an automated identification device.
- Patient identifiers that could be used include; name, date of birth, patient identification number or unique identifier given at the time the crossmatch was drawn.
- The patient room number should not be used to identify the patient.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Nursing notes
- Progress notes
- Physician's notes
- Operative notes
- Operative report
- Procedure notes
- PACU/recovery room record

- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Plasma ID*

Collected For: PBM-03, PBM-05,

Definition: The number assigned to designate whether the plasma unit was the first, second or third unit transfused after hospital arrival.

Suggested Data Collection Question: What number was assigned to the plasma unit selected for abstraction?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 First Plasma Unit

2 Second Plasma Unit

3 Third Plasma Unit

Notes for Abstraction:

- The abstractor assigns a plasma identification (ID) number for each unit evaluated.
- Each allowable value is only used one time and is determined by the order in which it was administered.
- Abstract up to three plasma transfusion units per patient.
- Include plasma transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Platelet ID*

Collected For: PBM-04, PBM-05,

Definition: The number assigned to designate whether the platelet unit was the first, second or third unit that was transfused after hospital arrival.

Suggested Data Collection Question: What number was assigned to the platelet unit selected for abstraction?

Format:

Length: 2
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 First Platelet Unit

2 Second Platelet Unit

3 Third Platelet Unit

Notes for Abstraction:

- The abstractor assigns a platelet identification (ID) number for each unit evaluated.
- Each allowable value is only used one time and is determined by the order in which it was administered.
- Abstract up to three platelet units per patient
- Include platelet transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Hematocrit*

Collected For: PBM-02,

Definition: Documentation of the closest hematocrit (hct) completed prior to the RBC transfusion.

Suggested Data Collection Question: What was documented as the closest pre-transfusion hct prior to the RBC transfusion?

Format:

Length: 4
Type: Alphanumeric
Occurs: 1 - 6

Allowable Values:

Enter the patient's closest hematocrit result (number only, reported in percent) performed prior to each RBC transfusion.

UTD = Unable to Determine

- For abstraction, select either the pre-transfusion hematocrit or the hemoglobin result; both are not required.
- Select the result associated with the RBC ID selected for abstraction.
- When recording the allowable value for hematocrit, input 23.00 if the patient's hematocrit is 23%.

Notes for Abstraction:

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Hemoglobin*

Collected For: PBM-02,

Definition: Documentation of the closest hemoglobin (hgb) completed prior to the RBC transfusion.

Suggested Data Collection Question: What was documented as the closest pre-transfusion hgb prior to the RBC transfusion?

Format:

Length: 4
Type: Alphanumeric
Occurs: 1 - 6

Allowable Values:

Enter the patient's closest hemoglobin result reported in g/dL performed prior to transfusion.

UTD = Unable to Determine

- For abstraction, select either the pre-transfusion hematocrit or the hemoglobin result; both are not required.
- Select the hemoglobin result that is associated with the RBC ID selected for abstraction.
- If the hemoglobin result is 9.9 g/dL, enter 9.9.

Notes for Abstraction:

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion PT/INR Result*

Collected For: PBM-03,

Definition: Documentation of PT/INR result completed prior to the plasma transfusion.

Suggested Data Collection Question: What was the PT/INR result completed prior to the plasma transfusion.

Format:

Length: 1 - 5
Type: Alphanumeric
Occurs: 1 - 3

Allowable Values:

Enter the closest PT/INR result to the plasma transfusion.

UTD = Unable to determine

Notes for Abstraction:

- Enter the PT/INR result that is associated with the plasma ID selected for abstaction.
- An allowable value should be entered with one decimal. For example, a PT/INR of 1.5 should be entered as written. INR values over 10 should be entered as 10.00.

Suggested Data Sources:

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Platelet Count*

Collected For: PBM-04,

Definition: Documentation of the closest platelet count completed prior to the platelet transfusion.

Suggested Data Collection Question: What was the closest platelet count documented prior to the platelet transfusion?

Format:

Length: 1 - 5
Type: Alphanumeric
Occurs: 1 - 3

Allowable Values:

Enter the patient's closest platelet count result, in 10^9/µL performed prior to the platelet transfusion selected for abstraction.

UTD = Unable to Determine

Note:

- Select the platelet count result that is associated with the Platelet ID selected for abstraction.
- An allowable value for a platelet count result should be entered as '11.00' for a platelet count of 11,000.

Notes for Abstraction:

Suggested Data Sources:

- Anesthesia record
- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Preoperative Anemia Screening Date*

Collected For: PBM-06,

Definition: The date that preoperative anemia screening or a hemoglobin (hgb)or hematocrit (hct) result was completed.

Suggested Data Collection Question: What date was preoperative anemia screening or a hgb or hct result completed?

Format:

Length: 10 - MM-DD-YYYY (includes dashes)
Type: Date
Occurs: 1

Allowable Values:

MM-DD-YYYY

MM = Month (01-12)
DD = Day (01-31)
YYYY = Year (2001-Current Year)
UTD

Notes for Abstraction:

- Select the *Preoperative Anemia Screening Date* associated with the elective surgical procedure selected for abstraction.*Preoperative Transfusion Testing*.
- The medical record must be abstracted as documented (taken at "face value"). When the date documented is obviously in error (not a valid date/format) and no other documentation is found that provides this information, the abstractor should select UTD.
- Example: Documentation indicates the Preoperative Anemia Screening Date was 03-42-2008. No other documentation in the medical record provides a valid date. Since the Preoperative Anemia Screening Date is outside of the range listed in the Allowable Values for "Day," it is not a valid date, and the abstractor should select UTD.

Suggested Data Sources:

- Nursing notes
- Progress notes
- Preop checklist
- Pre-arrival laboratory reports

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Preoperative Blood Type Testing*

Collected For: PBM-07,

Definition: Documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time.

Suggested Data Collection Question: Was there documentation of a type and screen or type and crossmatch completed prior to anesthesia start time?

Format:

Length: 1
Type: Numeric
Occurs: 1

Allowable Values:

1 There is documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time.

2 There is no documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time or unable to determine from medical record documentation.

Notes for Abstraction:

- If type and screen and type and crossmatch were completed prior to the surgical procedure, select “1”.
- Anesthesia Start Time is the same as surgery start time.

Suggested Data Sources:

- Consultation notes
- History and physical
- Progress notes
- Preop checklist
- Pre-arrival laboratory reports

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *RBC ID*

Collected For: PBM-02, PBM-05,

Definition: The number assigned to designate whether the RBC transfusion was the first through the sixth RBC transfusion unit that was transfused after hospital arrival.

Suggested Data Collection Question: What RBC unit was selected for abstraction?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 6

Allowable Values:

1 First RBC Unit

2 Second RBC Unit

3 Third RBC Unit

4 Fourth RBC Unit

5 Fifth RBC Unit

6 Sixth RBC Unit

Notes for Abstraction:

- The abstractor assigns a RBC identification (ID) number for each unit evaluated.
- Each allowable value is used only one time and is determined by the order in which it was administered.
- Abstract up to six RBC transfusion units per patient.
- Include RBC transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Operative report
- Medication administration record (MAR)
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion

None	None

Data Element Name:	*RBC Unit Exclusions*
Collected For:	PBM-02, PBM-05,
Definition:	Red blood cell (RBC) units that are excluded from abstraction. The following RBC units excluded from abstraction are; units used for a massive transfusion protocol or documentation of hemorrhagic shock, uncrossmatched units given during an emergency situation and units used to prime equipment for treatment.
Suggested Data Collection Question:	Was this unit transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment?
Format:	**Length:** 1 **Type:** Alphanumeric **Occurs:** 1-6

Allowable Values:

1. There was documentation that this unit was transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment

1. There was no documentation that this unit was transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment or unable to determine from medical record documentation.

Notes for Abstraction:

- If the initial six units transfused are excluded due to the exclusion criteria, abstract the next six units that were tranfused. If the patient only received RBC units that are excluded, then no RBC units should be abstracted.

Suggested Data Sources:

- Anesthesia record
- Circulation record
- Emergency department record
- Laboratory report
- Nursing notes
- Nursing flow sheet
- Progress notes
- Physician orders
- Physician’s notes
- Operative notes
- Operating room notes
- Operative report
- Procedure notes
- ICU notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Surgery Scheduled Timeframe*

Collected For: PBM-06,

Definition: The elective surgery was scheduled in less than 14 days from the planned surgery start date.

Suggested Data Collection Question: Was the elective surgery scheduled in less than 14 days from the planned surgery?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 There was documentation that the elective surgery was scheduled in less than 14 days from the planned surgery.

2 There was no documentation that the elective surgery was scheduled in less than 14 days from the planned surgery or unable to determine from medical record documentation.

Notes for Abstraction:

Suggested Data Sources:

- Preop checklist

Preoperative paperwork

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Transfusion Consent*

Collected For: PBM-01,

Definition: Documentation of a signed consent **prior** to the first transfusion of RBCs, platelets or plasma.

Suggested Data Collection Question: Was there documentation of a signed consent **prior** to the first blood transfusion?

Format:

Length: 1
Type: Numeric
Occurs: 1

Allowable Values:

1 There was documentation of a signed consent prior to the first blood transfusion.

2 The first blood transfusion was deemed a medical emergency.

3 There was no documentation of a blood transfusion consent prior to the first blood transfusion or unable to determine from medical record documentation.

Notes for Abstraction:

- The consent may be signed by the patient or caregiver.
- If organizations require a consent prior to every transfusion, then review the record for the first transfusion to answer this data element.
- For hospitals that use a general consent for treatment that includes transfusions, select “Yes”.
- If a patient receives chronic transfusions and a previous consent is acceptable for a defined timeframe within the institution, select “1” if the consent is valid.

Suggested Data Sources:

- Emergency department record
- History and physical
- Nursing notes
- Progress notes
- Operative notes
- Consent form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Transfusion Order*

Collected For: PBM-05,

Definition: An order to transfuse was written by the physician/advance practice nurse/physician assistant (physician/APN/PA) **prior** to the initiation of the transfusion.

Suggested Data Collection Question: Was there documentation of an order to transfuse **prior** to the transfusion?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 12

Allowable Values:

1 There was documentation of an order to transfuse prior to transfusion.

2 There was no documentation of an order to transfuse prior to transfusion or unable to determine from medical record documentation.

Notes for Abstraction:

- A verbal or telephone order that was written prior to the transfusion is acceptable.
- The Transfusion Order must be associated with the blood product unit ID that was selected for abstraction.
- Note: Transfusion Order may apply to more than one unit/dose (bag). For example: An order written to "Transfuse two doses of platelets" would apply to both bags that were administered.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE ORDER TO TRANSFUSE:

- Anesthesia record
- Consultation notes
- Emergency department record
- Operative notes
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Transfusion Start Date*
Collected For:	PBM-05,
Definition:	The date that the blood transfusion unit/dose (bag) was administered.
Suggested Data Collection Question:	What is the date that the blood transfusion unit/dose (bag) was administered?
Format:	**Length:** 10 – MM-DD-YYYY (includes dashes) **Type:** Date **Occurs:** 1 - 12
Allowable Values:	MM-DD-YYYY MM = Month (01-12) DD = Day (01-31) YYYY = Year (2001-Current Year) UTD
Notes for Abstraction:	• Abstract the Transfusion Date associated with the Transfusion Start Time of the unit/dose (bag) from the blood product ID selected for abstraction. • Some of the dates of the transfusion units may be the same date. Record a transfusion date for each unit abstracted up to three units for plasma or platelets or up to six units for RBCs. • The medical record must be abstracted as documented (taken at "face value"). When the date documented is obviously in error (not a valid date/format) and no other documentation is found that provides this information, the abstractor should select UTD. Example: Documentation indicates the Transfusion Start Date was 03-42-2008. No other documentation in the medical record provides a valid date. Since the Transfusion Start Date is outside of the range listed in the Allowable Values for "Day," it is not a valid date and the abstractor should select UTD.
Suggested Data Sources:	• Anesthesia record • Emergency department record • Nursing notes • Progress notes • Operative notes • Blood administration record
Additional Notes:	

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Transfusion Start Time*
Collected For:	PBM-05,
Definition:	The start time (military time) of the unit/dose (bag) of RBCs, plasma or platelets that was administered.
Suggested Data Collection Question:	What was the start time of the blood unit/dose (bag) administration?
Format:	**Length:** 5 - HH:MM (with or without colon) or UTD **Type:** Time **Occurs:** 1 - 12

Allowable Values:

Select the Transfusion Start Time associated with the Transfusion Start Date of the unit/dose (bag) from the associated blood product ID being abstracted.

HH = Hour (00-23)
MM = Minutes (00-59)
UTD = Unable to Determine

Notes for Abstraction:

Time must be recorded in military time format. With the exception of Midnight and Noon:

- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour

Examples:
Midnight - 00:00 Noon - 12:00
5:31 am - 05:31 5:31pm - 17:31
11:59 am - 11:59 11:59pm - 23:59

- For times that include “seconds,” remove the seconds and record the time as is. Example: 15:00:35 would be recorded as 15:00
- If more than one Transfusion Start Time is documented, use the earliest time documented.
- The medical record must be abstracted as documented (taken at “face value”). When the time documented is obviously in error (not a valid format/range) and no other documentation is found that provides this information, the abstractor should select “UTD.”
- Example: Documentation indicates the Transfusion Start Time was 3300. Since the Transfusion Start Time is outside of the range in the Allowable Values for “Hour,” it is not a valid time and the abstractor should select “UTD.”

Suggested Data Sources:

- Anesthesia record

- Emergency department record
- Nursing notes
- Operative notes
- Operative report
- Blood administration form

Additional Notes:

Select the Transfusion Start Time associated with the Transfusion Start Date of the unit/dose (bag) from the blood product ID identified for abstraction.

Time must be recorded in military time format.
With the exception of Midnight and Noon:

- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour.

The medical record must be abstracted as documented (taken at "face value"). When the time documented is obviously in error (not a valid format/range) and no other documentation is found that provides this information, the abstractor should select "UTD."

Example:
Documentation indicates the Transfusion Start Time was 3300. Since the Transfusion Start Time is outside of the range in the Allowable Values for "Hour," it is not a valid time and the abstractor should select "UTD."

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Vital Sign Monitoring*
Collected For:	PBM-05,
Definition:	Documentation of blood pressure (BP), pulse and temperature monitored at specific intervals for the transfusion. The intervals are: • Pre-transfusion, within 15 minutes of the initiation of the transfusion and within one hour of transfusion completion
Suggested Data Collection Question:	Was there documentation of BP and temperature monitored for all of the specified intervals for the transfusion?
Format:	**Length:** 2 **Type:** Numeric **Occurs:** 1 -12
Allowable Values:	**1** There was documentation for all of the BP, pulse and temperature monitoring intervals for the transfusion. **2** There was no documentation for all of the blood pressure, pulse and temperature monitoring intervals for the transfusion or unable to determine from medical record documentation.
Notes for Abstraction:	• All vital signs must be recorded at the following times: pre-transfusion, within 15 minutes of the initiation of the transfusion and within one hour of transfusion completion. To select "1", all recordings must be documented. • The pre-transfusion BP, pulse and temperature must be within one hour of the Transfusion Start Time. Vitals documented at the start of the transfusion are considered “within one hour of transfusion initiation". • For blood that may be transfused within 15 minutes, select "1" if the pre-transfusion and the within one hour of transfusion completion vitals are documented. • Vitals documented at the completion of the transfusion are considered “within one hour of transfusion completion". • The "unit" or "dose" information for the Vital Sign Monitoring data element must be associated with the blood product ID that was selected for abstraction.
Suggested Data Sources:	• Anesthesia record • Consultation notes • Emergency department record • Nursing notes • Progress notes • Operative notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 2.2 Left Ventricular Assistive Device (LVAD) and Heart Transplant		
Code	ICD-9-CM Description	Shortened Description
33.6	Combined heart-lung transplantation	COMB HEART/LUNG TRANSPLA
37.51	Heart transplantation	HEART TRANSPLANTATION
37.52	Implantation of total replacement heart system	IMPLANT TOT REP HRT SYS
37.53	Replacement or repair of thoracic unit of total replacement heart system	REPL/REP THORAC UNIT HRT
37.54	Replacement or repair of other implantable component of total replacement heart system	REPL/REP OTH TOT HRT SYS
37.62	Insertion of non-implantable heart assist system	INS NON-IMPL HRT ASSIST
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of heart assist system	REMOVE HEART ASSIST SYS
37.65	Implant of external heart assist system	IMP EXT HRT ASSIST SYST
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.68	Insertion of percutaneous external heart assist device	PERCUTAN HRT ASSIST SYST

Table 5.01 Coronary Artery Bypass Graft (CABG)		
Code	ICD-9-CM Description	Shortened Description
36.10	Aortocoronary bypass for heart revascularization, not otherwise specified	AORTOCORONARY BYPASS NOS
36.11	(Aorto)coronary bypass of one coronary artery	(AORTO)COR BYPAS-1 COR ART
36.12	(Aorto)coronary bypass of two coronary arteries	(AORTO)COR BYPAS-2 COR ART
36.13	(Aorto)coronary bypass of three coronary arteries	(AORTO)COR BYPAS-3 COR ART
36.14	(Aorto)coronary bypass of four coronary arteries	(AORT)COR BYPAS-4+ COR ART
36.15	Single internal mammary-coronary artery bypass	1 INT MAM-COR ART BYPASS
36.16	Double internal mammary-coronary artery bypass	2 INT MAM-COR ART BYPASS
36.17	Abdominal-coronary artery bypass	ABD-CORON ARTERY BYPASS
36.19	Other bypass anastomosis for heart revascularization	HRT REVAS BYPS ANAS NEC

Table 5.02 Other Cardiac Surgery		
Code	ICD-9-CM Description	Shortened Description
35.10	Open heart valvuloplasty, without replacement, unspecified valve	OPEN VALVULOPLASTY NOS
35.11	Open heart valvuloplasty of aortic valve without replacement	OPN AORTIC VALVULOPLASTY
35.12	Open heart valvuloplasty of mitral valve without replacement	OPN MITRAL VALVULOPLASTY
35.13	Open heart valvuloplasty of pulmonary valve without replacement	OPN PULMON VALVULOPLASTY
35.14	Open heart valvuloplasty of tricuspid valve without	OPN TRICUS

	replacement	VALVULOPLASTY
35.20	Replacement of unspecified heart valve	REPLACE HEART VALVE NOS
35.21	Replacement of aortic valve with tissue graft	REPLACE AORT VALV-TISSUE
35.22	Other replacement of aortic valve	REPLACE AORTIC VALVE NEC
35.23	Replacement of mitral valve with tissue graft	REPLACE MITR VALV-TISSUE
35.24	Other replacement of mitral valve	REPLACE MITRAL VALVE NEC
35.25	Replacement of pulmonary valve with tissue graft	REPLACE PULM VALV-TISSUE
35.26	Other replacement of pulmonary valve	REPLACE PULMON VALVE NEC
35.27	Replacement of tricuspid valve with tissue graft	REPLACE TRIC VALV-TISSUE
35.28	Other replacement of tricuspid valve	REPLACE TRICUSP VALV NEC
35.31	Operations on papillary muscle	PAPILLARY MUSCLE OPS
35.32	Operations on chordae tendineae	CHORDAE TENDINEAE OPS
35.33	Annuloplasty	ANNULOPLASTY
35.34	Infundibulectomy	INFUNDIBULECTOMY
35.35	Operations on trabeculae carneae cordis	TRABECUL CARNEAE CORD OP
35.39	Operations on other structures adjacent to valves of heart	TISS ADJ TO VALV OPS NEC
35.42	Creation of septal defect in heart	CREATE SEPTAL DEFECT
35.50	Repair of unspecified septal defect of heart with prosthesis	PROSTH REP HRT SEPTA NOS
35.51	Repair of atrial septal defect with prosthesis, open technique	PROS REP ATRIAL DEF-OPN
35.53	Repair of ventricular septal defect with prosthesis, open technique	PROS REP VENTRIC DEF-OPN
35.54	Repair of endocardial defect with prosthesis	PROS REP ENDOCAR CUSHION
35.60	Repair of unspecified septal defect with tissue graft	GRFT REPAIR HRT SEPT NOS
35.61	Repair of atrial septal defect with tissue graft	GRAFT REPAIR ATRIAL DEF
35.62	Repair of ventricular septal defect with tissue graft	GRAFT REPAIR VENTRIC DEF
35.63	Repair of endocardial cushion defect with tissue graft	GRFT REP ENDOCAR CUSHION
35.70	Other and unspecified repair of unspecified septal defect of heart	HEART SEPTA REPAIR NOS
35.72	Other and unspecified repair of ventricular septal defect	VENTR SEPTA DEF REP NEC
35.73	Other and unspecified repair of endocardial cushion defect	ENDOCAR CUSHION REP NEC
35.81	Total repair of tetralogy of Fallot	TOT REPAIR TETRAL FALLOT
35.82	Total repair of total anomalous pulmonary venous connection	TOTAL REPAIR OF TAPVC
35.83	Total repair of truncus arteriosus	TOT REP TRUNCUS ARTERIOS
35.84	Total correction of transposition of great vessels, not elsewhere classified	TOT COR TRANSPOS GRT VES
35.91	Interatrial transposition of venous return	INTERAT VEN RETRN TRANSP

35.92	Creation of conduit between right ventricle and pulmonary artery	CONDUIT RT VENT-PUL ART
35.93	Creation of conduit between left ventricle and aorta	CONDUIT LEFT VENTR-AORTA
35.94	Creation of conduit between atrium and pulmonary artery	CONDUIT ARTIUM-PULM ART
35.98	Other operations on septa of heart	OTHER HEART SEPTA OPS
35.99	Other operations on valves of heart	OTHER HEART VALVE OPS

Table 5.08 Vascular Surgery

Code	ICD-9-CM Description	Shortened Description
38.14	Endarterectomy, aorta	ENDARTERECTOMY OF AORTA
38.16	Endarterectomy, abdominal arteries	ABDOMINAL ENDARTERECTOMY
38.18	Endarterectomy, lower limb arteries	LOWER LIMB ENDARTEREC T
38.34	Resection of vessel with anastomosis, aorta	AORTA RESECTION & ANAST
38.36	Resection of vessel with anastomosis, abdominal arteries	ABD VESSEL RESECT/ANAST
38.37	Resection of vessel with anastomosis, abdominal veins	ABD VEIN RESECT & ANAST
38.44	Resection of vessel with replacement, aorta, abdominal	RESECT ABDM
38.48	Resection of vessel with replacement, lower limb arteries	LEG ARTERY RESEC W REPLA
38.49	Resection of vessel with replacement, lower limb veins	LEG VEIN RESECT W REPLAC
38.64	Other excision of vessels, aorta, abdominal	EXCISION OF AORTA
39.25	Aorta-iliac-femoral bypass	AORTA-ILIAC-FEMOR BYPASS
39.26	Other intra-abdominal vascular shunt or bypass	INTRA-ABDOMIN SHUNT NEC
39.29	Other (peripheral) vascular shunt or bypass	VASC SHUNT & BYPASS NEC

Table 5.11 Cardiac Surgery

Code	ICD-9-CM Description	Shortened Description
35.10	Open heart valvuloplasty without replacement, unspecified valve	OPEN VALVULOPLASTY NOS
35.11	Open heart valvuloplasty of aortic valve without replacement	OPN AORTIC VALVULOPLASTY
35.12	Open heart valvuloplasty of mitral valve without replacement	OPNMITRAL VALVULOPLASTY
35.13	Open heart valvuloplasty of pulmonary valve without replacement	OPN PULMON VALVULOPLASTY
35.14	Open heart valvuloplasty of tricuspid valve without replacement	OPN TRICUS VALVULOPLASTY
35.20	Replacement of unspecified heart valve	REPLACE HEART VALVE NOS
35.21	Replacement of aortic valve with tissue graft	REPLACE AORT VALVE-TISSUE
35.22	Other replacement of aortic valve	REPLACE AORT VALVE NEC

35.23	Replacement of mitral valve with tissue graft	REPLACE MITR VALVE-TISSUE
35.24	Other replacement of mitral valve	REPLACE MITRAL VALVE NEC
35.25	Replacement of pulmonary valve with tissue graft	REPLACE PULM VALV-TISSUE
35.26	Other replacement of pulmonary valve	REPLACE PULMON VALVE NEC
35.27	Replacement of tricuspid valve with tissue graft	REPLACE TRICUSP VALV NEC
35.28	Other replacement of tricuspid valve	REPLACE TRICUSP VALV NEC
35.31	Operations on papillary muscle	PAPILLARY MUSCLE OPS
35.32	Operations on chordae tendineae	CHORDAE TENDINEAE OPS
35.33	Annuloplasty	ANNULOPLASTY
35.34	Infundibulectomy	INFUNDIBULECTOMY
35.35	Operations of trabeculae carneae cordis	TRABECUL CARNEAE CORD OP
35.39	Operations on other structures adjacent to valves of heart	TISS ADJ TO VALV OPS NEC
35.42	Creation of septal defect in heart	CREATE SEPTAL DEFECT
35.50	Repair of unspecified septal defect of heart with prosthesis	PROSTH REP HRT SEPTA NOS
35.51	Repair of atrial septal defect with prosthesis, open technique	PROS REP ATRIAL DEF-OPN
35.53	Repair of ventricular septal defect with prosthesis, open technique	PROS REP VENTRIC DEF-OPN
35.54	Repair of endocardial cushion defect with prosthesis	PROS REP ENDOCAR CUSHION
35.60	Repair of unspecified septal defect of heart with tissue graft	GRFT REPAIR HRT SEPT NOS
35.61	Repair of atrial septal defect with tissue graft	GRAFT REPAIR ATRIAL DEF
35.62	Repair of ventricular septal defect with tissue graft	GRAFT REPAIR VENTRIC DEF
35.63	Repair of endocardial cushion defect with tissue graft	GRFT REP ENDOCAR CUSHION
35.70	Other and unspecified repair of unspecified septal defect of heart	HEART SEPTA REPAIR NOS
35.71	Other and unspecified repair of atrial septal defect	ATRIA SEPTA DEF REP NEC
35.72	Other and unspecified repair of ventricular septal defect	VENTR SEPTA DEF REP NEC
35.73	Other and unspecified repair of endocardial cushion defect	ENDOCAR CUSHION REP NEC
35.81	Total repair of tetralogy of Fallot	TOT REPAIR TETRAL FALLOT
35.82	Total repair of total anomalous pulmonary venous connection	TOTAL REPAIR OF TAPVC
35.83	Total repair of truncus arteriosus	TOT REP TRUNCUS ARTERIOS

Table 5.11 Cardiac Surgery (cont.)		
Code	ICD-9-CM Description	Shortened Description

35.84	Total connection of transposition of great vessels, not elsewhere classified	TOT COR TRANSPOS GRT VES
35.91	Interatrial transposition of venous return	INTERAT VEN RETRN TRANSP
35.92	Creation of conduit between right ventricle and pulmonary artery	CONDUIT RT VENT-PUL ART
35.93	Creation of conduit between left ventricle and aorta	CONDUIT LEFT VENTR-AORTA
35.94	Creation of conduit between atrium and pulmonary artery	CONDUIT ARTIUM-PULM ART
35.98	Other operations on septa of heart	OTHER HEART SEPTA OPS
35.99	Other operations on valves of heart	OTHER HEART VALVE OPS
36.03	Open chest coronary artery angioplasty	OPEN CORONRY ANGIOPLASTY
36.10	Aortocoronary bypass for heart revascularization, not otherwise specified	AORTOCORONARY BYPASS NOS
36.11	Aortocoronary bypass of one coronary artery	AORTOCOR BYPASS-1 COR ART
36.12	Aortocoronary bypass of two coronary arteries	AORTOCOR BYPASS-2 COR ART
36.13	Aortocoronary bypass of three coronary arteries	AORTOCOR BYPASS-3 COR ART
36.14	Aortocoronary bypass of four or more coronary arteries	AORTOCOR BYPASS-4+ COR ART
36.15	Single internal mammary-coronary artery bypass	1 INT MAM-COR ART BYPASS
36.16	Double internal mammary-coronary artery bypass	2 INT MAM-COR ART BYPASS
36.17	Abdominal-coronary artery bypass	ABD-CORON ARTERY BYPASS
36.19	Other bypass anastomosis for heart revascularization	HRT REVAS BYPS ANAS NEC
36.31	Open chest transmyocardial revascularization	OPEN CHEST TRANS REVASC
36.32	Other transmyocardial revascularization	OTH TRANSMYO REVASCULAR
36.39	Other heart revascularization	OTH REVASCULAR
36.91	Repair of aneurysm of coronary vessel	CORON VESS ANEURYSM REP
36.99	Other operations on vessels of heart	HEART VESSEL OP NEC
37.10	Incision of heart, not otherwise specified	INCISION OF HEART NOS
37.11	Cardiotomy	CARDIOTOMY
37.31	Pericardiectomy	PERICARDIECTOMY
37.32	Excision of aneurysm of heart	HEART ANEURYSM EXCISION
37.33	Excision or destruction of other lesion or tissue of heart, open approach	EXC/DEST HRT LESION OPEN
37.35	Partial ventriculectomy	PARTIAL VENTRICULECTOMY
37.41	Implantation of prosthetic cardiac support device around the heart	IMPL CARDIAC SUPPORT DEV
37.49	Other repair of heart and pericardium	HEART/PERICARD REPR NEC
37.51	Heart transplantation	HEART TRANSPLANTATION

37.52	Implantation of total replacement heart system	IMPLANT TOT REP HRT SYS
37.53	Replacement or repair of thoracic unit of total replacement heart system	REPL/REP THORAC UNIT HRT
37.54	Replacement or repair of other implants component of total replacement heart system	REPL/REP OTH TOT HRT SYS
37.62	Insertion of non-implantable heart assist system	INS NON-IMPL HRT ASSIST
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of heart assist system	REMOVE HEART ASSIST SYS
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.67	Implantation of cardiomyostimulation system	IMP CARDIOMYOSTIMUL SYS

Table 5.22 Elective Hip Replacement

Code	ICD-9-CM Description	Shortened Description
00.70	Revision of hip replacement, both acetabular and femoral components	REV HIP REPL-ACETAB/FEM
00.71	Revision of hip replacement, acetabular component	REV HIP REPL-ACETAB COMP
00.72	Revision of hip replacement, femoral component	REV HIP REPL-FEM COMP
00.73	Revision of hip replacement, acetabular liner and/or femoral head only	REV HIP REPL-LINER/HEAD
00.77	Hip bearing surface, ceramic-on-polyethylene	HIP SURFACE, CERMC/POLY
00.85	Resurfacing hip, total, acetabulum and femoral head	RESRF HIP,TOTAL-ACET/FEM
00.86	Resurfacing hip, partial, femoral head	RESRF HIP,PART-FEM HEAD
00.87	Resurfacing hip, partial, acetabulum	RESRF HIP,PART-ACETABLUM
81.51	Total hip replacement	TOTAL HIP REPLACEMENT
81.52	Partial hip replacement	PARTIAL HIP REPLACEMENT
81.53	Revision of hip replacement	REVISE HIP REPLACEMENT

Table 5.23 Elective Total Knee Replacement

Code	ICD-9-CM Description	Shortened Description
00.80	Revision of knee replacement, total (all components)	REV KNEE REPLACEMT-TOTAL
00.81	Revision of knee replacement, tibial component	REV KNEE REPL-TIBIA COMP
00.82	Revision of knee replacement, femoral component	REV KNEE REPL-FEMUR COMP
00.83	Revision of knee replacement, patellar component	REV KNEE REPLACE-PATELLA
00.84	Revision of total knee replacement, tibial insert (liner)	REV KNEE REPL-TIBIA LIN
81.54	Total knee replacement	TOTAL KNEE REPLACEMENT
81.55	Revision of knee replacement	REVISE KNEE REPLACEMENT

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 9.1 Elective Cardiac Surgery (Selected Codes from Table 5.25)		
Code	ICD-9-CM Description	Shortened Description
35.71	Other and unspecified repair of atrial septal defect	ATRIA SEPTA DEF REP NEC
36.03	Open chest coronary artery angioplasty	OPEN CORONRY ANGIOPLASTY
36.31	Open chest transmyocardial revascularization	OPEN CHEST TRANS REVASC
36.32	Other transmyocardial revascularization	OTH TRANSMYO REVASCULAR
36.39	Other heart revascularization	OTH HEART REVASCULAR
36.91	Repair of aneurysm of coronary vessel	CORON VESS ANEURYSM REP
36.99	Other operations on vessels of heart	HEART VESSEL OP NEC
37.10	Incision of heart, not otherwise specified	INCISION OF HEART NOS
37.11	Cardiotomy	CARDIOTOMY
37.32	Excision of aneurysm of heart	HEART ANEURYSM EXCISION
37.33	Excision or destruction of other lesion or tissue of heart, open approach	EXC/DEST HRT LESION OPEN
37.35	Partial ventriculectomy	PARTIAL VENTRICULECTOMY
37.36	Excision or destruction of left atrial appendage (LAA)	EXC LEFT ATRIAL APPENDAG
37.41	Implantation of prosthetic cardiac support device around the heart	IMPL CARDIAC SUPPORT DEV
37.49	Other repair of heart and pericardium	HEART/PERICARD REPR NEC
37.51	Heart transplantation	HEART TRANSPLANTATION
37.52	Implantation of total internal biventricular heart replacement system	IMP TOT INT BI HT RP SYS
37.53	Replacement or repair of thoracic unit of (total) replacement heart system	REPL/REP THR UNT TOT HRT
37.54	Replacement or repair of other implantable component of (total) replacement heart system	REPL/REP OTH TOT HRT SYS
37.55	Removal of internal biventricular heart replacement system	REM INT BIVENT HRT SYS
37.60	Implantation or insertion of biventricular external heart assist system	IMP BIVN EXT HRT AST SYS
37.62	Insertion of temporary non-implantable extracorporeal circulatory assist device	INSRT NON-IMPL CIRC DEV
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of external heart assist system(s) or device(s)	REMVE EXT HRT ASSIST SYS
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.67	Implantation of cardiomyostimulation system	IMP CARDIOMYOSTIMUL SYS

Table 9.2 Elective Gynecological		
Code	ICD-9-CM Description	Shortened Description
68.31	Other incision and excision of uterus, subtotal abdominal hysterectomy, other incision and excision of uterus, laparoscopic supracervical hysterectomy [LSH]	Lap scervic hysterectomy
68.39	Other incision and excision of uterus, subtotal abdominal hysterectomy, other incision and excision of uterus, other and unspecified subtotal	Subtotl abd hyst NEC/NOS

	abdominal hysterectomy	
68.41	Other incision and excision of uterus, total abdominal hysterectomy, laparoscopic total abdominal hysterectomy	Lap total abdominal hyst
68.49	Other incision and excision of uterus, total abdominal hysterectomy, other and unspecified total abdominal hysterectomy	Total abd hyst NEC/NOS
68.51	Vaginal hysterectomy, laparoscopically assisted vaginal hysterectomy [LAVH]	Lap ast vag hysterectomy
68.59	Vaginal hysterectomy, other and unspecified vaginal hysterectomy	Vag hysterectomy NEC/NOS
68.61	Radical abdominal hysterectomy, laparoscopic radical abdominal hysterectomy	Lap radical abdomnl hyst
68.69	Radical abdominal hysterectomy, other and unspecified radical abdominal hysterectomy	Radical abd hyst NEC/NOS
68.71	Radical vaginal hysterectomy, laparoscopic radical vaginal hysterectomy [LRVH]	Lap radical vaginal hyst
68.79	Radical vaginal hysterectomy, other and unspecified radical vaginal hysterectomy	Radical vag hyst NEC/NOS
68.9	Other and unspecified hysterectomy	Hysterectomy NEC/NOS

Table 9.3 Previously Donated Autologous Transfusion

Code	ICD-9-CM Description	Shortened Description
99.02	Other nonoperative procedures, transfusion of blood and blood components, transfusion of previously collected autologous blood	TRANSFUS PREV AUTO BLOOD

Table 9.4 Packed Red Blood Cell Transfusion

Code	ICD-9-CM Description	Shortened Description
99.04	Other nonoperative procedures, transfusion of blood and blood components, transfusion of packed cells	PACKED CELL TRANSFUSION

Table 9.5 Platelet Transfusion

Code	ICD-9-CM Description	Shortened Description
99.05	Other nonoperative procedures, transfusion of blood and blood components, transfusion of platelets	PLATELET TRANSFUSION

Table 9.6 Plasma Transfusion

Code	ICD-9-CM Description	Shortened Description
99.07	Other nonoperative procedures, transfusion of blood and blood components, transfusion of other serum	SERUM TRANSFUSION NEC

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 9.7 Trauma		
Code	ICD-9-CM Description	Shortened Description
800	Fracture of vault of skull	CLOSED SKULL VAULT FX
801	Fracture of base of skull	CLOS SKULL BASE FRACTURE
802	Fracture of face bones	NASAL BONE FX-CLOSED
803	Other and unqualified skull fractures	CLOSE SKULL FRACTURE NEC
804	Multiple fractures involving skull or face with other bones	CL SKUL FX W OTH BONE FX
805	Fracture of vertebral column without mention of spinal cord injury	FX CERVICAL VERT NOS-CL
806	Fracture of vertebral column with spinal cord injury	C1-C4 FX-CL/CORD INJ NOS
807	Fracture of rib(s), sternum, larynx, and trachea	FRACTURE RIB NOS-CLOSED
808	Fracture of pelvis	FRACTURE ACETABULUM-CLOS
809	III-defined fractures of bones of trunk	FRACTURE TRUNK BONE-CLOS
810	Fracture of clavicle	FX CLAVICLE NOS-CLOSED
811	Fracture of scapula	FX SCAPULA NOS-CLOSED
812	Fracture of humerus	FX UP END HUMERUS NOS-CL
813	Fracture of radius and ulna	FX UPPER FOREARM NOS-CL
814	Fracture of carpal bones(s)	FX CARPAL BONE NOS-CLOSE
815	Fracture of metacarpal bones(s)	FX METACARPAL NOS-CLOSED
816	Fracture of one or more phalanges of hands	FX PHALANX, HAND NOS-CL
817	Multiple fractures of hand bones	MULTIPLE FX HAND-CLOSED
818	III-defined fractures of upper limb	FX ARM MULT/NOS-CLOSED
819	Multiple fractures involving both upper limbs, and upper limb with rib(s) and sternum	FX ARMS W RIB/STERNUM-CL
820	Fracture of neck of femur	FX FEMUR INTRCAPS NOS-CL
821	Fracture of other and unspecified parts of femur	FX FEMUR NOS-CLOSED
822	Fracture of patella	FRACTURE PATELLA-CLOSED
823	Fracture of tibia and fibula	FX UPPER END TIBIA-CLOSE
824	Fracture of ankle	FX MEDIAL MALLEOLUS-CLOS
825	Fracture of one or more tarsal and metatarsal bones	FRACTURE CALCANEUS-CLOSE
826	Fracture of one or more phalanges of foot	FX PHALANX, FOOT-CLOSED
827	Other, multiple, and ill-defined fractures of lower limb	FX LOWER LIMB NEC-CLOSED
828	Multiple fractures involving both lower limbs, lower with upper limb, and lower limb(s) with rib(s) and sternum	FX LEGS W ARM/RIB-CLOSED
829	Fracture of unspecified bones	FRACTURE NOS-CLOSED
830	Dislocation of jaw	DISLOCATION JAW-CLOSED
831	Dislocation of shoulder	DISLOC SHOULDER NOS-

		CLOS
832	Dislocation of elbow	DISLOCAT ELBOW NOS-CLOSE
833	Dislocation of wrist	DISLOC WRIST NOS-CLOSED
834	Dislocation of finger	DISL FINGER NOS-CLOSED
835	Dislocation of hip	DISLOCAT HIP NOS-CLOSED
836	Dislocation of knee	TEAR MED MENISC KNEE-CUR
837	Dislocation of ankle	DISLOCATION ANKLE-CLOSED
838	Dislocation of foot	DISLOCAT FOOT NOS-CLOSED
839	Other, multiple, and ill-defined dislocations	DISLOC CERV VERT NOS-CL
840	Sprains and strains of shoulder and upper arm	SPRAIN ACROMIOCLAVICULAR
841	Sprains and strains of elbow and forearm	SPRAIN RADIAL COLLAT LIG
842	Sprains and strains of wrist and hand	SPRAIN OF WRIST NOS
843	Sprains and strains of hip and thigh	SPRAIN ILIOFEMORAL
844	Sprains and strains of knee and leg	SPRAIN LATERAL COLL LIG
845	Sprains and strains of ankle and foot	SPRAIN OF ANKLE NOS
846	Sprains and strains of sacroiliac region	SPRAIN LUMBOSACRAL
847	Sprains and strains of other and unspecified parts of back	SPRAIN OF NECK
848	Other and ill-defined sprains and strains	SPRAIN OF NASAL SEPTUM
850	Concussion	CONCUSSION W/O COMA
851	Cerebral laceration and contusion	CEREBRAL CORTX CONTUSION
852	Subarachnoid, subdural, and extradural hemorrhage, following injury	TRAUM SUBARACHNOID HEM
853	Other and unspecified intracranial hemorrhage following injury	TRAUMATIC BRAIN HEM NEC
854	Intracranial injury of other and unspecified nature	BRAIN INJURY NEC
860	Traumatic pneumothorax and hemothorax	TRAUM PNEUMOTHORAX-CLOSE
861	Injury to heart and lung	HEART INJURY NOS-CLOSED
862	Injury to other and unspecified intrathoracic organs	DIAPHRAGM INJURY-CLOSED
863	Injury to gastrointestinal tract	STOMACH INJURY-CLOSED
864	Injury to liver	LIVER INJURY NOS-CLOSED
865	Injury to spleen	SPLEEN INJURY NOS-CLOSED
866	Injury to kidney	KIDNEY INJURY NOS-CLOSED
867	Injury to pelvic organs	BLADDER/URETHRA INJ-CLOS
868	Injury to other intra-abdominal organs	INTRA-ABDOM INJ NOS-CLOS
869	Internal injury to unspecified or ill-defined organs	INTERNAL INJ NOS-CLOSED
870	Open wound of ocular adnexa	LAC EYELID SKN/PERIOCULR
871	Open wound of eyeball	OCULAR LAC W/O PROLAPSE
872	Open wound of ear	OPN WOUND EXTERN EAR

		NOS
873	Other open wound of head	OPEN WOUND OF SCALP
874	Open wound of neck	OPN WND LARYNX W TRACHEA
875	Open wound of chest (wall)	OPEN WOUND OF CHEST
876	Open wound of back	OPEN WOUND OF BACK
877	Open wound of buttock	OPEN WOUND OF BUTTOCK
878	Open wound of genital organs (external), including traumatic amputation	OPEN WOUND OF PENIS
879	Open wound of other and unspecified sites, except limbs	OPEN WOUND OF BREAST
880	Open wound of shoulder and upper arm	OPEN WOUND OF SHOULDER
881	Open would of elbow, forearm, and wrist	OPEN WOUND OF FOREARM
882	Open wound of hand except finger(s) alone	OPEN WOUND OF HAND
883	Open wound of finger(s)	OPEN WOUND OF FINGER
884	Multiple and unspecified open wound of upper limb	OPEN WOUND ARM MULT/NOS
885	Traumatic amputation of thumb (complete) (partial)	AMPUTATION THUMB
886	Traumatic amputation of other finger(s) (complete) (partial)	AMPUTATION FINGER
887	Traumatic amputation of arm and hand (complete) (partial)	AMPUT BELOW ELB, UNILAT
890	Open wound of hip and thigh	OPEN WOUND OF HIP/THIGH
891	Open wound of knee, leg [except thigh], and ankle	OPEN WND KNEE/LEG/ANKLE
892	Open wound of foot except toe(s) alone	OPEN WOUND OF FOOT
893	Open wound of toe(s)	OPEN WOUND OF TOE
894	Multiple and unspecified open wound of lower limb	OPEN WOUND OF LEG NEC
895	Traumatic amputation of toe(s) (complete) (partial)	AMPUTATION TOE
896	Traumatic amputation of foot (complete) (partial)	AMPUTATION FOOT, UNILAT
897	Traumatic amputation of leg(s) (complete) (partial)	AMPUT BELOW KNEE, UNILAT
900	Injury to blood vessels of head and neck	INJUR CAROTID ARTERY NOS
901	Injury to blood vessels of thorax	INJURY THORACIC AORTA
902	Injury to blood vessels of abdomen and pelvis	INJURY ABDOMINAL AORTA
903	Injury to blood vessels of upper extremity	INJ AXILLARY VESSEL NOS
904	Injury to blood vessels of lower extremity and unspecified sites	INJ COMMON FEMORAL ARTER
905	Late effects of musculoskeletal and connective tissue injuries	LATE EFFEC SKULL/FACE FX
906	Late effects of injuries to skin and subcutaneous tissues	LT EFF OPN WND HEAD/TRNK
907	Late effects of injuries to the nervous system	LT EFF INTRACRANIAL INJ
908	Late effects of other and unspecified injuries	LATE EFF INT INJUR CHEST
909	Late effects of other and unspecified external causes	LATE EFF DRUG POISONING
910	Superficial injury of face, neck, and scalp except eye	ABRASION HEAD
911	Superficial injury of trunk	ABRASION TRUNK
912	Superficial injury of shoulder and upper arm	ABRASION SHOULDER/ARM

913	Superficial injury of elbow, forearm, and wrist	ABRASION FOREARM
914	Superficial injury of hand(s) except finger(s) alone	ABRASION HAND
915	Superficial injury of finger(s)	ABRASION FINGER
916	Superficial injury of hip, thigh, leg, and ankle	ABRASION HIP & LEG
917	Superficial injury of foot and toe(s)	ABRASION FOOT & TOE
918	Superficial injury of eye and adnexa	SUPERFIC INJ PERIOCULAR
919	Superficial injury of other, multiple, and unspecified sites	ABRASION NEC
920	Contusion of face, scalp, and neck except eye(s)	CONTUSION FACE/SCALP/NCK
921	Contusion of eye and adnexa	BLACK EYE NOS
922	Contusion of trunk	CONTUSION OF BREAST
923	Contusion of upper limb	CONTUSION SHOULDER REG
924	Contusion of lower limb and of other and unspecified sites	CONTUSION OF THIGH
925	Crushing injury of face, scalp, and neck	
926	Crushing injury of trunk	CRUSH INJ EXT GENITALIA
927	Crushing injury of upper limb	CRUSH INJ SHOULDER REG
928	Crushing injury of lower limb	CRUSHING INJURY THIGH
929	Crushing injury of multiple and unspecified sites	CRUSH INJ MULT SITE NEC
930	Foreign body on external eye	CORNEAL FOREIGN BODY
931	Foreign body in ear	FOREIGN BODY IN EAR
932	Foreign body in nose	FOREIGN BODY IN NOSE
933	Foreign body in pharynx and larynx	FOREIGN BODY IN PHARYNX
934	Foreign body in trachea, bronchus, and lung	FOREIGN BODY IN TRACHEA
935	Foreign body in mouth, esophagus, and stomach	FOREIGN BODY IN MOUTH
936	Foreign body in intestine and colon	FB IN INTESTINE & COLON
937	Foreign body in anus and rectum	FOREIGN BODY ANUS/RECTUM
938	Foreign body in digestive system, unspecified	FOREIGN BODY GI NOS
939	Foreign body in genitourinary tract	FB BLADDER & URETHRA
940	Burn confined to eye and adnexa	CHEMICAL BURN PERIOCULAR
941	Burn of face, head, and neck	BURN NOS HEAD-UNSPEC
942	Burn of trunk	BURN NOS TRUNK-UNSPEC
943	Burn of upper limb, except wrist and hand	BURN NOS ARM-UNSPEC
944	Burn of wrist(s) and hand(s)	BURN NOS HAND-UNSPEC
945	Burn of lower limb(s)	BURN NOS LEG-UNSPEC
946	Burns of multiple specified sites	BURN NOS MULTIPLE SITE
947	Burn of internal organs	BURN OF MOUTH & PHARYNX
948	Burns classified according to extent of body surface involved	BDY BRN < 10%/3D DEG NOS
949	Burn, unspecified	BURN NOS
950	Injury to optic nerve and pathways	OPTIC NERVE INJURY
951	Injury to other cranial nerve(s)	INJURY OCULOMOTOR NERVE
952	Spinal cord injury without evidence of spinal bone injury	C1-C4 SPIN CORD INJ NOS

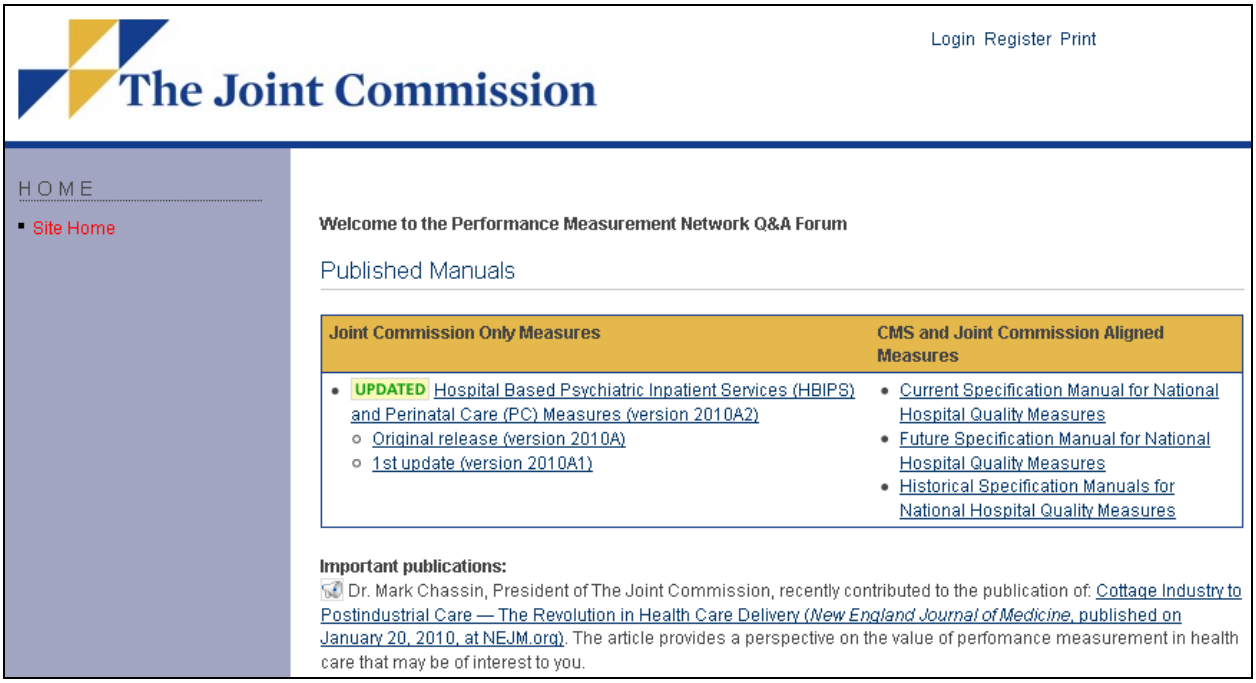
953	Injury to nerve roots and spinal plexus	CERVICAL ROOT INJURY
954	Injury to other nerve(s) of trunk, excluding shoulder and pelvic girdles	INJ CERV SYMPATH NERVE
955	Injury to peripheral nerve(s) of shoulder girdle and upper limb	INJURY AXILLARY NERVE
956	Injury to peripheral nerve(s), of pelvic girdle and lower limb	INJURY SCIATIC NERVE
957	Injury to other and unspecified nerves	INJ SUPERF NERV HEAD/NCK
958	Certain early complications of trauma	AIR EMBOLISM
959	Injury, other and unspecified	
960	Poisoning by antibiotics	POISONING-PENICILLINS
961	Poisoning by other anti-infectives	POISONING-SULFONAMIDES
962	Poisoning by hormones and synthetic substitutes	POIS-CORTICOSTEROIDS
963	Poisoning by primarily systemic agents	POIS-ANTIALLRG/ANTIEMET
964	Poisoning by agents primarily affecting blood constituents	POISONING-IRON/COMPOUNDS
965	Poisoning by analgesics, antipyretics, and antirheumatics	POISONING-OPIUM NOS
966	Poisoning by anticonvulsants and anti-Parkinsonism drugs	POISON-OXAZOLIDINE DERIV
967	Poisoning by sedatives and hypnotics	POISONING-BARBITURATES
968	Poisoning by other central nervous system depressants and anesthetics	POIS-CNS MUSCLE DEPRESS
969	Poisoning by psychotropic agents	POISON-ANTIDEPRESNT NOS
970	Poisoning by central nervous system stimulants	POISONING-ANALEPTICS
971	Poisoning by drugs primarily affecting the autonomic nervous system	POIS-PARASYMPATHOMIMETIC
972	Poisoning by agents primarily affecting the cardiovascular system	POIS-CARD RHYTHM REGULAT
973	Poisoning by agents primarily affecting the gastrointestinal system	POIS-ANTACID/ANTIGASTRIC
974	Poisoning by water, mineral, and uric acid metabolism drugs	POIS-MERCURIAL DIURETICS
975	Poisoning by agents primarily acting on the smooth and skeletal muscles and respiratory system	POISONING-OXYTOCIC AGENT
976	Poisoning by agents primarily affecting skin and mucous membrane, ophthalmological, otorhinolaryngological, and dental drugs	POIS-LOCAL ANTI-INFECT
977	Poisoning by other and unspecified drugs and medicinal substances	POISONING-DIETETICS
978	Poisoning by bacterial vaccines	POISONING-BCG VACCINE
979	Poisoning by other vaccines and biological substances	POISON-SMALLPOX VACCINE
980	Toxic effect of alcohol	TOXIC EFF ETHYL ALCOHOL
981	Toxic effect of petroleum products	TOXIC EFF PETROLEUM PROD
982	Toxic effect of solvents other than petroleum-based	TOXIC EFFECT BENZENE
983	Toxic effect of corrosive aromatics, acids, and caustic alkalis	TOX EFF CORROSIVE AROMAT

984	Toxic effect of lead and its compounds (including fumes)	TX EFF INORG LEAD COMPND
985	Toxic effect of other metals	TOXIC EFFECT MERCURY
986	Toxic effect of carbon monoxide	TOX EFF CARBON MONOXIDE
987	Toxic effect of other gases, fumes, or vapors	TOXIC EFF LIQ PETROL GAS
988	Toxic effect of noxious substances eaten as food	TOXIC EFF FISH/SHELLFISH
989	Toxic effect of other substances, chiefly nonmedicinal as to source	TOXIC EFFECT CYANIDES
990	Effects of radiation, unspecified	EFFECTS RADIATION NOS
991	Effects of reduced temperature	FROSTBITE OF FACE
992	Effects of heat and light	HEAT STROKE & SUNSTROKE
993	Effects of air pressure	BAROTRAUMA, OTITIC
994	Effects of other external causes	EFFECTS OF LIGHTNING
995	Certain adverse effects not elsewhere classified	ANAPHYLACTIC SHOCK
996	Complications peculiar to certain specified procedures	MALFUNC CARD DEV/GRF NOS
997	Complications affecting specified body systems, not elsewhere classified	NERVOUS SYST COMPLC NOS
998	Other complications of procedures, not elsewhere classified	POSTOPERATIVE SHOCK
999	Complications of medical care, not elsewhere classified	GENERALIZED VACCINIA

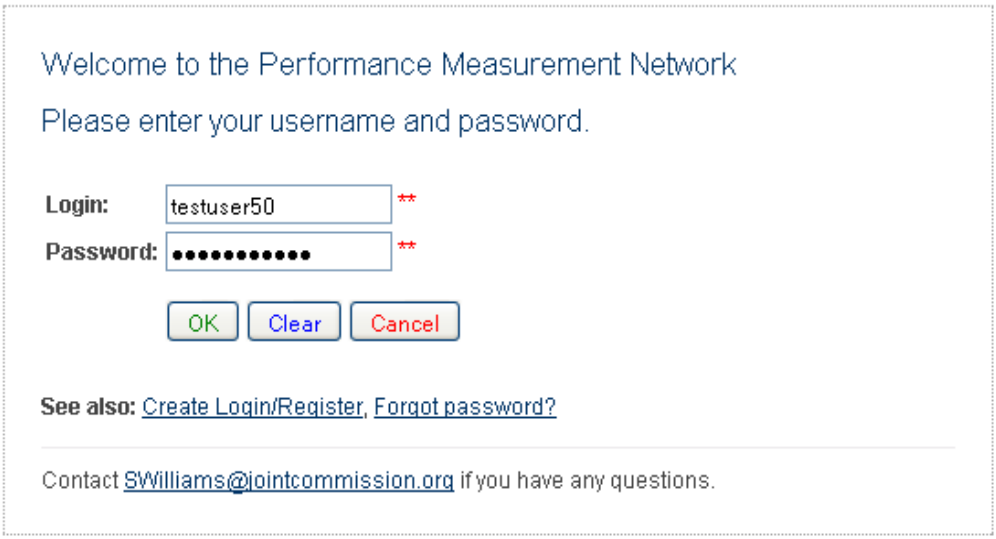
Navigating the Blood Management Project
Data Collection Tool

How to Log In and Get Started

1) Once you have registered and received your confirmation to submit data for the Blood Management Project, you may access the project website at: http://manual.jointcommission.org
2) Click on "Login" in the upper right hand corner.



3) Enter your Login and Password and click "ok".



Navigating the Blood Management Project
Data Collection Tool

4) Welcome to the Performance Measurement Network. Select the "Blood Mgmt Project" link from the left hand navigation bar.

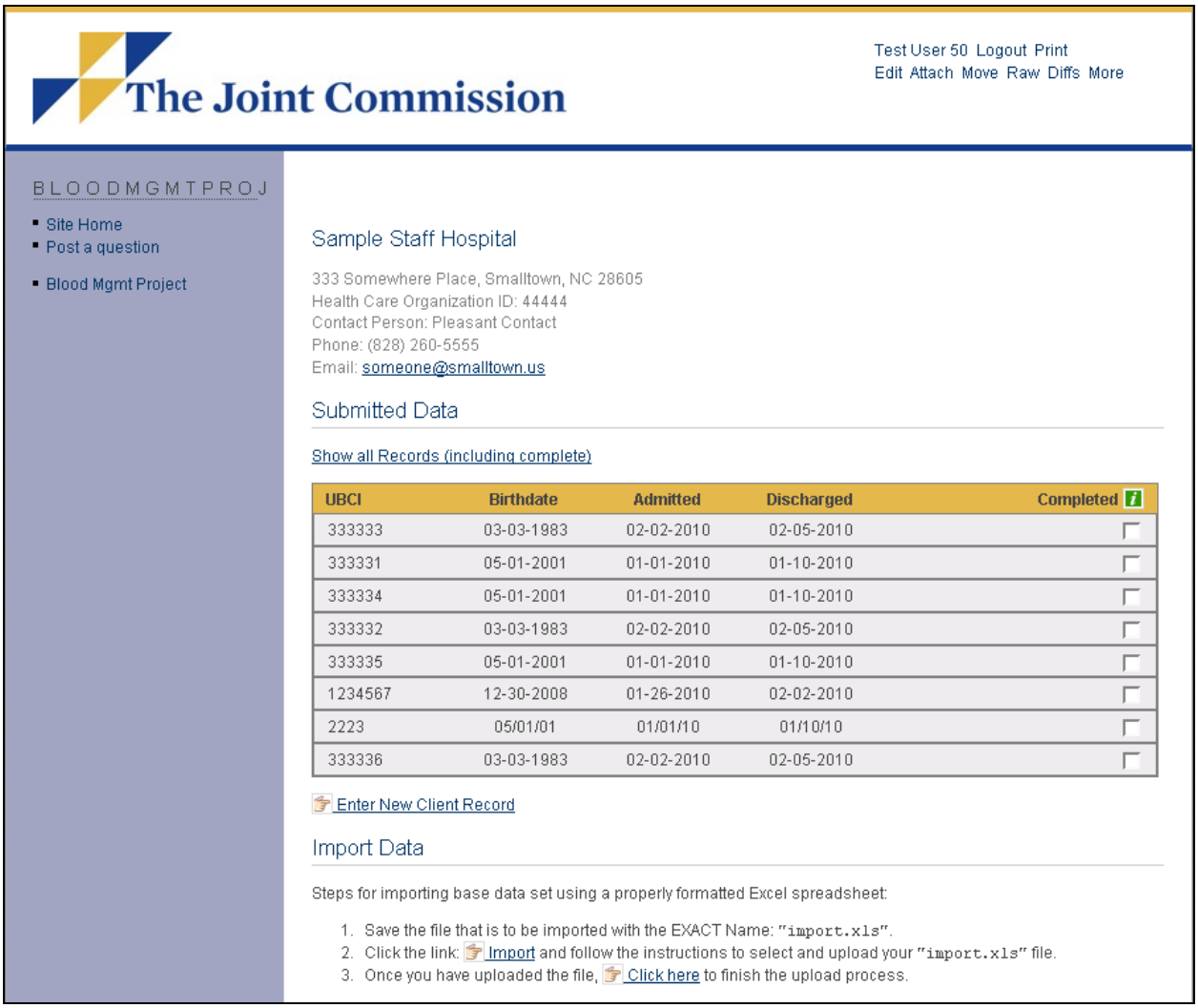
5) You are now on the Blood Management Project Page. You will see your hospitals(s) listed here. In the Project Help section, you will find a link to the measure specifications, an example of the import file template, and other material intended to assist you with your participation in this project. Please click on the hospital name to enter blood management data.

Navigating the Blood Management Project
Data Collection Tool

6) You are now on your hospital page. From this page, you can:

- update your hospital demographic information
- enter new records
- import new records
- view and update existing records
- add RBC, Plasma and Platelet events
- mark records as "complete"
- review records that have been completed
- view import attachments

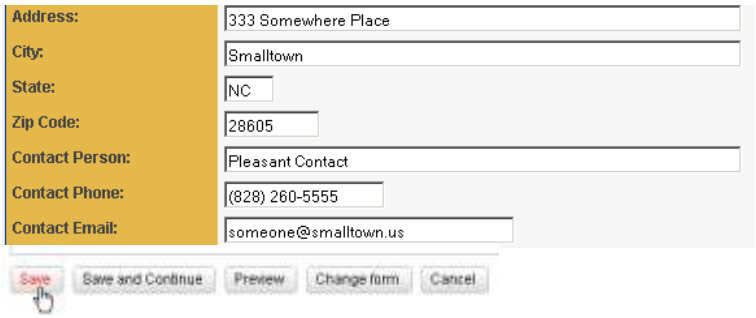
Each function will be discussed in detail below.



Navigating the Blood Management Project
Data Collection Tool
Updating your Hospital Demographic Information

a) To update your hospital's demographic information, click the "Edit" link, Fill out the form that appears, and click the "Save" button at the bottom of the form.

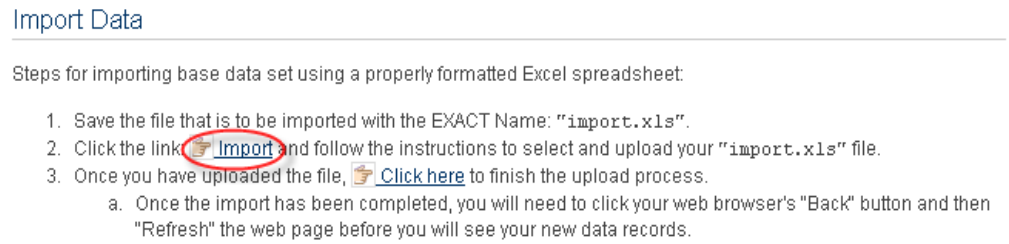
You will be directed to the Edit form, and you can change your hospital's contact details here. Click "Save" to save your changes, or "Cancel" to exit without saving.



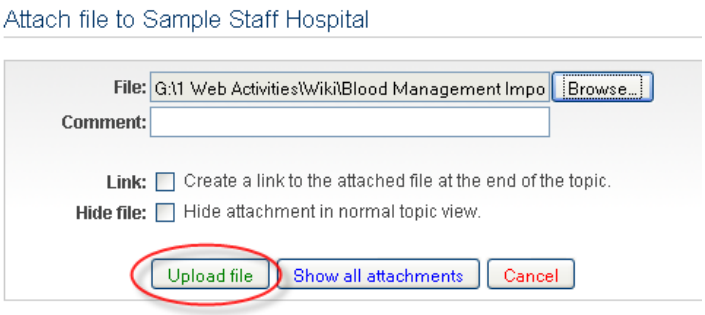
Navigating the Blood Management Project
Data Collection Tool

Importing Records

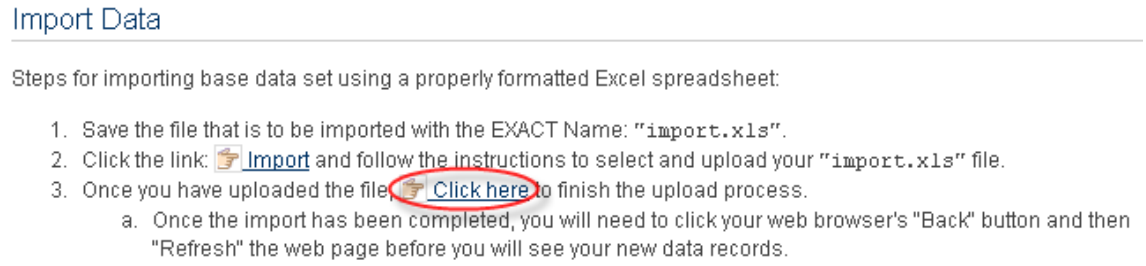
a) To import data, click on the "Import" link on your hospital home page. The template for this import file can be found on the project home page.



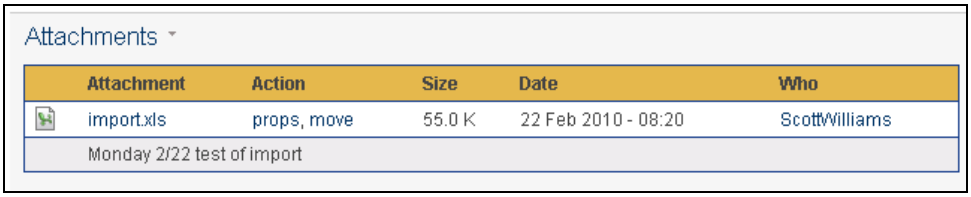
b) Click on "browse" to find and select your import file (which must be named "import.xls"), and click on "Upload File". You do not need to check the checkboxes, but <u>you may want to add a comment to keep track of your imports (e.g., April 2010 discharges; 51 records)</u>



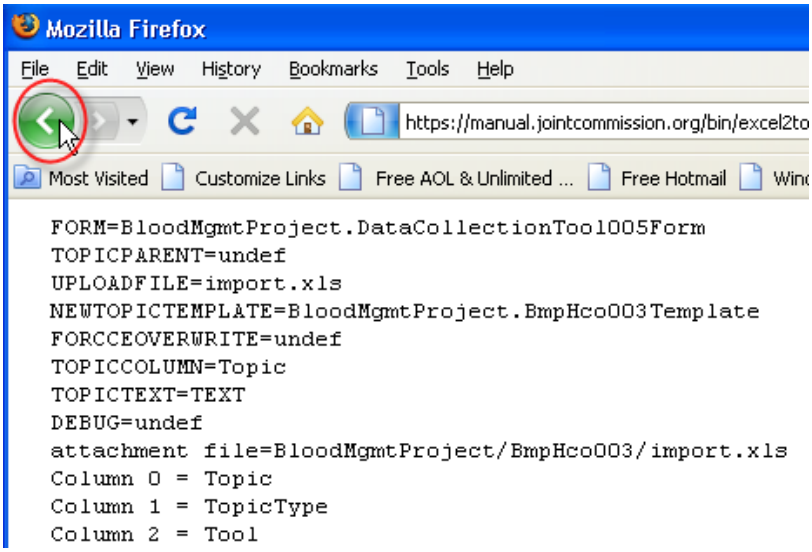
c) Once you have uploaded your file, you will need to click on the "Click here" link to finish the upload process. You'll then need to click your browser's "Back" button and "Refresh" your hospital page.



d) You may notice a form at the bottom of your hospital page. It displays the most recently imported file. This area will only be used to verify that your import was successful (note the date, time and comments to ensure that it represents the file you imported.



e) Your uploaded records are shown here (in a rather unappealing format!) and you will need to click on your browser's "Back" button to return to your hospital home page.



f) You are now back on your hospital's home page. Please click on your browser's "Refresh" button to view the records you just imported. Your records have been imported, but you will not be able to see them until the page is refreshed (or you navigate away from it and then back to it).

g) Your uploaded files should now viewable in the "Submitted Data" section of your hospital home page.

Navigating the Blood Management Project
Data Collection Tool

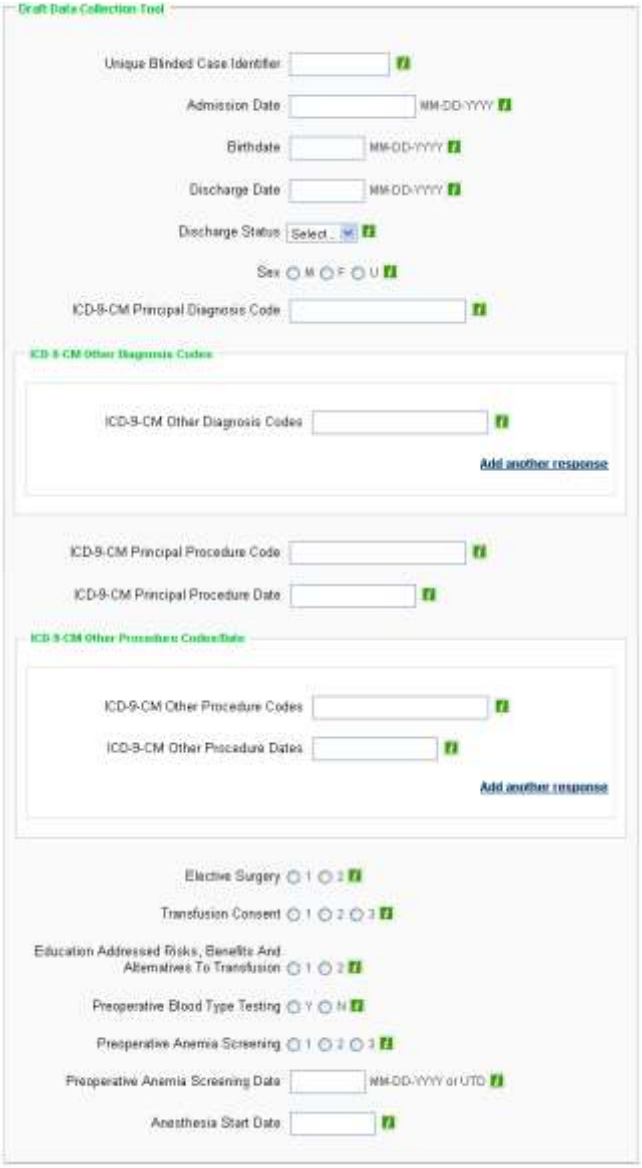
Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

Navigating the Blood Management Project
Data Collection Tool
Enter New Records (without using the file import

a) To enter a new record, click on the "Enter New Client Record" link (right below the data record table).

b) You are now viewing the data collection tool for Blood Management. Enter data for the client record. Note: hovering over the green "i" next to a data element will show you the question and allowable values associated with that data element as well as a link to the data element page.



c) Once you have completed data entry for this record, click on "Save Data Record".

Navigating the Blood Management Project
Data Collection Tool
To View and Update Existing Records

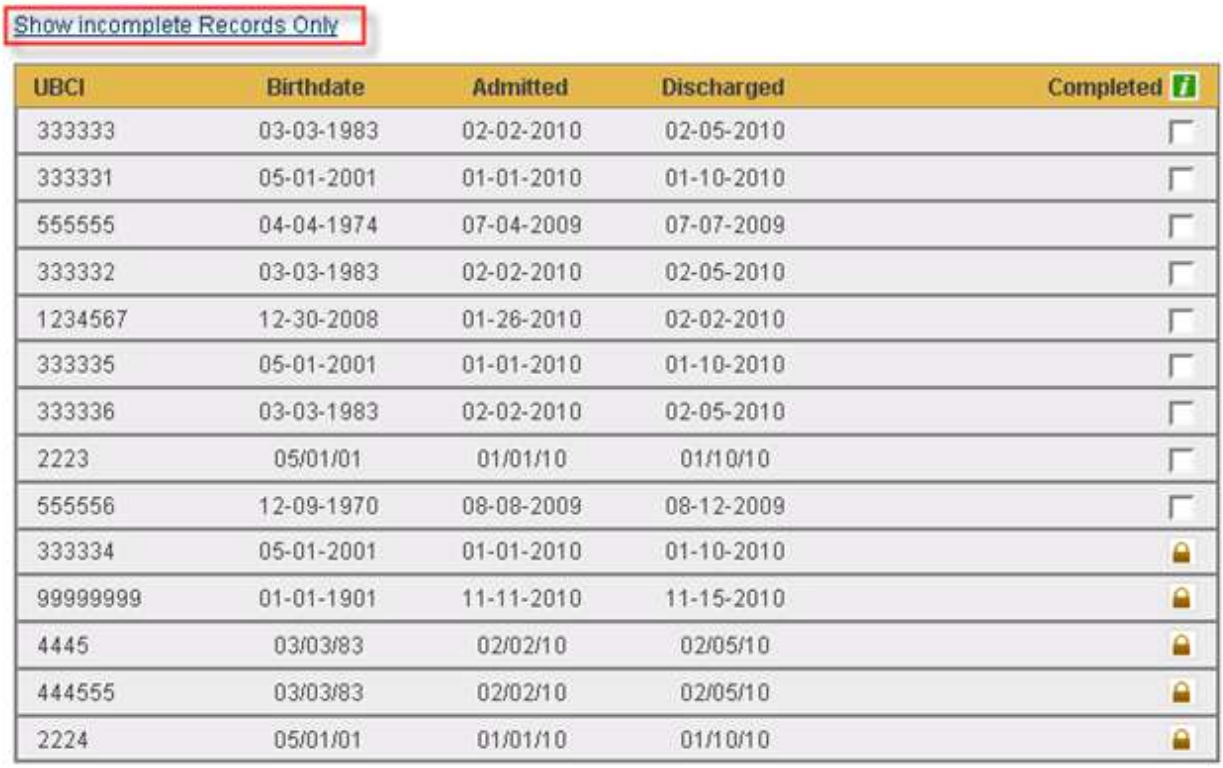
a) There are two ways to view the list of submitted records. The default view is of all incomplete records. If you would like to view all records, including completed (locked) records, click the link "Show all Records (including complete)".

View of the default setting showing a list of only incomplete records:

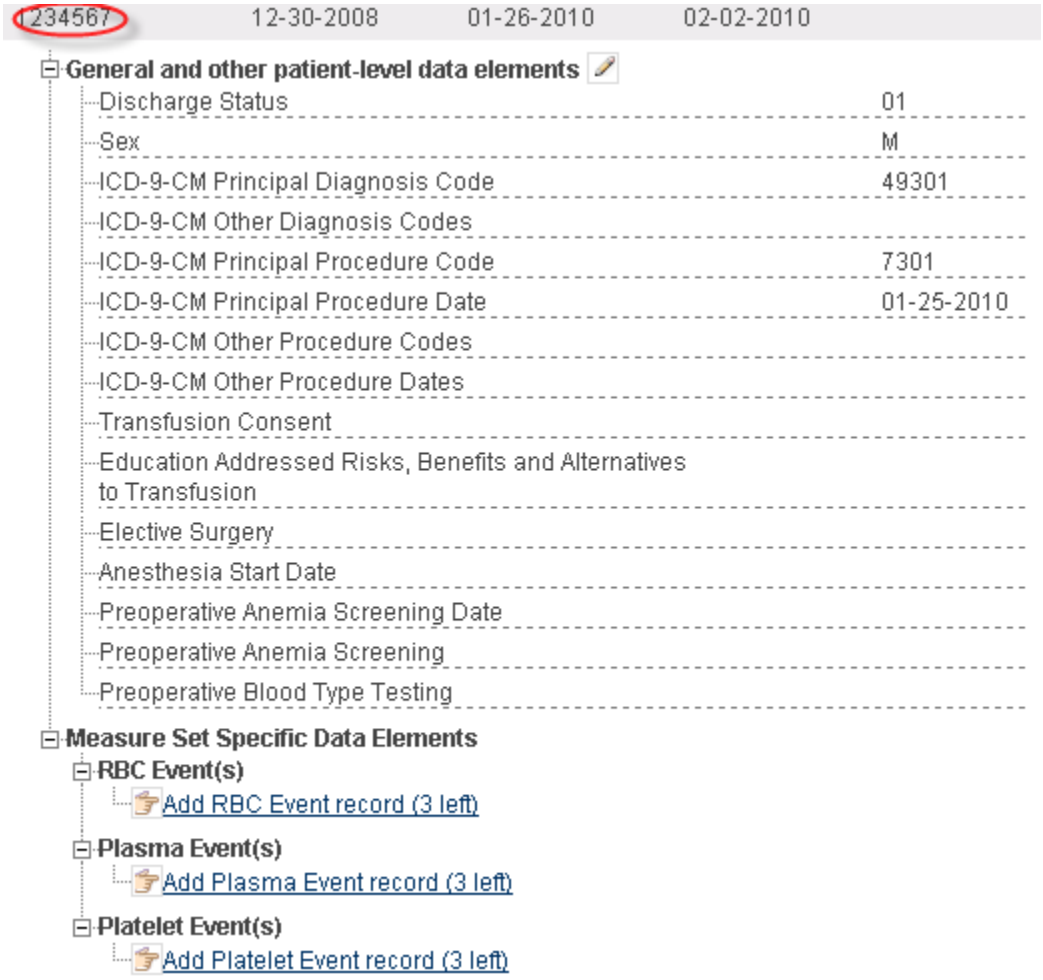
Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

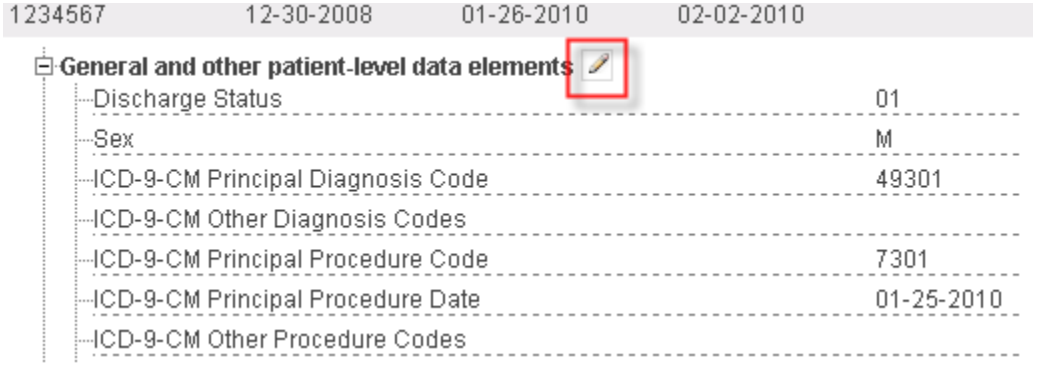
View of alternate setting showing list of all records (both incomplete and complete). To return the default setting, click the link "Show Incomplete Records Only"



b) To view or update data in an existing record, click on the UBCI number. This will create a drop down that includes all of the information for that client record. You can contract the drop down by clicking on the "-"or expand by clicking on the "+" before the different sections.

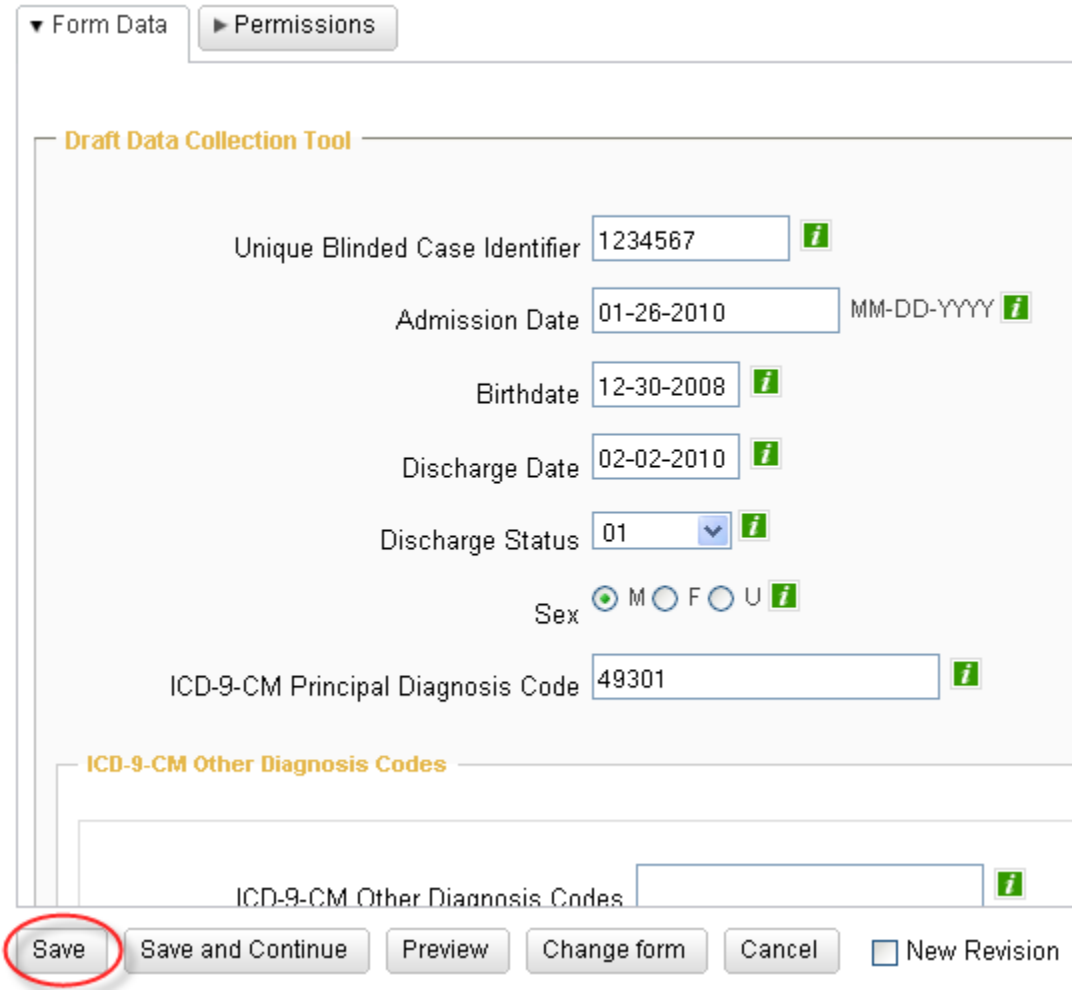


c) To edit the "General and other patient-level data elements", click on the pencil icon.



d) Make changes to the "General and other patient-level data elements" and click "Save" when you are done.

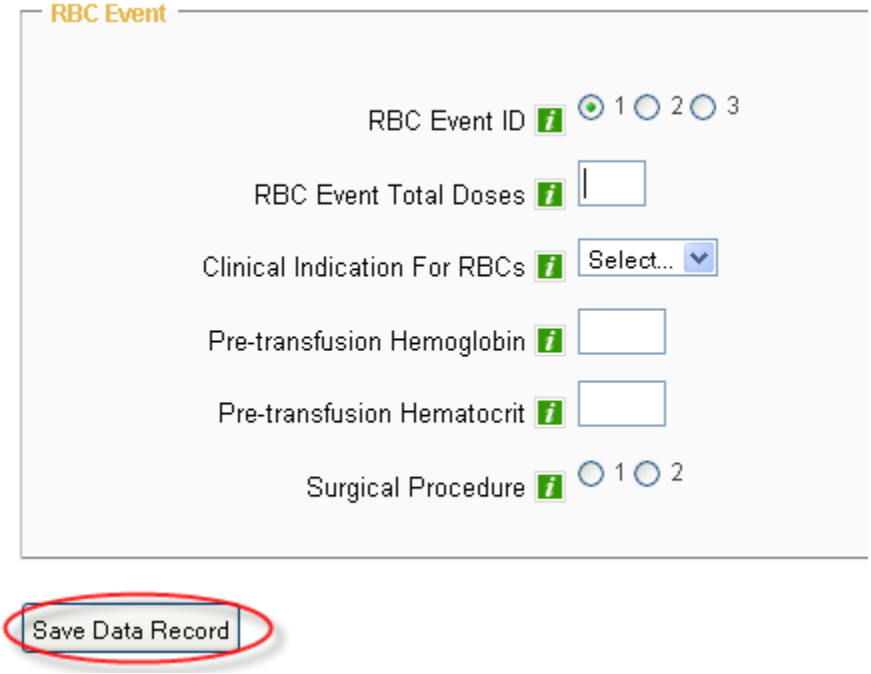
Navigating the Blood Management Project
Data Collection Tool



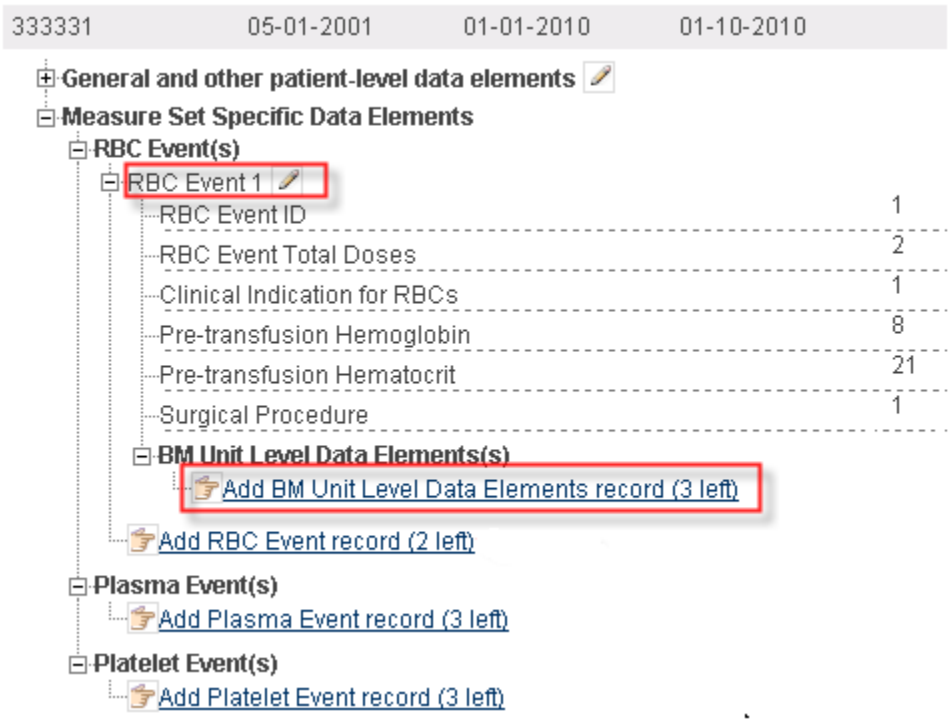
Navigating the Blood Management Project
Data Collection Tool
Add RBC Events and BM Unit Level Data Elements

a) To add a RBC event (NOTE: you can add up to three RBC events), click on the "Add RBC Event Record" Link.

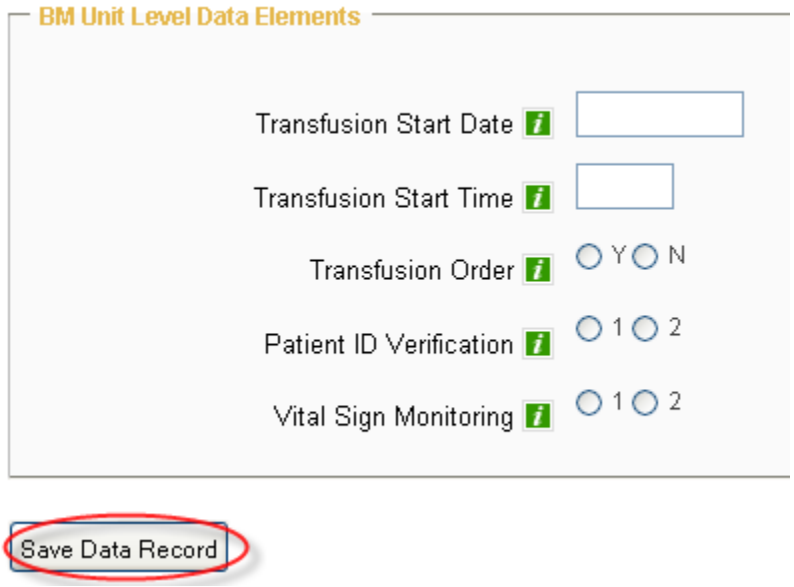
b) Enter data for RBC Event 1 and click "Save Data Record"



c) Data for "RBC Event 1" is now included with this client record. To edit the RBC Event data that you just entered, click on the pencil icon next to the event. To add unit level data for RBC Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)

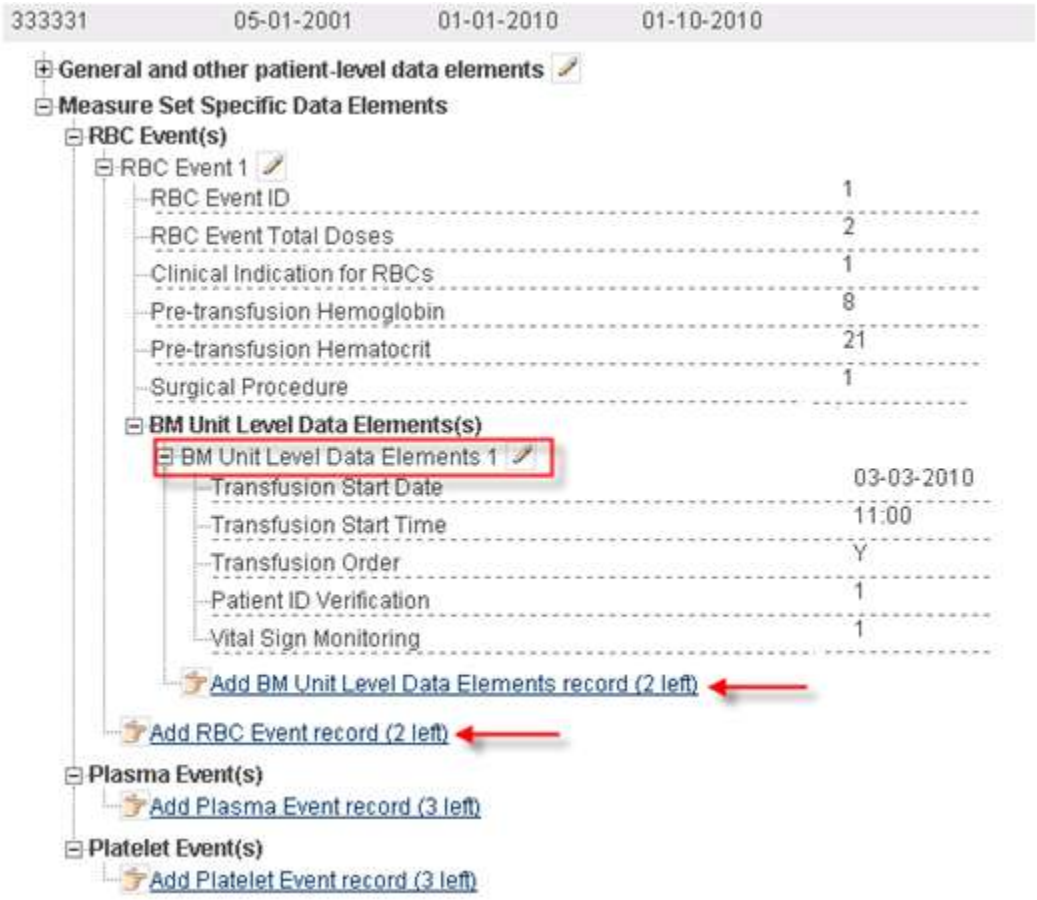


d) Enter data for the BM Unit Level Record for RBC Event 1 and click "Save Data Record"



e) Data for "BM Unit 1" for "RBC Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for RBC Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another RBC Event, click on "Add RBC Event Record".

Navigating the Blood Management Project Data Collection Tool

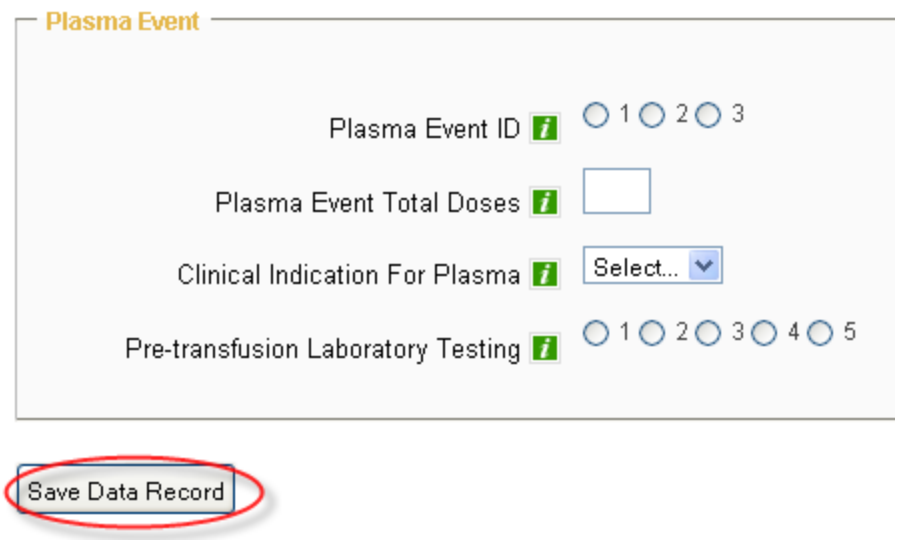


Navigating the Blood Management Project Data Collection Tool

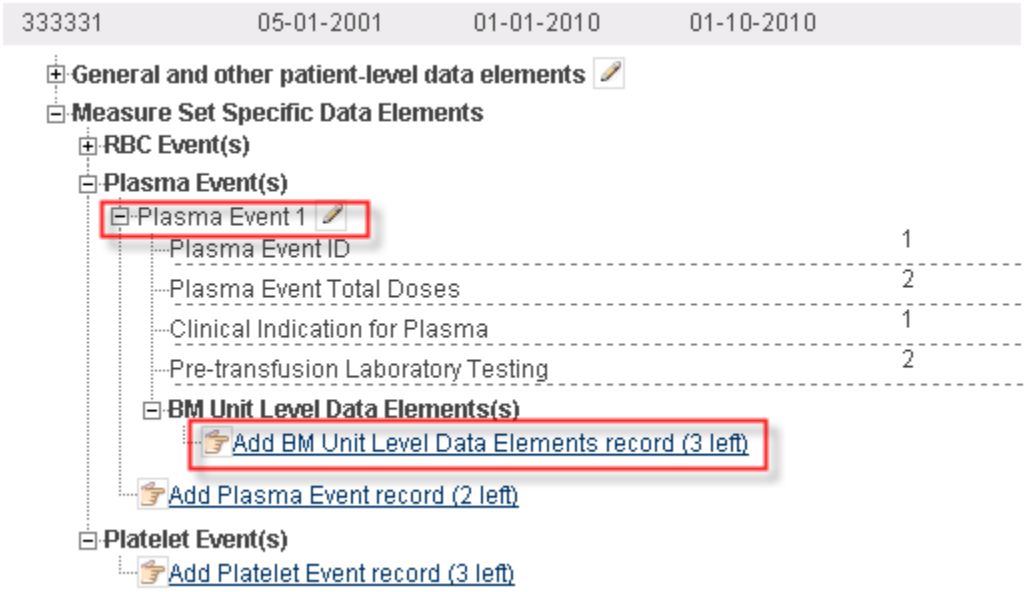
Add Plasma Events and BM Unit Level Data Elements

a) To add a Plasma event, click on the "Add Plasma Event Record" Link

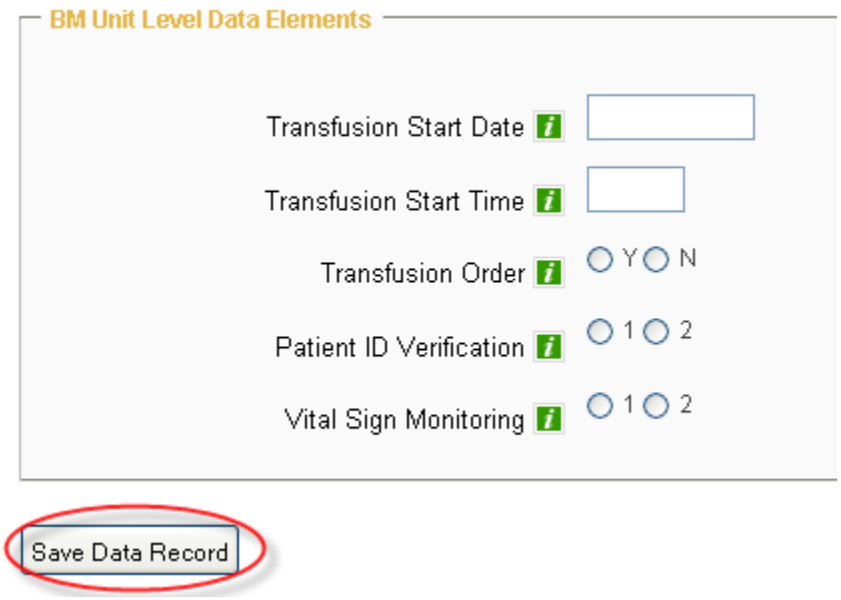
b) Enter data for Plasma Event 1 and click "Save Data Record"



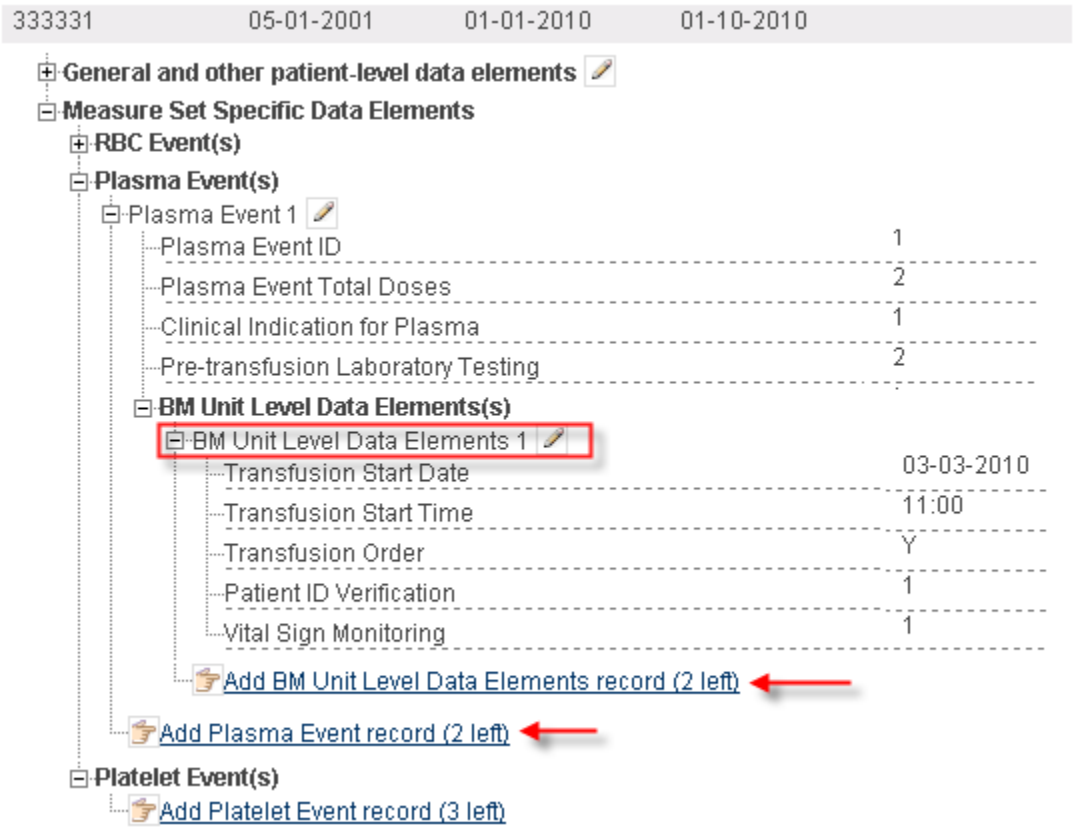
c) Data for "Plasma Event 1" is now included with this client record. To edit the Plasma Event data that you just entered, click on the pencil icon next to the event. To add unit level data for Plasma Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)



d) Enter data for the BM Unit Level Record for Plasma Event 1 and click "Save Data Record"



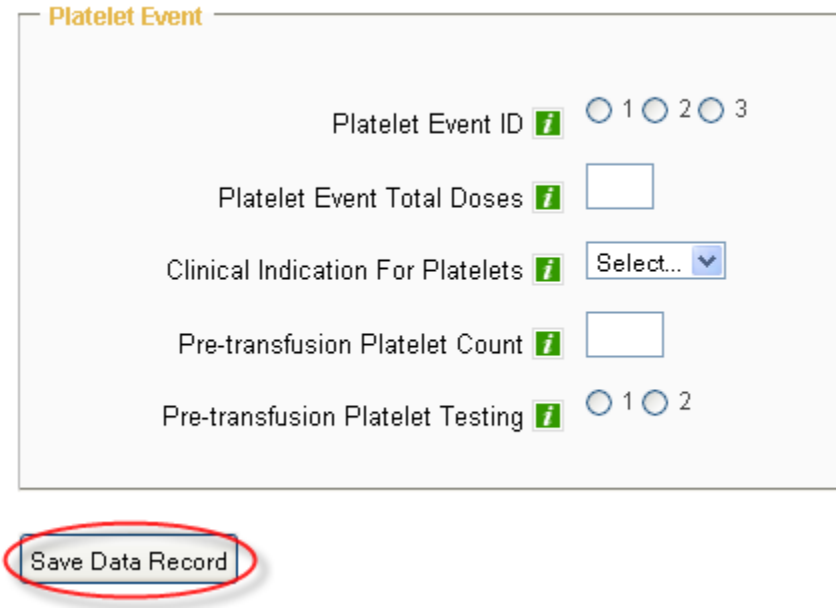
e) Data for "BM Unit Level 1" for "Plasma Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for Plasma Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another Plasma Event, click on "Add Plasma Event Record".



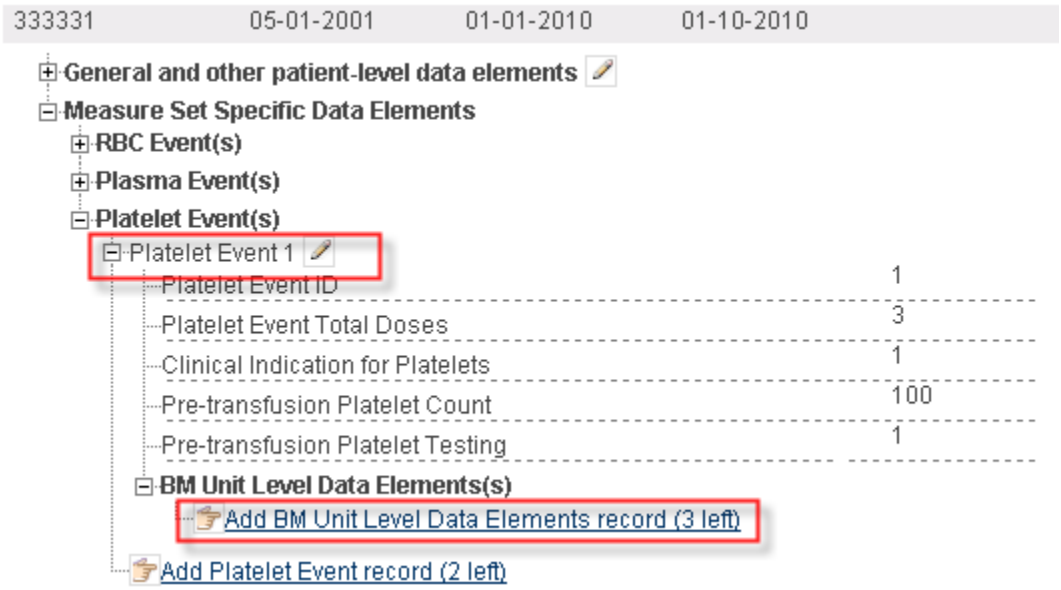
Navigating the Blood Management Project
Data Collection Tool
Add Platelet Events and BM Unit Level Data Elements

a) To add a Platelet event, click on the "Add Platelet Event Record" Link

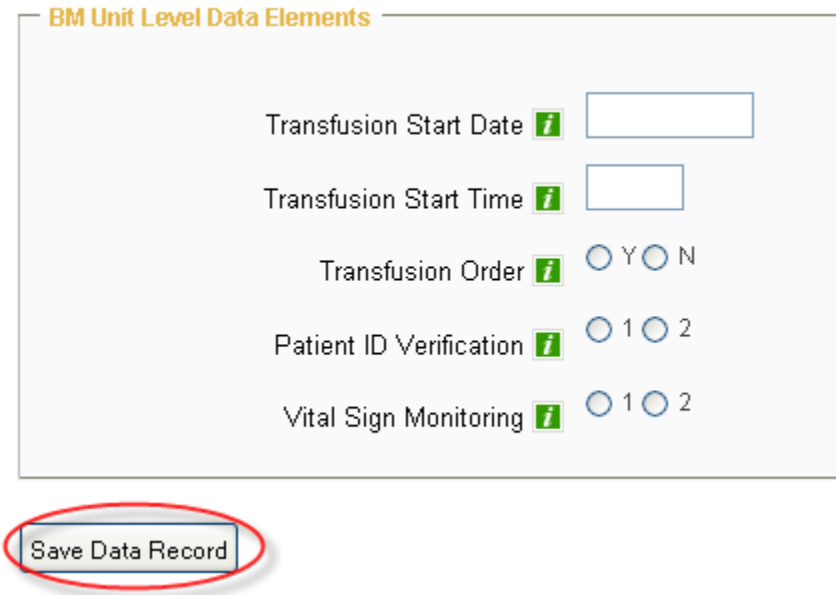
b) Enter data for Platelet Event 1 and click "Save Data Record"



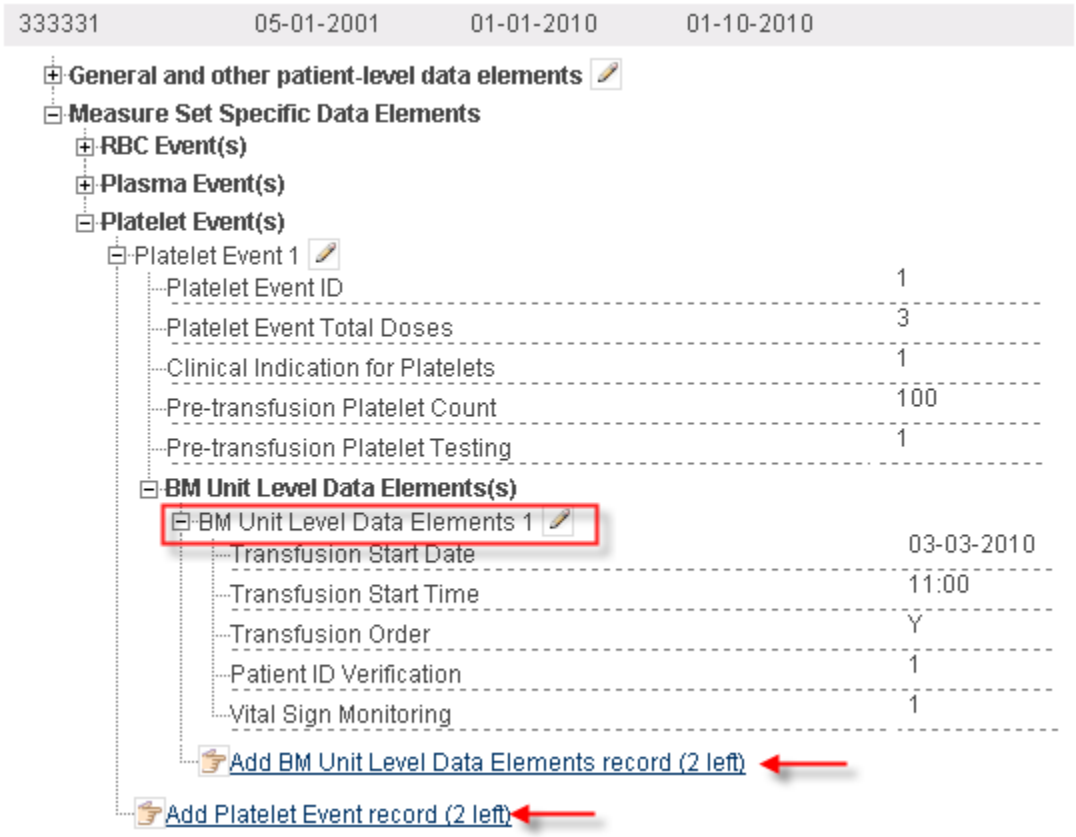
c) Data for "Platelet Event 1" is now included with this client record. To edit the Platelet Event data that you just entered, click on the pencil icon next to the event. To add unit level data for Platelet Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)



d) Enter data for the BM Unit Level Record for Platelet Event 1 and click "Save Data Record"



e) Data for "BM Unit Level 1" for "Platelet Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for Platelet Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another Platelet Event, click on "Add Platelet Event Record".



Marking Records As "Complete"

a) Once you are done entering and editing data for a record, you will need to mark the record as complete. **Please note: Once you check the box for a record under "Complete" you are BOTH marking the record as complete AND locking that record for any further editing**. When you click on the checkbox, the record will "disappear" from view. Do not be alarmed. The default view of the table is to only show incomplete records. To view the record you just completed, click on the link to "Show all Records (including complete)"

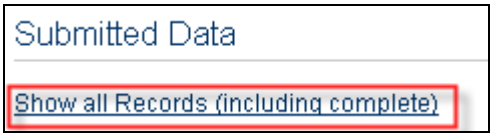

Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

Navigating the Blood Management Project
Data Collection Tool

Reviewing Records That Have Been Completed

a) To review a record that has been marked complete, switch the view on your hospital home page by clicking on the "Show all Records (including complete)" link.

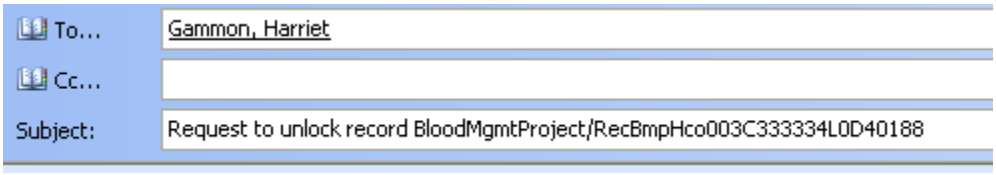


b) In this view you can see all records both complete and incomplete. Completed records are now LOCKED and can not be edited.

Show incomplete Records Only

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐
333334	05-01-2001	01-01-2010	01-10-2010	🔒
99999999	01-01-1901	11-11-2010	11-15-2010	🔒
4445	03/03/83	02/02/10	02/05/10	🔒
444555	03/03/83	02/02/10	02/05/10	🔒
2224	05/01/01	01/01/10	01/10/10	🔒

b) If, for any reason, you need to unlock a record, you will need to send an e-mail to the project leader, Harriet Gammon. To send your e-mail request, click on the "lock" icon, and an e-mail form should appear. It will be addressed to Harriet, and the subject line will contain a reference to the specific record.



c) In your e-mail, please briefly explain why the record needs to be unlocked (e.g., Accidentally clicked the "Complete" checkbox).

PATIENT BLOOD MANAGEMENT PERFORMANCE MEASURES PROJECT - Technical Advisory Panel

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NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 1532 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Plasma Transfusion Indication
De.2 **Brief description of measure:** Percentage of transfused plasma units (bags) with pre-transfusion PT/INR result and clinical indication documented - applicable to inpatients of all ages
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** PBM-03 is a part of the Patient Blood Management (PBM) measure set: PBM-01 (Transfusion Consent), PBM-02 (RBC Transfusion Indication), PBM-04 (Platelet Transfusion Indication), PBM-05 (Blood Administration Documentation), PBM-06 (Preoperative Anemia Screening), PBM-07(Preoperative Blood Type Testing and Antibody Screening).
De.4 **National Priority Partners Priority Area:** Care coordination, Safety, Overuse De.5 **IOM Quality Domain**: Effectiveness, Patient-centered, Safety De.6 **Consumer Care Need:** Getting better, Living with illness

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	NQF Staff
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Agreement will be signed and submitted prior to or at the time of measure submission A.4 **Measure Steward Agreement attached:**	**A** Y☐ N☐

B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	**B** Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement Accountability	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Frequently performed procedure, Leading cause of morbidity/mortality, Severity of illness, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** The use of plasma has increased in the US and is disproportionally high compared to other countries with similar levels of health care. Indications for transfusing plasma are very limited, and as a result, published studies often show unjustifiable use of plasma. According to the National Heart Lung and Blood Institute, plasma should be administered only to increase the level of clotting factors in patients with a demonstrated deficiency. If the prothrombin time (PT) and partial thromboplastin time (PTT) are < 1.5 times normal, a plasma transfusion is rarely needed. 1a.4 **Citations for Evidence of High Impact:** Wilson K, Mac Dougall L, Fergusson D, et al. The effectiveness of interventions to reduce physician's levels of inappropriate transfusion: What can be learned from a systematic review of the literature? Transfusion 2002;42:1224-1229. Stansworth SJ, Brunskill SJ, Hyde CJ, et al. Is fresh frozen clinically effective? A systematic review of randomized controlled trials. Br J Haematolo2004;126:139-52. Roback JD, CaldwellS, Carson, et al. Evidence-based practice guidelines for plasma transfusions. Transfusion 2010;50:1227-39. DeAnda A Jr, Baker KM, Roseff SD, et al. Developing a blood conservation program in cardiac surgery. AM J Med Qual. 2006;21(4):230-237.	**1a** C☐ P☐ M☐ N☐

Helm RE, Rosengart TK, Gomez M. et al. Comprehensive multimodality blood conservation: 100 consecutive CABG operations without transfusion. Ann Thorac Surg. 1998;65(1):125-136.
Rosengart TK, Helm RE, DeBois WJ, Garcia N, Krieger KH, et al. Open heart operations without transfusion using a multimodality blood conservation strategy in 50 Jehovah's Witness patients: implications for a "bloodless" surgical technicue. J Am Coll Surg. 1997;184(6):618-629.
Guerrero EB, Zhao Y, Obrien SM, Ferguson TB, Peterson ED, et al. Variation in use of blood transfusion in coronary artery bypass graft surgery. JAMA 2010;304(14) 1568-1575.

1b. Opportunity for Improvement

1b.1 Benefits (improvements in quality) envisioned by use of this measure: Studies show that plasma use varies across a large number of hospitals with no significant difference in mortality rates. Experts believe that the absence of differences in mortality strongly suggests inappropriate transfusions. Plasma is frequently transfused to patients with mild-to moderate elevations in PT despite numerous studies that have not shown a correlation between the risk of bleeding and mild-to moderate test results. Measuring and monitoring patients that receive platelets will provide data that can be used to determine if patients are receiving the best care based on the guidelines.

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
In a study by Wahab et al, transfusion of plasma for mild abnormalities of coagulation values resulted in a partial normalization in a minority of patients, and failed to correct the PT in 99% of the patients. In a 2004 study by Hui, the need to correct prolonged international normalized ratios (INRs) for patients on warfarin emerged as the primary indication for plasma allowed by massive transfusions. Since blood transfusions may cause more harm than benefit, hospitals need to begin to monitor and evaluate plasma transfusions using a patient-centered approach that carefully evaluates patients for the need for each unit.
In the recent transfusion Requirements After Cardiac Surgery (TRAC) randomized controlled trial, 408 hospitals plasma use for patients undergoing isolated primary coronary artery bypass graft (CABG) surgery ranged from 0% to 97.5%.
Numerous studies have concluded that the routine administration of small quantities of plasma to perioperative patients with minor coagulopathies is probably of little hemostatic benefit and exposes the patient to numerous adverse reactions including volume overload and transfusion-related acute lung injury.
Two meta-analyses were conducted where patients undergoing a variety of minor procedures were analyzed as to whether the perioperative PT/INR predicts the risk of major bleeding during those procedures. It was concluded that the preprocedure international normalized ration (INR) does not likely predict the bleeding risk.
Another meta-analysis determined that plasma administered to perioperative patients does not have a beneficial effect in reducing transfusion requirements or surgical blood loss.
One hospital collected data on fresh frozen plasma (FFP) and red blood cell (RBC) transfusions and measures of hospital activity and mortality over a 12-year period. Plasma orders were discouraged if the INR was less than 2.0, in the absence of bleeding. The use of vitamin K was encouraged if the patient was receiving warfarin. The program resulted in about an 80% reduction in transfused FFP. No unexpected bleeding was reported and inpatient mortality decreased during the 12 years while overall hospital activity remained largely unchanged.

1b.3 Citations for data on performance gap:
Tavares, M, DiQuattro P, Nolette N, Conti G, SweeneyJ. Reduction in plasma after enforcement of transfusion guidelines. Article first published on line 4 Oct 2010.
Stansworth SJ, Brunskill SJ, Hyde CJ, et al. Is fresh frozen clinically effective? A systematic review of randomized controlled trials. Br J Haematolo2004;126:139-52.
Segal JB, Dzik WH. Paucity of studies to support t that abnormal coagulation test results predict bleeding in the setting of invasive procedures: An evidence-based review. Transfusion 2005;45:1413-25.
Guerrero EB, Zhao Y, Obrien SM, Ferguson TB, Peterson ED, et al. Variation in use of blood transfusion in coronary artery bypass graft surgery. JAMA 2010;304(14) 1568-1575.
Hui C, Williams I, Davis K. Clinical audit of the use of fresh-frozen plasma and platelets in a tertiary teaching hospital and the impact of a new transfusion request form. Int Med J.2005;35:283-288.
Wallis JP, Dzik S. Is fresh frozen plasma over transfused in the United States? Transfusion.2004;44:1674-75.
Ardel-Wahab OI, Healy B, Dzik WH. Effect of fresh-frozen plasma transfusion on prothrombin time and bleeding in patients with mild coagulation abnormalities. Transfusion. 2006;46:1479-1285.

1b
C☐
P☐
M☐
N☐

Segal J, Dzik WH; Transfusion Medicine/Hemostasis Clinical Trials Network. Paucity of studies to support that abnormal coagulation test results predict bleeding in the setting of invasive procedures: an evidenced-based review. Transfusion. 2005;45:1413-25.
Tavares M, Diquattro P, Nolette N et al. Reduction in plasma transfusion after enforcement of transfusion guidelines. Retrieved from the world wide web at http://www.ncbi.nlm.nih.gov/pubmed/20946197

1b.4 Summary of Data on disparities by population group:
None

1b.5 Citations for data on Disparities:
NA

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Plasma transfusions are often ordered for diverse indications and in many cases, the adverse effects of plasma may outweigh any potential benefit. Plasma transfusions can increase the risk of acute lung injury and has been shown to increase mortality. Once data is collected at the patient level, adverse events can be tracked and reported to the National Hemovigilance Database that will use the data to identify ways to improve patient outcomes.

1c.2-3. Type of Evidence: Observational study, Evidence-based guideline, Randomized controlled trial, Expert opinion, Systematic synthesis of research, Meta-analysis

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
Studies have demonstrated that use of a blood conservation program can significantly decrease transfusion rates over time. Plasma transfusions are commonly prescribed for a variety of indications, but the scientific evidence supporting many plasma transfusion practices is limited and in many cases, the adverse effects of plasma may outweigh any potential benefit. Even when transfusion criteria are met, the clinical efficacy of prophylactic plasma is questionable. A systematic review of 57 randomized controlled trials involving the use of plasma for a variety of indications found insufficient evidence to support or refute any value in treating with plasma.
The AABB convened a panel who reviewed the data for plasma and only two recommendations could be made. A systematic review and meta-analysis of the plasma transfusion literature was performed. Then, six questions were developed and a methodology called GRADE (Grading for Recommendations, Assessment, Development and Evaluation) was used. The panel suggested that plasma be transfused to patients requiring massive transfusion (quality of evidence = moderate) and that plasma be transfused in patients with warfarin anticoagulation-related intracranial hemorrhage (quality of evidence = low).
A retrospective study was done in the intensive care unit (ICU) that showed that critically ill patients frequently receive inappropriate FFP transfusions. However after review, many transfusions may be appropriate for the ICU setting even though they were inconsistent with the expert recommendations. Until more randomized clinical trials can be done, they suggested that education, audits or request forms and feedback about adverse events and costs of FFP transfusions be compiled.

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):**
NA

1c.6 Method for rating evidence: NA

1c.7 Summary of Controversy/Contradictory Evidence: None

1c.8 Citations for Evidence (*other than guidelines***):** Wilson K, Mac Dougall L, Fergusson D, et al. The effectiveness of interventions to reduce physician's levels of inappropriate transfusion: What can be learned from a systematic review of the literature? Transfusion 2002;42:1224-1229.
Stansworth SJ, Brunskill SJ, Hyde CJ, et al. Is fresh frozen clinically effective? A systematic review of randomized controlled trials. Br J Haematolo2004;126:139-52.

1c
C☐
P☐
M☐
N☐

Roback JD, CaldwellS, Carson, et al. Evidence-based practice guidelines for plasma transfusions. Transfusion 2010;50:1227-39.
DeAnda A Jr, Baker KM, Roseff SD, et al. Developing a blood conservation program in cardiac surgery. AM J Med Qual. 2006;21(4):230-237.
Helm RE, Rosengart TK, Gomez M. et al. Comprehensive multimodality blood conservation: 100 consecutive CABG operations without transfusion. Ann Thorac Surg. 1998;65(1):125-136.
Rosengart TK, Helm RE, DeBois WJ, Garcia N, Krieger KH, et al. Open heart operations without transfusion using a multimodality blood conservation strategy in 50 Jehovah's Witness patients: implications for a "bloodless" surgical technicue. J Am Coll Surg. 1997;184(6):618-629.
Guerrero EB, Zhao Y, Obrien SM, Ferguson TB, Peterson ED, et al. Variation in use of blood transfusion in coronary artery bypass graft surgery. JAMA 2010;304(14) 1568-1575.
Hajjar LA, Vincent JL, Galas FRBG, Nakamura RE, Silva CMP, et al. Transfusion requirements after cardiac surgery: the TRACS randomized controlled trial. JAMA 2010; 304(14)1559-1567.
Shander AS, Goodnough LT. Blood transfusion as a quality indicator in cardiac surgery. JAMA 2010;(14)1610-1611.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number***):**
It is reasonable to transfuse non-red cell hemostatic blood products based on clinical evidence of bleeding and preferably guided by point-of-care tests that assess hemostatic function in a timely and accurate manner. (#4-2, p. S36).

1c.10 Clinical Practice Guideline Citation: Perioperative Blood Transfusion and Blood Conservation in Cardiac Surgery: The Society of Thoracic Surgeons and The Society of Cardiovascular Anesthesiologists Clinical Practice Guideline. Ann. Thorac. Surg., May 2007; 83: S27 - S86.
1c.11 National Guideline Clearinghouse or other URL:
http://www.sts.org/sections/aboutthesociety/practiceguidelines

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom***):**
Level of evidence is C, Class IIa

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*:
The classification system is the same as that used by the Joint Task Force for Guidelines of the American College of Cardiology (ACC) and the American Heart Association (AHA)available at:http://circ.ahajournals.org/manual/manual_IIstep6.shtml
Classification of Recommendations

Class I: Conditions for which there is evidence and/or general agreement that a given procedure or treatment is useful and effective.
Class II: Conditions for which there is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of a procedure or treatment.
IIa. Weight of evidence/opinion is in favor of usefulness/efficacy
IIb. Usefulness/efficacy is less well established by evidence/opinion.
Class III: Conditions for which there is evidence and/or general agreement that the procedure/treatment is not useful/effective, and in some cases may be harmful.

Level of Evidence
Level of Evidence A: Data derived from multiple randomized clinical trials
Level of Evidence B: Data derived from a single randomized trial, or non-randomized studies
Level of Evidence C: Consensus opinion of experts

1c.14 Rationale for using this guideline over others:
This measure set includes elective cardiac surgery patients. This guideline is cited because it supports plasma usage based on clinical evidence and prefers that point-of-care testing is used to assess hemostatic function prior to transfusion.

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**

Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 Do you have a web page where current detailed measure specifications can be obtained? **S.2 If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*)**:** Number of plasma doses(bags) with pre-transfusion PT/INR result and clinical indication documented **2a.2 Numerator Time Window** (*The time period in which cases are eligible for inclusion in the numerator*)**:** Episode of care **2a.3 Numerator Details** (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*)**:** The units in the numerator are a subset of the denominator units. The following data elements are collected for the numerator: Clinical Indication for Plasma, Plasma ID, and Pre-transfusion PT/INR Result. Detailed descriptions are provided in attachment for Section 2a.30.	
2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured*)**:** Number of transfused plasma units evaluated **2a.5 Target population gender:** Female, Male **2a.6 Target population age range:** All age patients who received plasma **2a.7 Denominator Time Window** (*The time period in which cases are eligible for inclusion in the denominator*)**:** Episode of care **2a.8 Denominator Details** (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions*)**:** Transfused units are identified using ICD-9-CM Procedure Codes or Blood Bank Records. The following data elements are collected for the denominator: Admission Date, Blood Administration Location, Discharge Date, and ICD-9-CM Principal or Other Procedure Codes or Blood Bank Records. Detailed descriptions are provided in attachment for Section 2a.30.	
2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population*)**:** Trauma patients **2a.10 Denominator Exclusion Details** (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions*)**:** Patients are excluded using ICD-9-CM Prinicipal or Other Diagnosis Trauma Codes in Appendix A, Table 9.7.	
2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions*)**:** Units may be stratified according to the blood administration location at the start of the transfusion. The definition is the location where the blood transfusion started. Allowable values for settings are: Intraoperative or Non-intraoperative Settings.	**2a-specs** **C☐** **P☐** **M☐** **N☐**
2a.12-13 Risk Adjustment Type: No risk adjustment necessary	

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**

2a.15-17 Detailed risk model available Web page URL or attachment:

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Higher score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**
Algorithms are provided in attachment for Section 2a.30.

2a.22 Describe the method for discriminating performance *(e.g., significance testing)***:**
During the six-month pilot, the distribution of the hospital rates was reviewed over time.

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
For pilot testing, hospitals were requested to submit 10 cases of patients that were discharged from the designated six months with plasma transfusions. Post pilot, the sample size will be based on the number of plasma units transfused per discharge month or quarter.
Hospitals that choose to sample have the option of sampling quarterly or monthly. A hospital may choose to use a larger sample size than required. Hospitals with an initial population size less than the minimum number of units/bags transfused per quarter/month for the measure, cannot apply sampling to the measure.

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested)*
Paper medical record/flow-sheet, Electronic administrative data/claims, Lab data

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
The Joint Commission developed a web-based data collection tool that was used by hospitals and for reliability testing during the pilot test. When the measures are made part of The Joint Commission's ORYX data collection and reporting program, the data would be collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy of the data collection tool with the specifications.

2a.26-28 Data source/data collection instrument reference web page URL or attachment: Attachment The_Patient Blood_Management_Tool [1]-634279215776770950.pdf

2a.29-31 Data dictionary/code table web page URL or attachment: Attachment PBMSpecifications-634279442348907962.pdf

2a.32-35 Level of Measurement/Analysis (*Check the level(s) for which the measure is specified and tested)*
Facility/Agency, Can be measured at all levels

2a.36-37 Care Settings (*Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 Clinical Services (*Healthcare services being measured, check all that apply*)
Clinicians: PA/NP/Advanced Practice Nurse, Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)***:** A sample of 194 medical records were reabstracted at 12 randomly selected pilot hospitals July through September 2010.

2b.2 Analytic Method *(type of reliability & rationale, method for testing)***:**

2b
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P☐
M☐
N☐

Hospitals for reliability testing were randomly selected based on multiple characteristics, including region (west, south, north central, northeast), hospital type (teaching/non-teaching, rural/urban), and bed size (0-99, 100-199, 200-299, 300+). The objectives of the reliability site visits included: evaluation of the reliability of the individual measures and associated data elements, assessment of data collection effort including abstraction time and estimated cost, assessment of measure specifications including definitions, abstraction guidelines, etc. and assessment of sampling strategies. To prepare for the reliability site visits, the data collection tool that was used by the pilot hospitals was enhanced and tested. During the reliability site visit, Joint Commission staff re-abstracted a sub-set of records that had been previously submitted by the hospital into the enhanced data collection tool without knowing the measure specific data values that the hospital had submitted. When reabstraction was completed for each record, the results from the hospital and Joint Commission staff were compared and differences adjudicated in the program. Focus group interviews were conducted at each hospital and findings were discussed with each hospital to understand what aspects could be improved. A comparison of calculated indicator rates using data originally abstracted by hospitals and the data that were reabstracted by The Joint Commission staff was adjudicated on each measure and the individual data elements. Statistical analysis utilized Kappa scores and p values.

2b.3 **Testing Results** *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
The number of originally abstracted denominator cases was 49 events with a computed original measure rate of 78%. The number of re-abstracted denominator cases was 53 with a re-abstracted measure rate of 70%. The absolute difference was 7.7% with a Kappa score of 0.460. The percent of hospital identified population verified as 98%. The match rate for 55 cases for the individual data elements was: Clinical Indication for Plasma 45%, Plasma Event ID 100%, Plasma Event Total Doses 94%, and Pre-transfusion Laboratory Testing 67%. Measure specifications have been revised to strengthen and provide additional clarity to the data element definitions and abstraction guidelines.

2c. Validity testing

2c.1 **Data/sample** *(description of data/sample and size)*: Face validity was tested by a total of 63 hospitals of various sizes and geographic locations across the country that represented over 300 individuals during August and May 2009. Measure specifications were sent to the test hospitals for review. In addition, on-site focus interviews were conducted at five hospitals. Criterion validity was evaluated during the reliability site visits mentioned above as well as through an online survey that the participating hospitals completed.

2c.2 **Analytic Method** *(type of validity & rationale, method for testing)*:
The measure information form and the data dictionary were evaluated for face validity. The following parts of the measure information form were evaluated: numerator statement, numerator inclusions, numerator exclusions, denominator statement, denominator inclusions, denominator exclusions and an overall understanding of the measure information form. Each area was scored utilizing a five-point Likert scale. For each data element, the hospitals were asked to comment on the clarity and understanding of the abstraction guidelines and data definitions. In addition, the data dictionary was reviewed for overall understanding, usefulness and clarity utilizing a five-point Likert scale. Qualitative analysis was performed on measure feedback received during the focus group interviews and from the online surveys.

2c.3 **Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
A total of 58 hospitals completed the face validity evaluation and rated the overall understanding of the numerator and denominator statements an average 4.3% that ranked the measure 4th out of the 10 measures. Modifications to improve the understanding and clarity of the measure specifications were made prior to pilot testing based on feedback received from the hospitals during the face validity evaluation. Analysis of the online survey revealed 98% (57/58) of the pilot hospitals recommended moving the measure forward to the pilot test with suggested modifications. Note: For alpha testing, a sample of all three blood products were the proposed population for one measure.

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2d. Exclusions Justified

2d.1 **Summary of Evidence supporting exclusion(s):**

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2d.2 Citations for Evidence: **2d.3 Data/sample** *(description of data/sample and size)*: **2d.4 Analytic Method** *(type analysis & rationale)*: **2d.5 Testing Results** *(e.g., frequency, variability, sensitivity analyses)*:	N☐ NA☐
2e. Risk Adjustment for Outcomes/ Resource Use Measures **2e.1 Data/sample** *(description of data/sample and size)*: **2e.2 Analytic Method** *(type of risk adjustment, analysis, & rationale)*: **2e.3 Testing Results** *(risk model performance metrics)*: **2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:**	**2e** C☐ P☐ M☐ N☐ NA☐
2f. Identification of Meaningful Differences in Performance **2f.1 Data/sample from Testing or Current Use** *(description of data/sample and size)*: A sample of patients was selected from the eligible measure population. For each patient, a maximum of the first three 'events' (based on transfusion order) that could include up to three units or doses of blood from each of the three types of blood products were used for measurement purposes. **2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*: Z-scores were used to determine hospital measure rates that were significantly different from the overall average. **2f.3 Provide Measure Scores from Testing or Current Use** *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*: Mean Rate for All Hospitals = 76.2% Overall Rate for All Hospitals = 73.7% Standard Deviation = 26.9% Median Rate for All Hospitals = 87.8% Min. = 0.0% Max. = 100% Lower Quartile = 61.5% Upper Quartile = 97.5% Z< -2* = 2 Z< 2** = 0	**2f** C☐ P☐ M☐ N☐
2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: **2g.2 Analytic Method** *(type of analysis & rationale)*: **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*:	**2g** C☐ P☐ M☐ N☐ NA☐

2h. Disparities in Care **2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**	**2h** C☐ P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	***2*** C☐ P☐ M☐ N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information **3a.1 Current Use:** Not in use but testing completed **3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*): We intend to incorporate these Patient Blood Management measures into our ORYX initiative with associated public reporting on Quality Check when there is a national call for measures. **3a.3 If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** The specifications will be posted on the Joint Commission website for public use in 2011. **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) **3a.4 Data/sample** *(description of data/sample and size)*: **3a.5 Methods** *(e.g., focus group, survey, QI project)*: **3a.6 Results** *(qualitative and/or quantitative results and conclusions)*:	**3a** C☐ P☐ M☐ N☐
3b/3c. Relation to other NQF-endorsed measures **3b.1 NQF # and Title of similar or related measures:**	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): **3b.2 Are the measure specifications harmonized? If not, why?**	**3b** C☐ P☐ M☐ N☐ NA☐
3c. Distinctive or Additive Value **3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:**	**3c** C☐ P☐

5.1 If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:	**M☐ N☐ NA☐**
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** **C☐ P☐ M☐ N☐**
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	**Eval Rating**
4a. Data Generated as a Byproduct of Care Processes **4a.1-2 How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	**4a** **C☐ P☐ M☐ N☐**
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) No **4b.2 If not, specify the near-term path to achieve electronic capture by most providers.** The project will begin Phase III in January 2011 to retool the specifications for retrieval from an electronic health record.	**4b** **C☐ P☐ M☐ N☐**
4c. Exclusions **4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No **4c.2 If yes, provide justification.**	**4c** **C☐ P☐ M☐ N☐ NA☐**
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.**	**4d** **C☐ P☐ M☐ N☐**
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** Abstraction time for PBM-03 varied based on whether the patient received plasma and the number of plasma units transfused to each patient. Less plasma was transfused during testing, so the extra layer of abstraction by 'event' was not as critical to reliability. However, for consistency, all blood products will be abstracted by unit and the initial four plasma units that are transfused will be evaluated. There were	**4e** **C☐ P☐ M☐ N☐**

similar issues related to the difficulty abstractors had in determining how to match the hospital indication with the pilot indication as mentioned for PBM-02 for the data element Clinical Indication for Plasma, but post pilot, hospitals will not have to categorize the indication to a pre-defined list of reasons.
Intraoperatively, documentation of a blood transfusion pre-transfusion lab results and clinical indication was lacking in most paper-based records. So, in order to assist hospitals to focus their efforts on areas with low rates of compliance, this measure will be stratified so that hospitals can track results based on administration location. The "closest" PT/INR value or TEG will be abstracted without a "within 24 hour timeframe" requirement for consistency with the other transfusion measures.
Pilot hospitals were requested to estimate the time to abstract one unit of plasma for the six-month pilot. Twenty hospitals estimated an average time of 30 minutes to abstract a unit of blood with an average cost of $21-25 per hour. However, these costs do not include the time or cost involved in identifying the patient population, staff training or data collection tool instruction. It should also be noted that the learning curve varied widely due to the staff experience and expertise that were utilized for a 'time-limited' project.
Due to the amount of time needed to manually abstract the volume of blood transfusions, we believe that these measures are most suitable for abstraction from an electronic medical record (EHR). Retrieval from an EHR could capture 100% of all units that were transfused and would decrease or eliminate the associated abstraction burden. This method would also improve the identification of patients who received blood since procedure codes to document blood use are not standardized across the country. In the meantime, patients can be identified using blood bank records or procedure codes.
During the 12 reliability site visits, two Joint Commission staff also found that the abstraction time varied widely based on the method of record retrieval (e.g., paper record, scanned record or electronic information) at each hospital and the amount of blood transfused per case. Based on hospital feedback, measure specifications have been revised to strengthen and provide additional clarity to data element definitions and abstraction guidelines. The timing and frequency of data collection will remain monthly or quarterly as it does for the other Joint Commission measure sets. Maintaining patient confidentially was not an issue during the pilot test, since blinded hospital and patient identifiers are used on all data received by The Joint Commission staff for data quality reviews.

4e.2 **Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:**
The majority of hospitals already have processes in place to abstract measures if the patients are identified using procedure codes. However, some hospitals document total hospital blood use using blood bank records that would have to be cross-referenced by the patient medical record number to determine how much and the type of blood product each patient received which adds to the abstraction burden.
There are no Joint Commission fees to abstract the measures, but the abstraction cost for this measure would depend on the amount of blood transfused at each hospital. This measure would evaluate the first three units of plasma regardless of the number of plasma units transfused. Hospitals with Blood Management or conservation programs may have fewer units to review and those with efficient or electronic processes to document blood may have lower abstraction costs.

4e.3 **Evidence for costs:**

4e.4 **Business case documentation:** There continues to be considerable unexplained variation in transfusion practices across organizations, products and patient populations. Recent evidence is mounting that demonstrates significant harm from unnecessary blood transfusions. Monitoring transfusions will provide information so hospitals can begin to identify patients who are transfused outside of the guidelines. It has been found that hospitals that track blood use at the patient specific level have a higher percentage of appropriate transfusions than those that do not track blood use at that level. Measuring blood use should decrease the amount of blood transfused and improve patient safety.

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*

4

Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met?
Rationale:

4
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N☐

RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited** ☐
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y** ☐ **N** ☐ **A** ☐

CONTACT INFORMATION

Co.1 Measure Steward (Intellectual Property Owner)
Co.1 Organization
The Joint Commission, One Renaissance Boulevard, Oakbrook Terrace, Illinois, 60181

Co.2 Point of Contact
Jerod M., Loeb, PhD, jloeb@jointcommission.org, 630-792-5920-

Measure Developer If different from Measure Steward
Co.3 Organization
The Joint Commission, One Renaissance Boulevard, Oakbrook Terrace, Illinois, 60181

Co.4 Point of Contact
Harriet, Gammon, MSN, RN, CPHQ, hgammon@jointcommission.org, 630-792-5926-

Co.5 Submitter If different from Measure Steward POC
Harriet, Gammon, MSN, RN, CPHQ, hgammon@jointcommission.org, 630-792-5926-, The Joint Commission

Co.6 Additional organizations that sponsored/participated in measure development

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.
The technical advisory panel determined priority areas in blood management for measure development. They reviewed public comments and were actively involved in all phases of the project to identify and develop the numerator and denominator statements. Measure recommendations for National Quality Forum endorsement were made after careful review of the pilot results and site feedback.

Ad.2 If adapted, provide name of original measure:
Ad.3-5 If adapted, provide original specifications URL or attachment

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 Year the measure was first released:
Ad.7 Month and Year of most recent revision: 12, 2010
Ad.8 What is your frequency for review/update of this measure? Biannually
Ad.9 When is the next scheduled review/update for this measure? 06, 2011

Ad.10 Copyright statement/disclaimers: No royalty or use fee is required for copying or reprinting this manual, but the following are required as a condition of usage: 1) disclosure that the Specifications Manual is periodically updated, and that the version being copied or reprinted may not be up-to-date when used unless the copier or printer has verified the version to be up-to-date and affirms that, and 2) users participating in Joint Commission accreditation, including performance measures systems, are required to update their software and associated documentation based on the published manual production timelines.
Example Acknowledgement: The Specifications Manual for National Hospital Inpatient Quality Measures Patient Blood Management Performance Measure Set is periodically updated by The Joint Commission. Users of the Specifications Manual for National Hospital Inpatient Quality Measures Patient Blood Management Performance Measure Set must update their software and associated documentation based on the published manual production timelines.

Ad.11 -13 Additional Information web page URL or attachment: Attachment TAPLISTWEBc-

634276948397825978.doc
Date of Submission (*MM*/*DD*/*YY*)**:** 12/29/2010

Patient Blood Management (PBM)

Set Measures

Set Measure ID	Measure Short Name
PBM-01	Transfusion Consent
PBM-02	RBC Transfusion Indication
PBM-03	Plasma Transfusion Indication
PBM-04	Platelet Transfusion Indication
PBM-05	Blood Administration Documentation
PBM-06	Preoperative Anemia Screening
PBM-07	Preoperative Blood Type Testing and Antibody Screening

Measure Set Specific Data Elements

Element Name	Collected For
Admission From Home	PBM-06,
Anesthesia Start Date	PBM-06,
Blood Administration Location	PBM-02, PBM-03, PBM-04, PBM-05,
Blood Bank Records	PBM-01, PBM-02, PBM-03, PBM-04, PBM-05,
Blood ID Number	PBM-05,
Blood Type Testing Ordered	PBM-07,
Clinical Indication for Plasma	PBM-03,
Clinical Indication for Platelets	PBM-04,
Clinical Indication for RBCs	PBM-02,
Education Addressed Risks, Benefits and Alternatives to Transfusion	PBM-01,
Patient ID Verification	PBM-05,
Plasma ID	PBM-03, PBM-05,
Platelet ID	PBM-04, PBM-05,
Pre-transfusion Hematocrit	PBM-02,
Pre-transfusion Hemoglobin	PBM-02,
Pre-transfusion PT/INR Result	PBM-03,
Pre-transfusion Platelet Count	PBM-04,
Preoperative Anemia Screening Date	PBM-06,
Preoperative Blood Type Testing	PBM-07,
RBC ID	PBM-02, PBM-05,
RBC Unit Exclusions	PBM-02, PBM-05,
Surgery Scheduled Timeframe	PBM-06,
Transfusion Consent	PBM-01,
Transfusion Order	PBM-05,
Transfusion Start Date	PBM-05,
Transfusion Start Time	PBM-05,
Vital Sign Monitoring	PBM-05,

Related Materials

Document Name
z. Appendix E - Miscellaneous Tables

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-01

Performance Measure Name: Transfusion Consent

Description: Patients with a signed consent who received information about the risks, benefits and alternatives of transfusion prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency.

Rationale: Planning a discussion with a licensed practitioner regarding the risks, benefits and alternatives of transfusion is an opportunity for the patient to participate in decisions about his or her care. It is a process that takes into consideration, each patient's preferences, clinical needs and provides information in compliance with the regulations and policies of the state and facility. Even though policies related to informed consent may vary among hospitals, all hospitals require some type of consent prior to treatment unless emergency care is needed. The elements of performance for the Joint Commission Standard RI.01.03.01 related to the informed consent process include a discussion about the risks, benefits and alternatives, and a discussion about the risk, if care is not received. This measure is also supported by the Joint Commission's National Patient Safety Goal (NPSG) 13 that encourages patients' active involvement in their own care as a patient safety strategy.

For many years, the American Association of Blood Banks (AABB) organization has supported the consent process for transfusion and has developed several standards such as AABB Standard 5.19.1. AABB requires that at a minimum, a recipient consent for transfusion and that should include; a description of the risks, benefits and treatment alternatives, the opportunity to ask questions and the right to accept or refuse transfusion.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with a signed consent who received information about the risks, benefits and alternatives prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Education Addressed Risks, Benefits and Alternatives to Transfusion*
- *Transfusion Consent*

Denominator Statement: Patients who received red blood cell, plasma or platelet transfusions

Included Populations: Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.3-9.6 or a transfusion documented from Blood Bank Records.

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data collection sources for required data elements include administrative data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document tranfusions may use blood bank records to identify the population.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Hospitals may want to evaluate the cases according to medical or surgical designation that were not included in the numerator in order to determine if the consent was signed and/or if all or only part of the educational components were given or if documentation was insufficient. Based on this information, hospitals may assess the barriers impacting this measure that could be improved.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

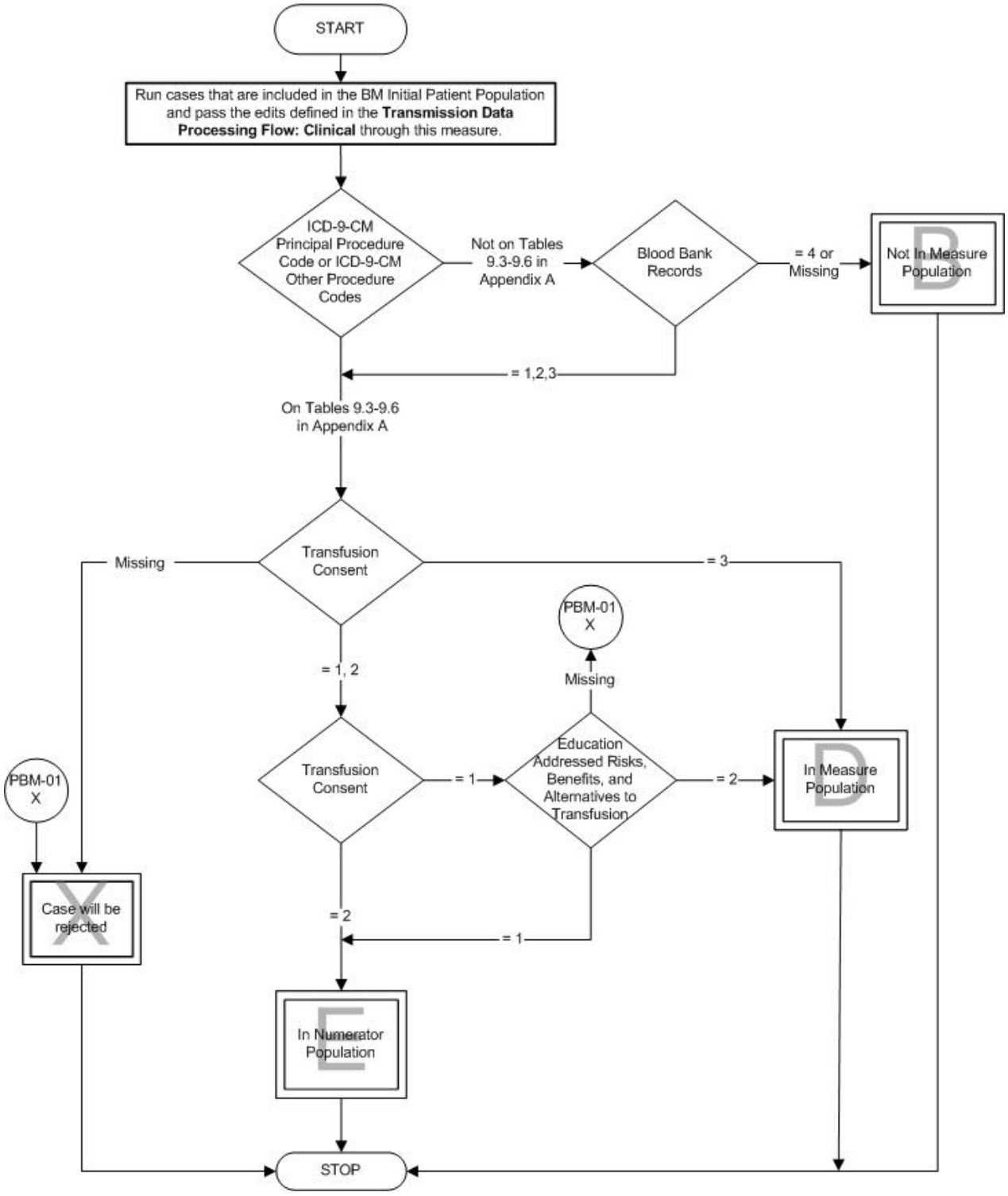
- Speiss BD, Counts RB, Gould SA. Perioperative Transfusion Medicine, Williams and Wilkins; 1998; 201-204.
- Stowell C, Sazama K. Informed Consent in Blood Transfusion and Cellular Therapies: Patients, Donors and Research Subjects. AABB Press; 2007; ISBN #978-1-56395-254-8.
- Burch JW, Uhl L. Guidelines for Informed Consent in Transfusion Medicine. AABB Press; 2006; ISBN #1-56395-146-0.2008.
- Standards for Blood Banks and Transfusion Services, 25th ed. Bethseda, MD: AABB 2008.
- The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL. Joint Commission Resources, Inc, 2009.
- The Joint Commission, “National Patient Safety Goals (NPSG)”, IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.

Measure Algorithm:

PBM–01: Transfusion Consent

Numerator: Patients with a signed consent who received information about the risks, benefits and alternatives prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency

Denominator: Patients who received red blood cells, platelets or plasma



Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-02

Performance Measure Name: RBC Transfusion Indication

Description: The number of transfused red blood cell (RBC) units with a pre-transfusion hemoglobin (hgb) or hematocrit (hct) result and clinical indication documented from patients of all ages who received RBCs.

Rationale: Improvement of the safety and quality of care that a hospital provides includes the review of the use of blood and blood products. Despite current evidence and best practice guidelines, clinical practice regarding when to transfuse varies among physicians and institutions even though most would agree that blood products should only be given when the benefits outweigh the harm. Many advocate that transfusion decisions should be based on a clinical assessment and not on laboratory values alone to avoid inappropriate over-or-under transfusion. Measuring whether an "indication for transfusion" and a pre-transfusion laboratory value was documented may improve the utilization of blood components. In addition, implementing such a process may simplify the hospital's review for appropriateness of the transfusion when auditing records for accreditation and regulatory agencies. In a study by Friedman and Ebrahim, there was a significant correlation between red blood cell transfusions that lacked documentation of the clinical necessity for transfusion and justification of the transfusion.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of RBC units with pre-transfusion hemoglobin or hematocrit result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for RBCs*
- *Pre-transfusion Hematocrit*
- *Pre-transfusion Hemoglobin*
- *RBC ID*

Denominator Statement: Number of transfused red blood cell units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Tables 9.3 or 9.4 or a RBC transfusion documented from Blood Bank Records.
- The first six RBCs units transfused after hospital arrival

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*
- *RBC Unit Exclusions*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received RBCs.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Hospitals may want to use the data to further evaluate the process for determining the need for blood products based on the clinical indications and correlating it with the pre-transfusion value that was documented. This information may assist hospitals to determine if the patients were transfused appropriately or if efforts should be directed toward additional documentation efforts for monitoring blood product usage. Data may be grouped by service designation or by blood products to identify specific areas for staff review.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

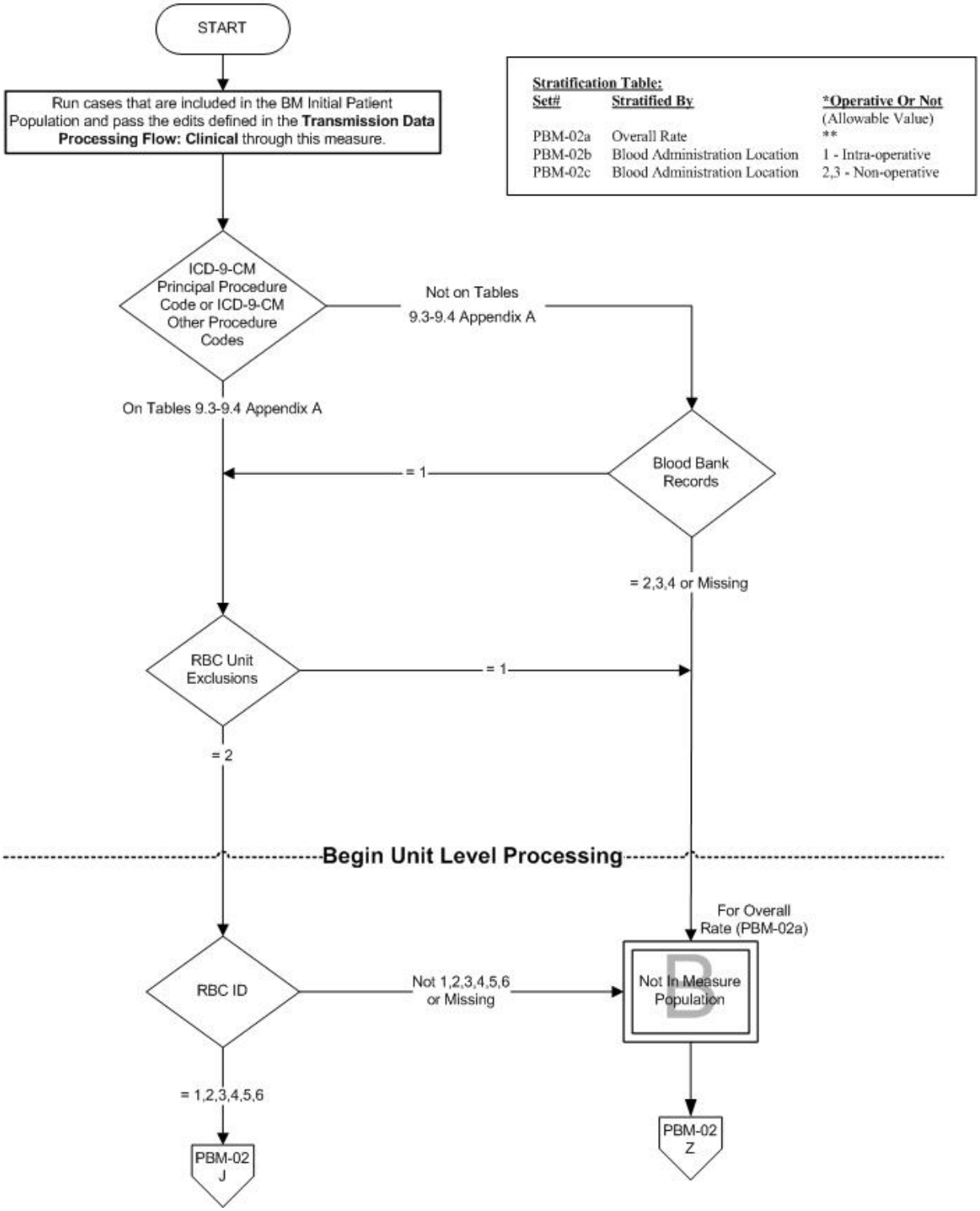
- Friedman MT, Ebrahim A. Adequacy of physician documentation of red blood cell transfusion and correlation with assessment of transfusion appropriateness. Arch Pathol Lab Med. 2006;130: 474-79.
- Corwin HL, Parsonnet KC, Gettinger A. RBC transfusion in the ICU: is there a reason? Chest. 1995;108: 767-771.
- Tobin SN, Campbell DA, Boyce NW. Durability of response to a targeted intervention to modify clinician transfusion practices in a major teaching hospital. MJA. 2001;174:445-448.
- Clinical practice guideline: Red blood cell transfusion in adult trauma and critical care. Crit Care Med 2009 Vol.37, No.12.

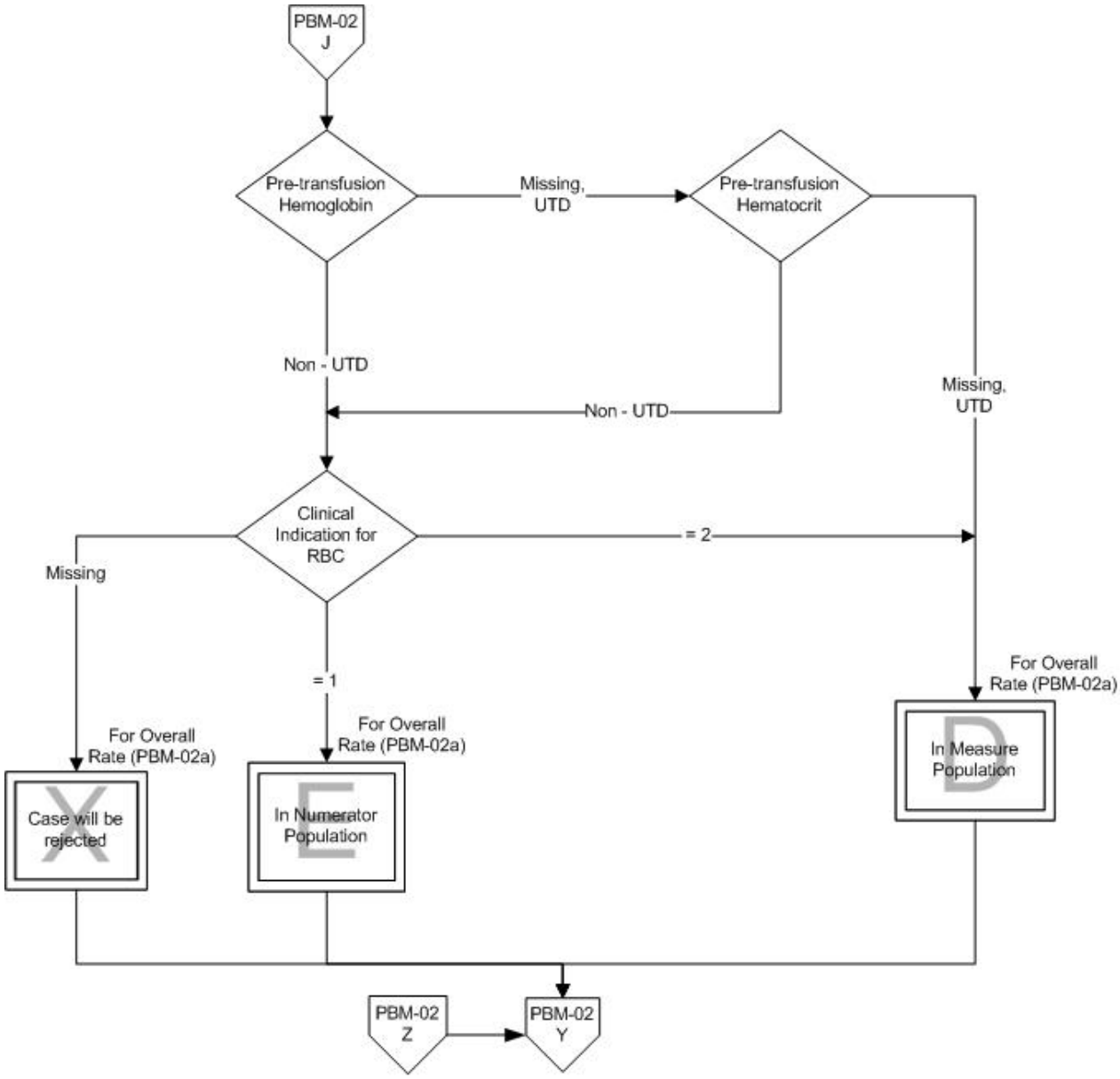
Measure Algorithm:

PBM–02: RBC Transfusion Indication

Numerator: Number of RBC units (bags) with pre-transfusion hemoglobin or hematocrit result and clinical indication documented

Denominator: Number of transfused red blood cell units evaluated





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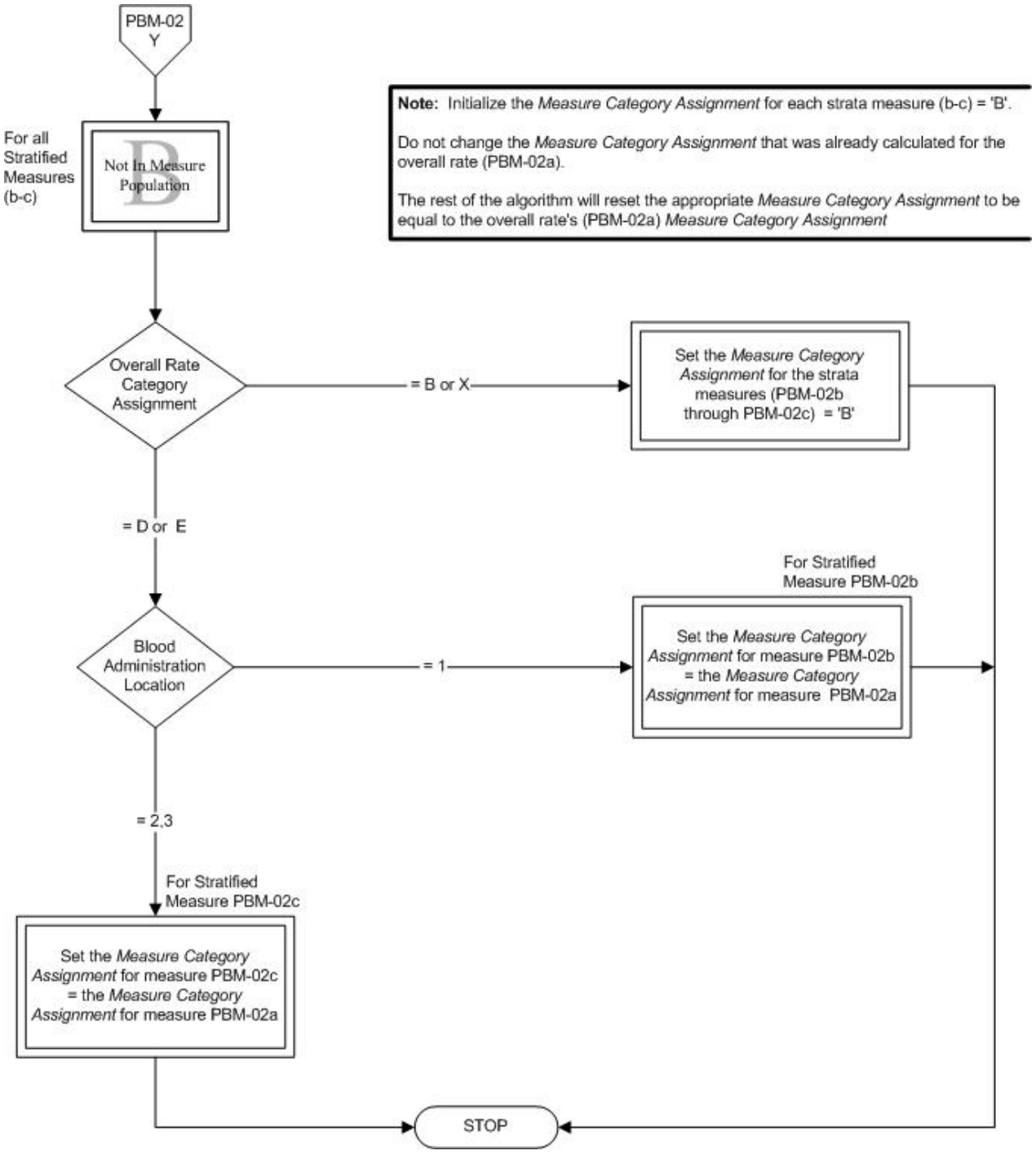


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-03

Performance Measure Name: Plasma Transfusion Indication

Description: The number of transfused plasma units with a pre-transfusion PT/INR result and clinical indication documented from patients of all ages who received plasma.

Rationale: The use of plasma has increased and is disproportionally high compared to other countries with similar levels of health care. Indications for transfusing plasma are very limited, and as a result, published studies often show unjustifiable use of plasma. According to the National Heart Lung and Blood Institute, plasma should be administered only to increase the level of clotting factors in patients with a demonstrated deficiency. If the prothrombin time (PT) and partial thromboplastin time (PTT) are < 1.5 times normal, a plasma transfusion is rarely needed. However, plasma is frequently transfused to patients with mild-to moderate elevations in PT despite numerous studies that have not shown a correlation between the risk of bleeding and mild-to moderate test results. In a study by Wahab et al, transfusion of plasma for mild abnormalities of coagulation values resulted in a partial normalization in a minority of patients, and failed to correct the PT in 99% of the patients. In a 2004 study by Hui, the need to correct prolonged international normalized ratios (INRs) for patients on warfarin emerged as the primary indication for plasma followed by massive transfusions.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of plasma units with pre-transfusion PT/INR result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for Plasma*
- *Plasma ID*
- *Pre-transfusion PT/INR Result*

Denominator Statement: Number of transfused plasma units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.6 or a plasma transfusion documented from Blood Bank Records
- The first three plasma units transfused from hospital arrival

Excluded Populations:

- Discharges with an ICD-9-CM Principal Diagnosis Code of trauma as defined in Appendix A, Table 9.7.

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Diagnosis Code*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received plasma.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Data from this measure may be used to review the type of invasive procedures or surgeries that use plasma in order to further evaluate appropriateness of use.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

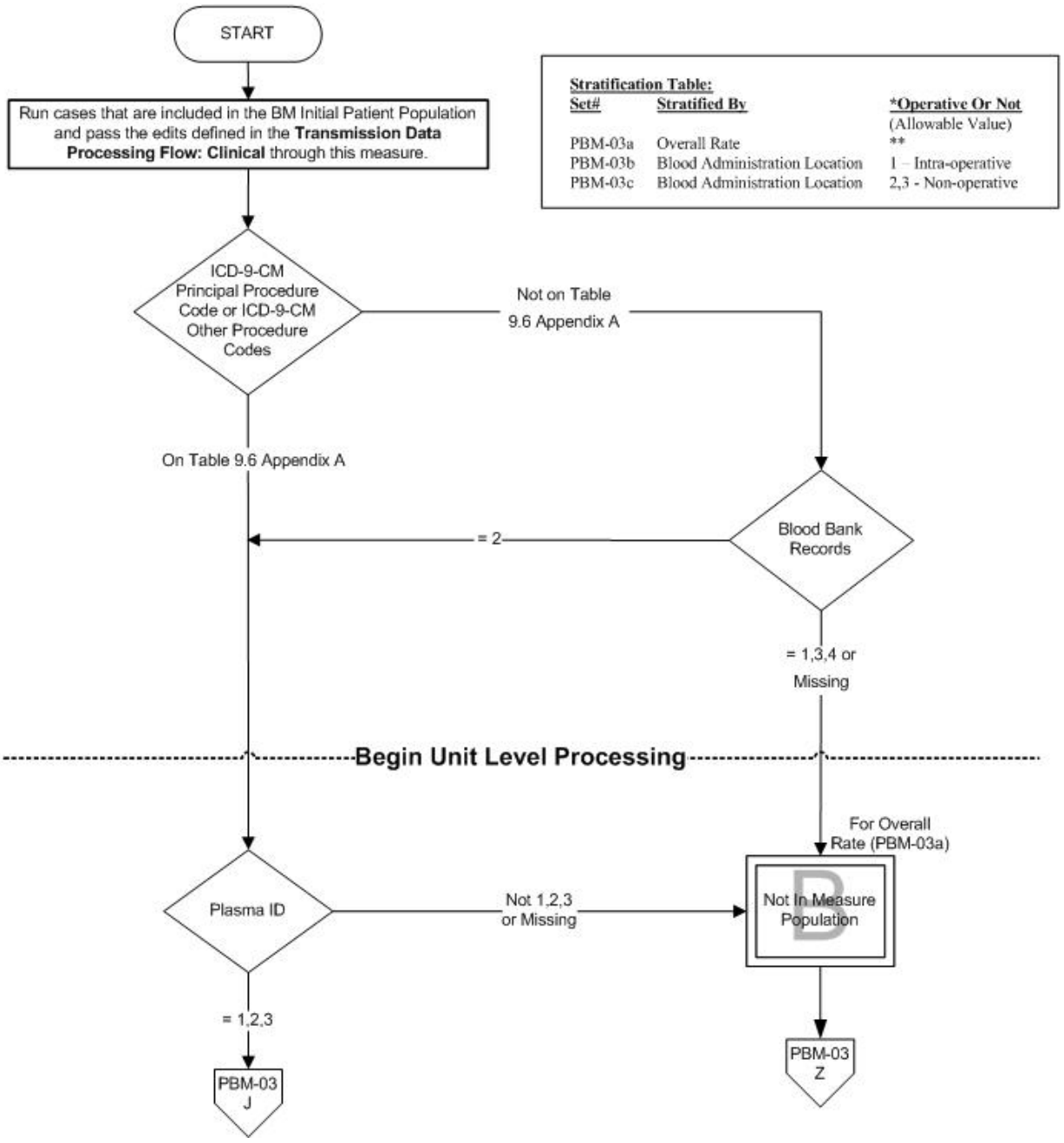
- Hui C, Williams I, Davis K. Clinical audit of the use of fresh-frozen plasma and platelets in a tertiary teaching hospital and the impact of a new transfusion request form. Int Med J. 2005;35:283-288.
- Wallis JP, Dzik S. Is fresh frozen plasma overtransfused in the United States? Transfusion. 2004;44:1674-75.
- Ardel-Wahab OI, Healy B, Dzik WH. Effect of fresh-frozen plasma transfusion on prothrombin time and bleeding in patients with mild coagulation abnormalities. Transfusion. 2006;46:1479-1285.
- Segal J, Dzik WH; Transfusion Medicine/Hemostasis Clinical Trials Network. Paucity of studies to support that abnormal coagulation test results predict bleeding in the setting of invasive procedures: an evidenced-based review. Transfusion. 2005;45:1413-25.

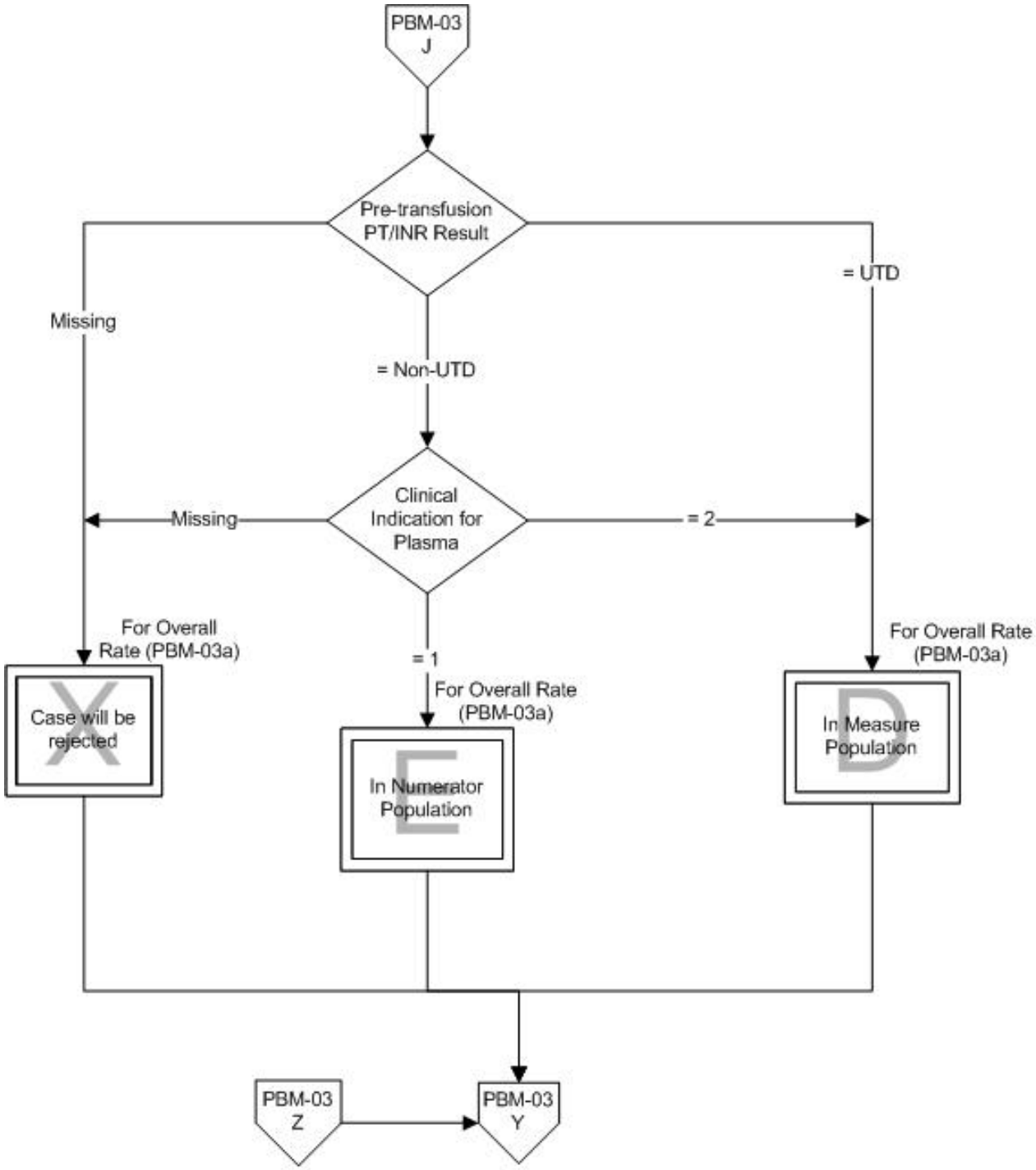
Measure Algorithm:

PBM–03: Plasma Transfusion Indication

Numerator: Number of plasma units with pre-transfusion PT/INR result and clinical indication documented

Denominator: Number of transfused plasma units evaluated





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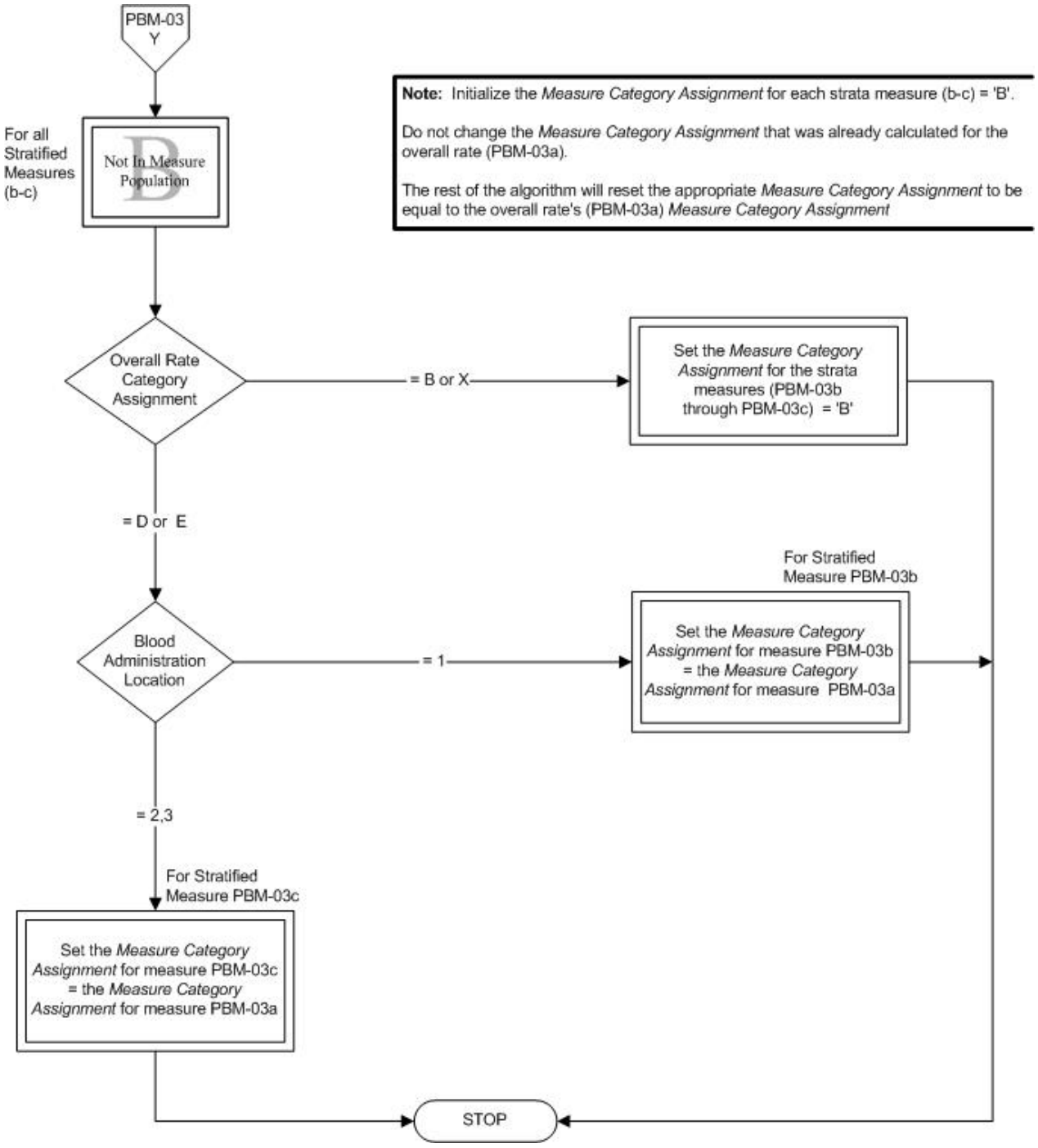


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-04

Performance Measure Name: Platelet Transfusion Indication

Description: The number of transfused platelet units with pre-transfusion platelet count and clinical indication documented from patients of all ages who received platelets.

Rationale: Platelets are transfused to treat or prevent bleeding associated with thrombocytopenia and/or platelet dysfunction. Platelets given therapeutically should help stop the bleeding, and if given prophylactically, post transfusion platelet counts should be obtained to monitor the response to determine the effectiveness of the transfusion. Repeated platelet transfusions can cause alloimmunization and cause platelet refractoriness to future transfusions. Multiple infectious risks are associated with platelet transfusions so patients should only be exposed to the least amount needed.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of platelet units with pre-transfusion platelet count result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for Platelets*
- *Platelet ID*
- *Pre-transfusion Platelet Count*

Denominator Statement: Number of transfused platelet units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.5 or a platelet transfusion documented from Blood Bank Records
- The first three platelet units transfused after hospital arrival

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Blood Administration Location*
- *Blood Bank Records*

- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received platelets.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Data from this measure may be used to evaluate the utilization and approriateness of platelets used by an organization.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

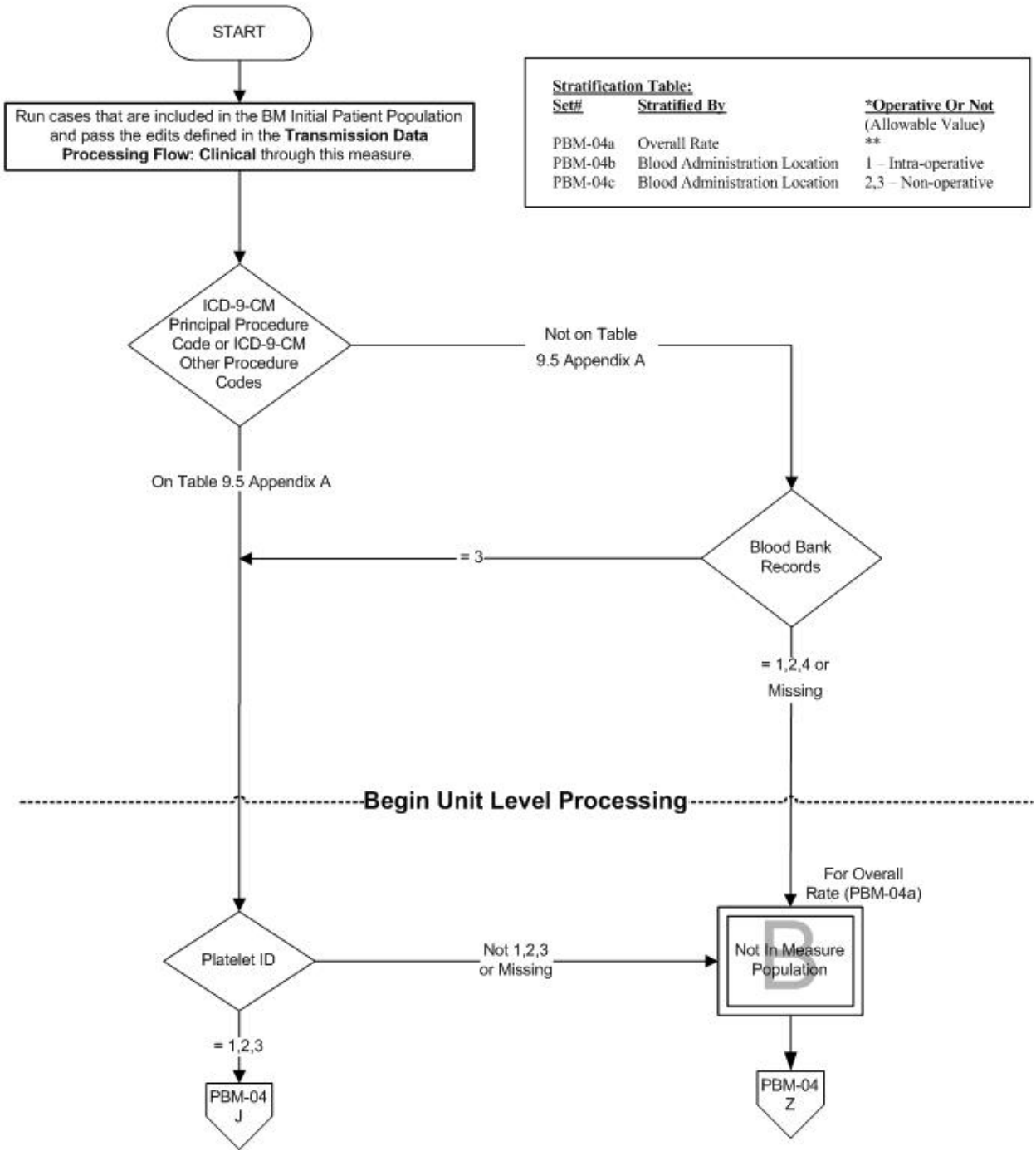
- Garrioch M, Sandbach J, Pirie E, Morrison A, Todd A, Green R. Reducing red cell transfusion by audit, education and a new guideline in a large teaching hospital. Transfusion Med. 2004;14:25-31.
- Petrides M. Red cell transfusion “trigger”: A review. Southern Med J. 2003; 96:664-667.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- BR J Haematol 1998, 101:609 - 617.

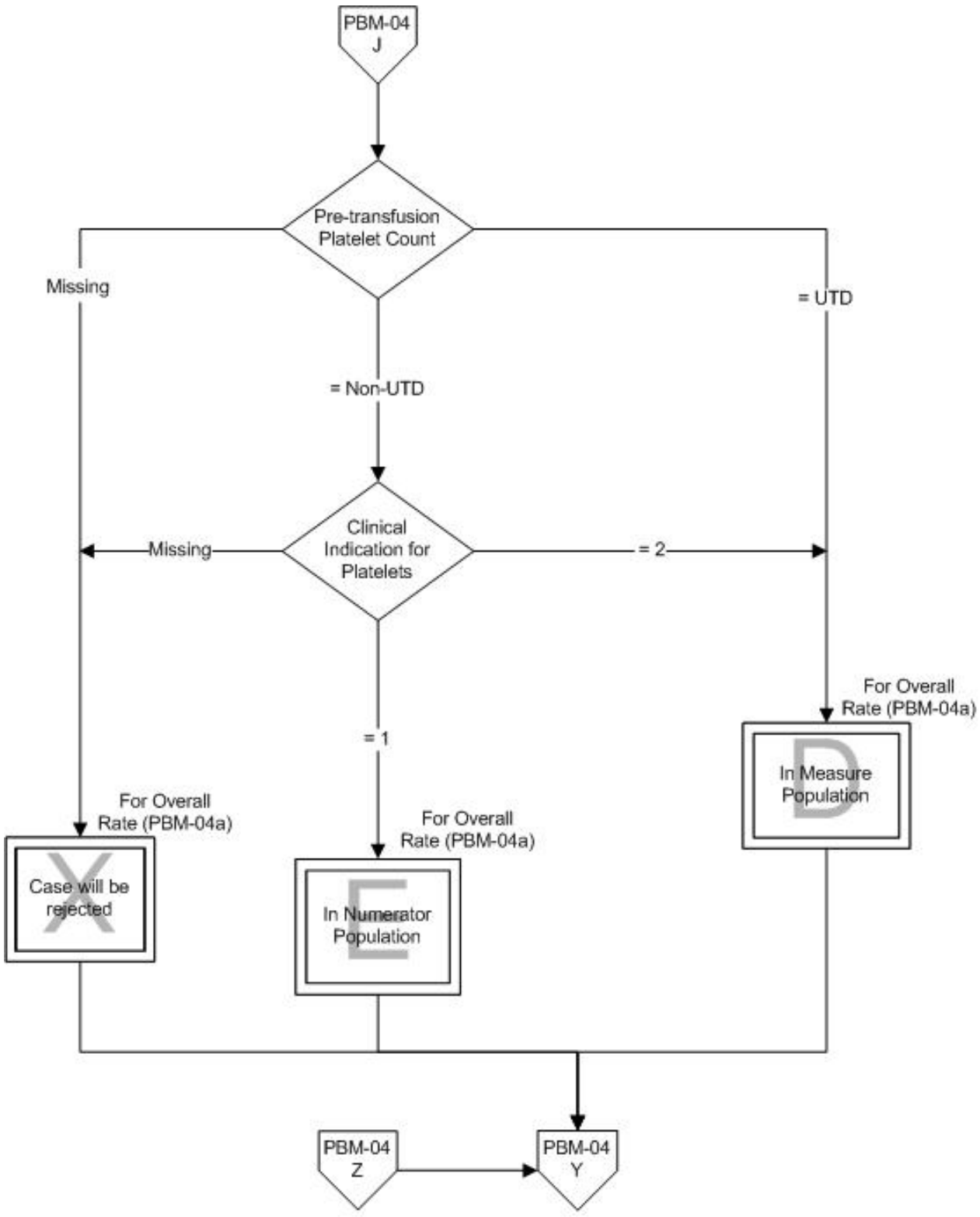
Measure Algorithm:

PBM–04: Platelet Transfusion Indication

Numerator: Number of platelet doses with pre-transfusion platelet count result and clinical indication documented

Denominator: Number of transfused platelet units evaluated





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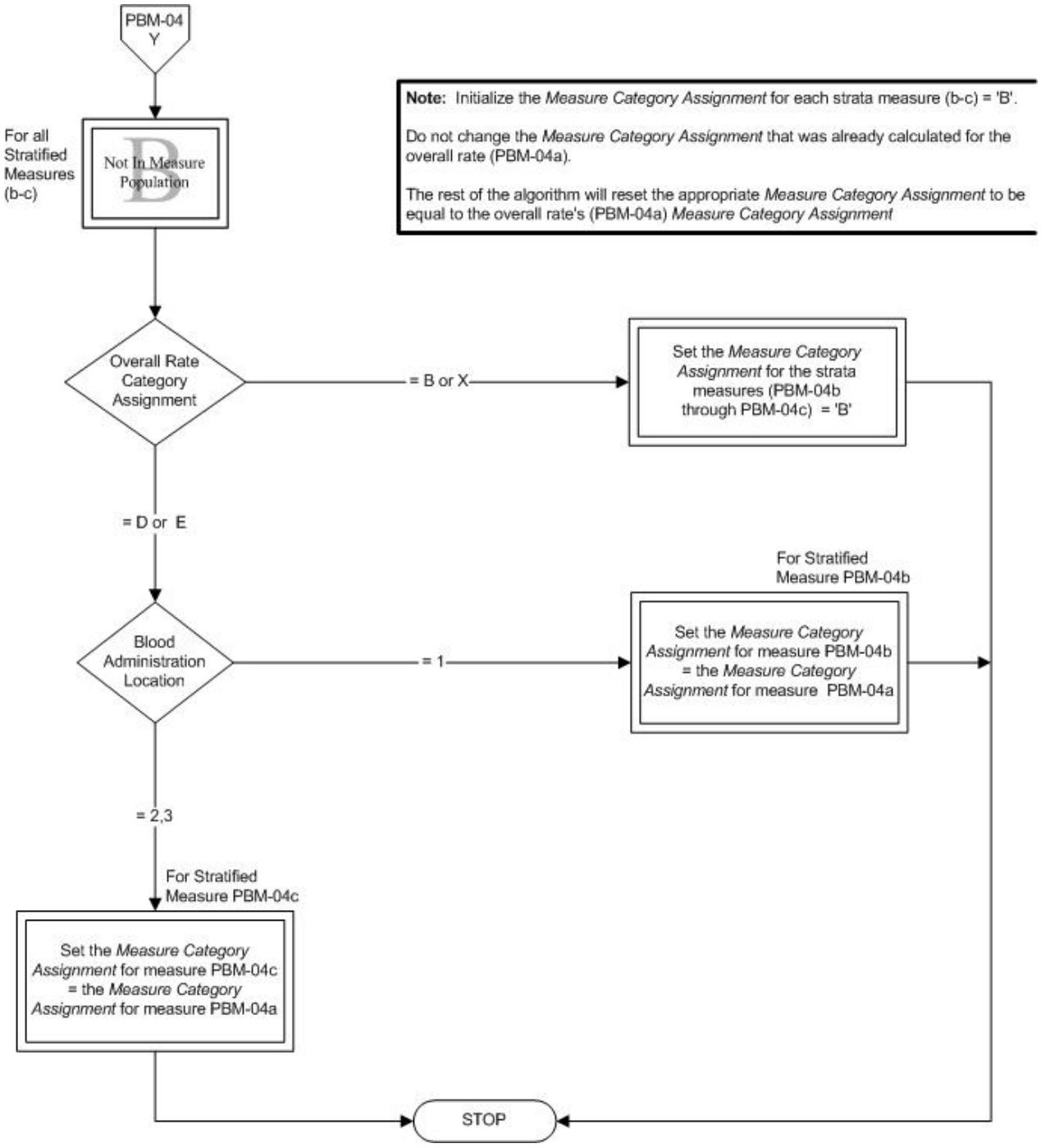


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-05

Performance Measure Name: Blood Administration Documentation

Description: The number of transfused red blood cells, plasma or platelet transfusion units/doses (bags) that had documentation of the following: patient identification and an order to transfuse (Blood ID Number) confirmed prior to the initiation of transfusion, transfusion start date and time, and blood pressure, pulse and temperature recorded at specific intervals.

Rationale: Since the majority of blood units are transfused in hospitals, specific policies and procedures have been developed by each hospital to address documentation of blood administration standards in accordance with their state and federal regulations. Though documentation components vary among organizations, identification of the patient and confirmation of the order to transfuse are common indicators used for all blood products since incomplete patient identification could result in an adverse outcome. Prior to administering blood or blood products, patient identification by two identifiers is required by numerous organizations including the AABB Standard 5.19.3, and the Joint Commission National Patient Safety Goal (NPSG) 1. In addition, numerous organizations require or advise that the licensed staff confirm that there is a transfusion order as directed by the AABB Standard 5.19.6 and the elements of performance for the Joint Commission NPSG.01.01.01.

Patient monitoring during the transfusion is an important component related to patient safety. The first 10 to 15 minutes of the transfusion are considered the most critical to assess for a potential transfusion reaction and close observation during this time is recommended in the AABB Primer. Monitoring of vital signs at baseline, during and at the completion of the transfusion in addition to observation are used to assess the patient's condition for any changes.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of units/doses (bags) with documentation for all of the following:

- patient identification and transfusion order (Blood ID Number) confirmed prior to the initiation of transfusion
- transfusion start date and time
- blood pressure, pulse and temperature recorded pre, during and post transfusion

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Blood ID Number*
- *Patient ID Verification*
- *Plasma ID*

- *Platelet ID*
- *RBC ID*
- *Transfusion Order*
- *Transfusion Start Date*
- *Transfusion Start Time*
- *Vital Sign Monitoring*

Denominator Statement: Number of transfused red blood cells, plasma or platelet units/doses (bags) evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.3-9.6 or a transfusion documented from Blood Bank Records

Excluded Populations:

- Units used in massive transfusion protocols
- Uncrossmatched units
- Units used to prime equipment

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*
- *RBC Unit Exclusions*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: The data from this measure may be used to evaluate the adherence to organizational policies and procedures for blood administration for each of the blood products. Data could be evaluated by unit or service in order to identify areas for staff education. The data could also be used during accreditation surveys to document the hospital's efforts to improve the accuracy of patient identification when administering blood related to the Joint Commission National Patient Safety Goal #1.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

- Whitsett CF, Robichaux MG. Assessment of blood administration procedures: problems identified by direct observation and administrative incident reporting. Transfusion. 2001;41:581-86.
- Saxena S, Ramer L, Shulman IA. A comprehensive assessment program to improve blood-administering practices using the FOCUS-PDCA model. Transfusion. 2004; 44:1350-56.
- Novis DA, Miller KA, Howanitz PJ, Renner SW, Walsh MK; College of American Pathologists. Audit of transfusion procedures in 660 hospitals. A College of American Pathologists Q–Probes study of patient identification and vital sign monitoring frequencies in 16494 transfusions. Arch Pathol Lab Med. 2003;127:541-8.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009.
- The Joint Commission, “National Patient Safety Goals (NPSG)”, IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.
- AABB Primer of Blood Administration. Revised August 2008. Bethseda, Maryland. [Available at http://www.aabb.org/Content/Professional_Development/Education_and_Training_Material/edtr (accessed November 2009).]

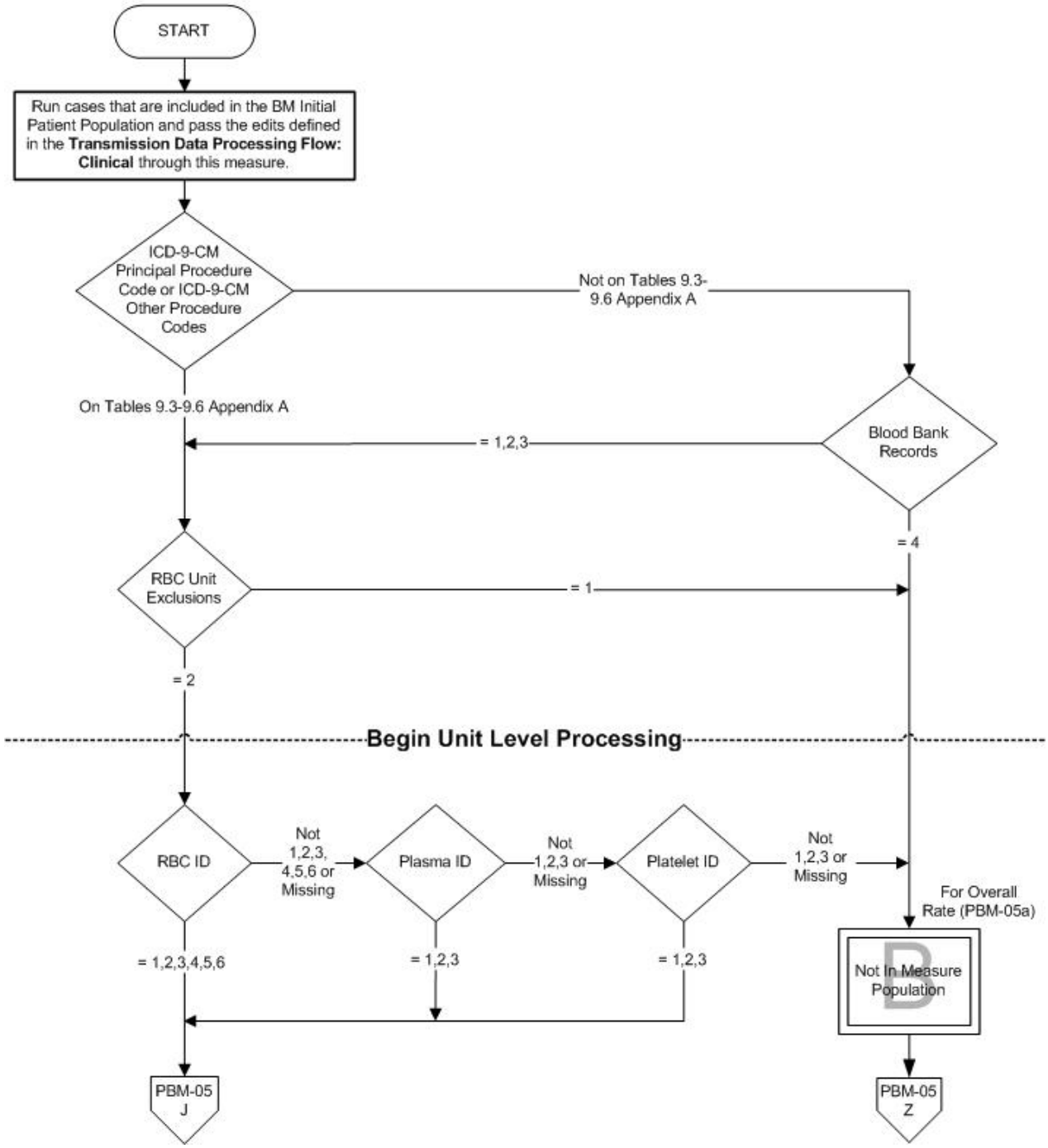
Measure Algorithm:

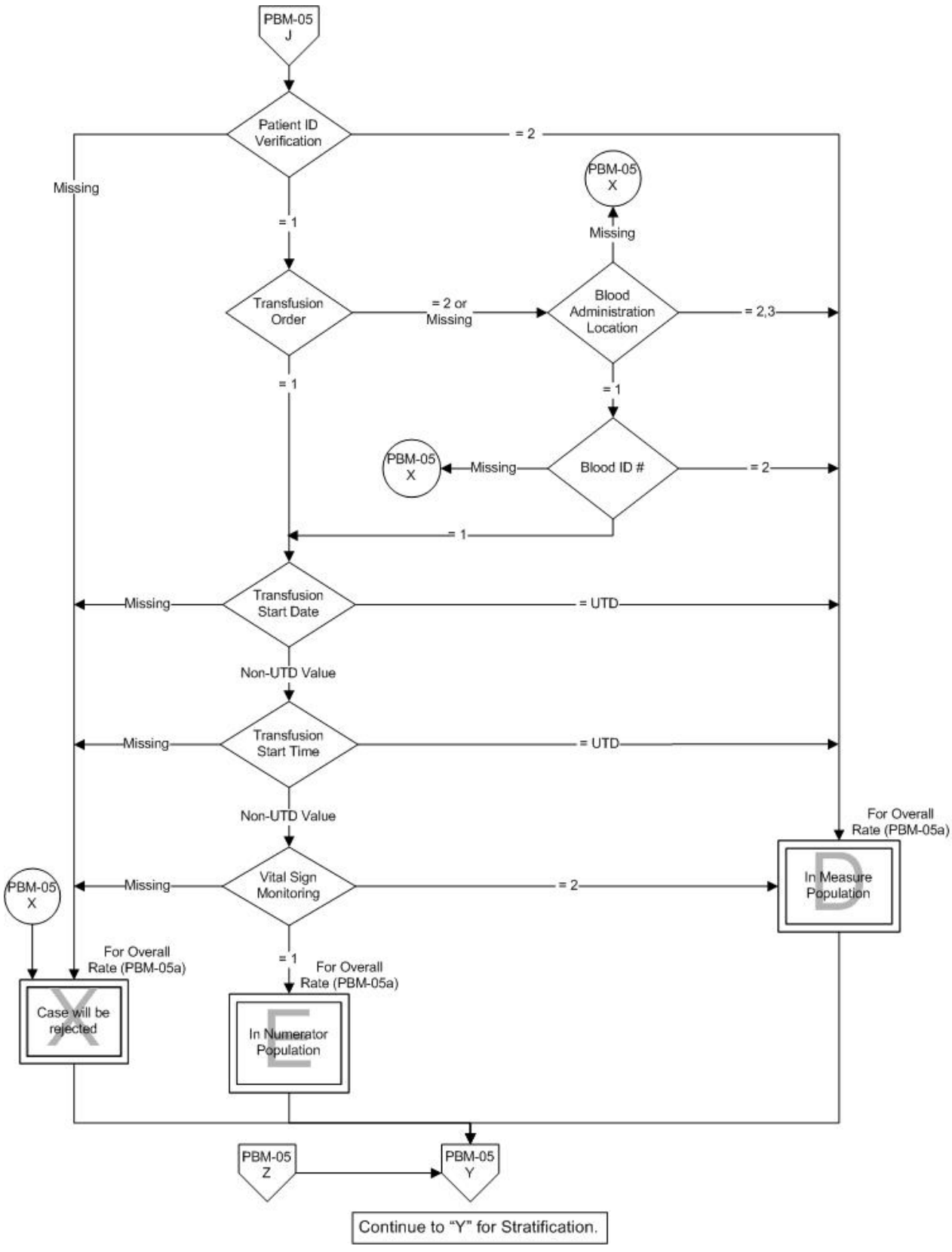
PBM–05: Blood Administration Documentation

Numerator: Number of blood transfusion units (bags) or doses with documentation for all of the following:

- patient identification (ID) and transfusion order (blood ID number) confirmed prior to the initiation of blood
- date and time of transfusion
- blood pressure, pulse and temperature recorded pre, during and post transfusion

Denominator: Number of transfused red blood cells, plasma and platelet units (bags) or doses evaluated




PBM-05 J
Patient ID Verification
= 2
Missing
PBM-05 X
= 1
Missing
Transfusion Order
= 2 or Missing
Blood Administration Location
= 2,3
= 1
= 1
PBM-05 X
Missing
Blood ID #
= 2
= 1
Transfusion Start Date
Missing
= UTD
Non-UTD Value
Transfusion Start Time
Missing
= UTD
Non-UTD Value
For Overall Rate (PBM-05a)
PBM-05 X
Vital Sign Monitoring
Missing
= 2
In Measure Population
D
For Overall Rate (PBM-05a)
= 1
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Case will be rejected
X
In Numerator Population
E
PBM-05 Z
PBM-05 Y
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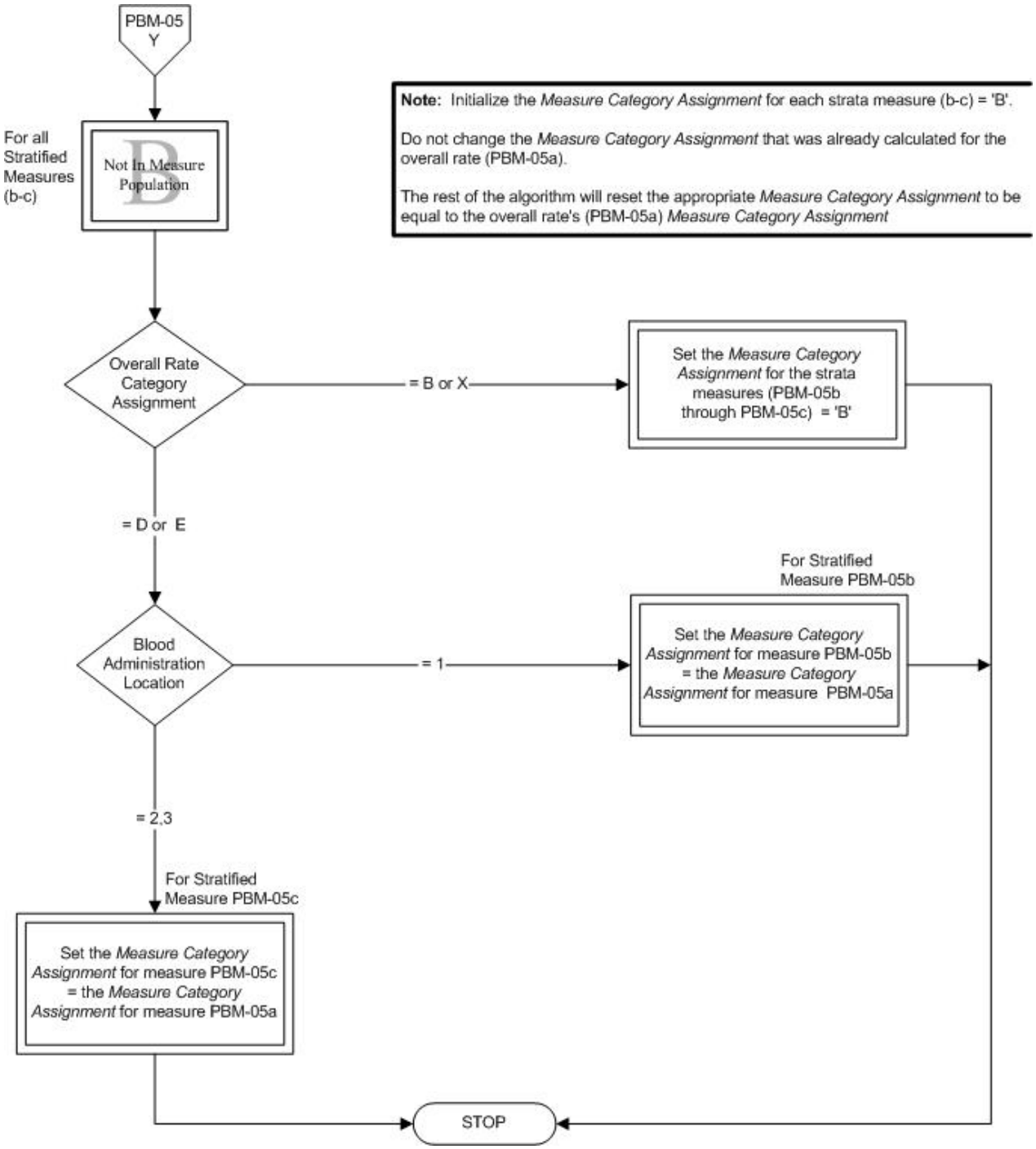


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-06

Performance Measure Name: Preoperative Anemia Screening

Description: Selected elective orthopedic, cardiac and hysterectomy surgical patients with documentation of preoperative anemia screening date 14 – 45 days before surgery start date for procedures scheduled 14 or more days before surgery.

Rationale: Development of formal protocols for preoperative testing of hemoglobin (hgb) for potential high-blood loss elective surgeries could be used to identify and intervene for optimal management of blood resources. Preoperative anemia often goes unrecognized and untreated unless tests are ordered in advance of a planned surgery. Early recognition of anemia offers patients an opportunity to receive the most appropriate transfusion-sparing strategy, and avoid the risk of a potential transfusion. Researchers have shown that preoperative hgb and hematocrit can be used as predictors of outcome for specific types of patients such as cardiac artery bypass graft or orthopedic surgery. In a study by Salido, orthopedic patients with a preoperative hemoglobin <13 g/dL had four times the risk of transfusion than those with a hemoglobin level between 13 g/dL and 15 g/dL.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with preoperative anemia screening 14 - 45 days before Anesthesia Start Date

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Preoperative Anemia Screening Date*

Denominator Statement: Selected elective surgical patients

Included Populations:

- Discharges with an ICD-9-CM Principal Procedure Codes of selected surgeries as defined in Appendix A, Tables 2.2, 5.01, 5.02, 5.08, 5.11, 5.22, 5.23, 9.1 or 9.2.

Excluded Populations:

- Patients less than 18 years of age
- Patients with surgery scheduled less than 14 days before Anesthesia Start Date
- Patients not admitted from home

Data Elements:

- *Admission Date*
- *Admission From Home*
- *Birthdate*
- *Discharge Date*
- *ICD-9-CM Principal Procedure Code*
- *ICD-9-CM Principal Procedure Date*
- *Surgery Scheduled Timeframe*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: These data may be used to evaluate specific patient groups at high risk for a blood transfusion that did not have their pre-operative hemoglobin and/or transfusion testing completed and/or documented prior to surgery. The data could be further analyzed based on physician or type of procedure. Patients who are not included in the numerator could be tracked to see if there were any adverse outcomes due to the lack of preoperative anemia screening.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References: * Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.

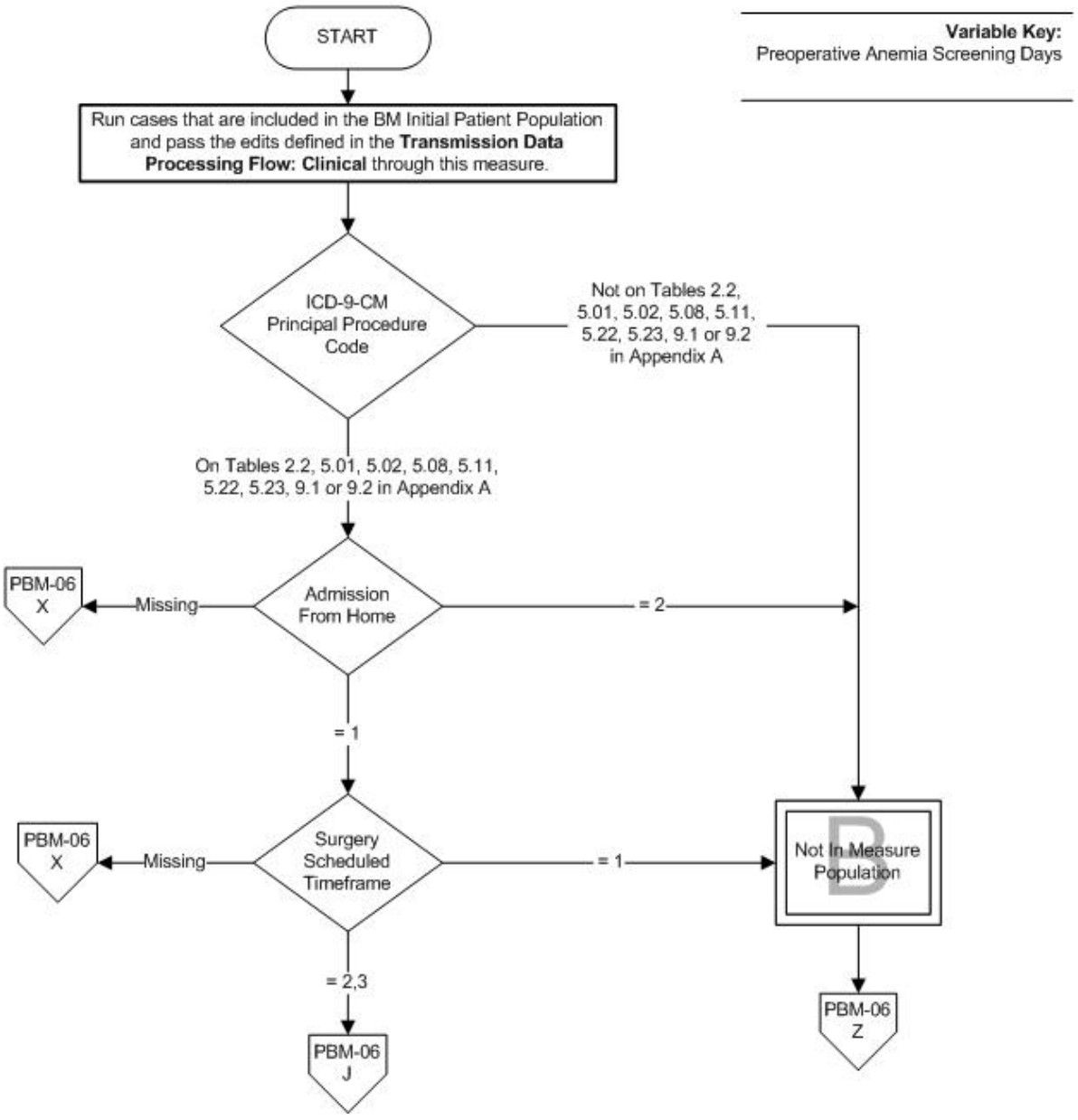
- Salido JA, Martin LA, Gomez LA, et al. Preoperative hemoglobin levels and the need for transfusion after prosthetic hip and knee surgery; analysis of predictive factors. J Bone Joint Surg. 2002;84: 216-20.
- Rady MY, Ryan T, Starr NJ. Perioperative determinants of morbidity and mortality in elderly patients undergoing cardiac surgery. Crit Care Med. 1998;26: 225-235.
- Magovern JA, Sakert T, Magovern GJ et al. A model that predicts morbidity and mortality after coronary artery bypass graft surgery. J Am Coll Cardiol. 1996;28: 1147-1153.
- Campbell DA, Henderson WG, Englesbe, MJ, Hall BL, O'Reilly M, Bratzler D et al. Surgical site infection prevention: the importance of operative duration and blood transfusion-results of the first american college of surgeons –national surgical quality improvement program best practices initiative. J AM Coll Surg 2008;207:810-820.

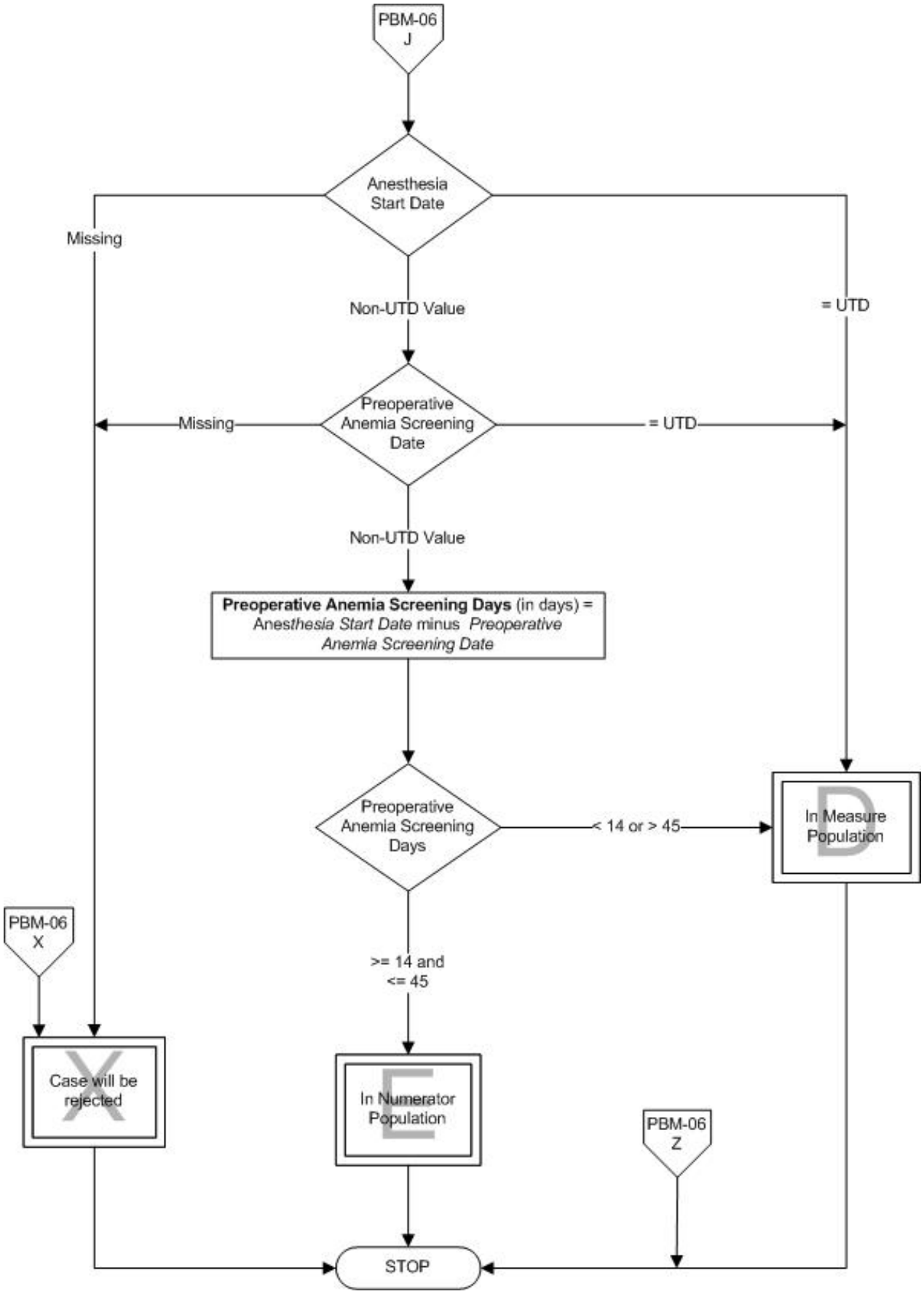
Measure Algorithm:

PBM–06: Preoperative Anemia Screening

Numerator: Patients with documentation of preoperative anemia screening 14 - 45 days before Anesthesia Start Date

Denominator: Selected elective surgical patients





Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-07

Performance Measure Name: Preoperative Blood Type Testing and Antibody Screening

Description: Selected elective orthopedic, cardiac and hysterectomy surgical patients who had preoperative blood type testing and antibody screening (type and screen or type and crossmatch) completed prior to surgery start time if ordered preoperatively.

Rationale: Hospitals need to ensure that sufficient compatible blood is available for each scheduled procedure. Since about 3% of specimens have a serologic finding that requires further investigation that may cause a delay in the availability of the blood, patient screening of ABO group and Rh type should be collected in sufficient time to complete all pretransfusion testing before surgery begins. According to the Joint Commission's Pre-publication National Patient Safety Goal UP.01.01.01 for 2010, a preprocedure verification process should be conducted to identify items that must be available for the procedure and use a standardized list to verify their availability. Documentation of any required blood products for the procedure is required. Development of formal protocols to ensure that patients have blood testing completed prior to surgery start time for potential high-blood loss elective surgeries may optimize management of blood resources and maximize patient safety.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with preoperative type and crossmatch or type and screen completed prior to surgery start time

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Preoperative Blood Type Testing*

Denominator Statement: Selected elective surgical patients

Included Populations:

- Discharges with an ICD-9-CM Principal Procedure Code of selected surgeries as defined in Appendix A, Tables 2.2, 5.01, 5.02, 5.08, 5.11, 5.22, 5.23, 9.1 or 9.2.

Excluded Populations:

- Patients less than 18 years of age
- Patients with type and screen or type and crossmatch ordered preoperatively

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Type Testing Ordered*
- *Discharge Date*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data collection sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: These data may be used to evaluate specific patient groups at high risk for a blood transfusion that did not have pre-operative transfusion testing completed and/or documented prior to surgery start time. The data could be further analyzed based on physician or type of procedure. Patients who are not included in the numerator could be tracked to see if there were any adverse outcomes due to the lack of preoperative testing.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References: * Saxena S, Nelson JM, Osby M, Shah M, Kempf R, Shulman IA. Ensuring timely completion of type and screen testing and the verification of ABO/Rh status for elective surgical patients. Arch Pathol Lab Med. 2007;131:576-81.

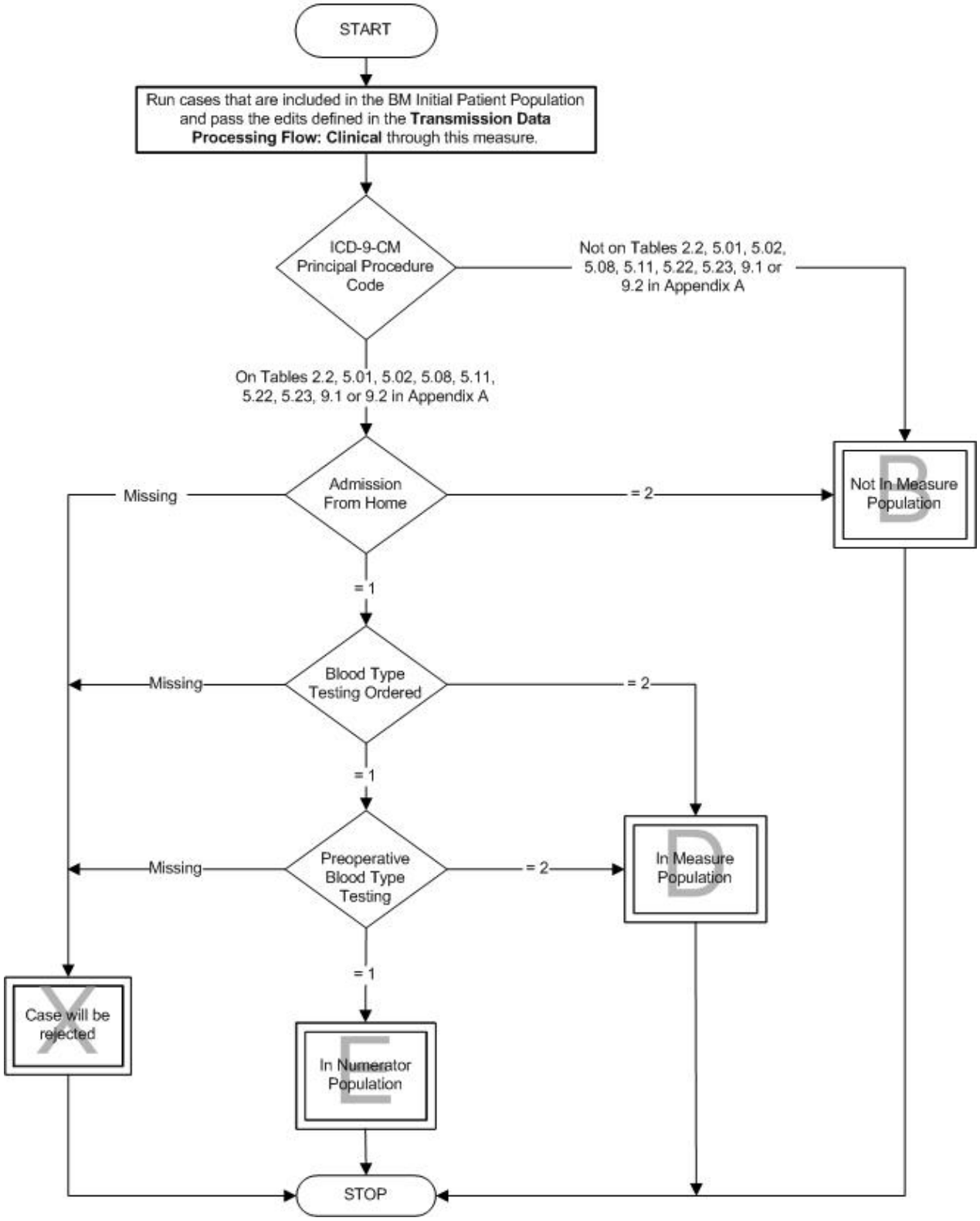
- Friedberg RC, Jones BA, Walsh MK. Type and screen completion for scheduled surgical procedures. A College of American Pathologists Q-Probes study of 8941 type and screen tests in 108 institutions. Arch Pathol Lab Med. 2003;127:533-40.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- Magovern JA, Sakert T, Magovern GJ et al. A model that predicts morbidity and mortality after coronary artery bypass graft surgery. J Am Coll Cardiol. 1996;28: 1147-1153.
- The Joint Commission 2010 National Patient Safety Goals, Oakbrook Terrace, IL [Available at http://www.jointcommission.org/NR/rdonlyres/868C9E07-037F-433D-8858-0D5FAA4322F2/0/RevisedChapter_HAP_NPSG_20090924.pdf (accessed January 27, 2010).]

Measure Algorithm:

PBM–07: Preoperative Blood Type Testing and Antibody Screening

Numerator: Patients with documentation of preoperative type and crossmatch or type and screen completed prior to Anesthesia Start Time

Denominator: Selected elective surgical patients



Related Topics

Data Element Name: *Admission From Home*

Collected For: PBM-06,

Definition: Patient was admitted for the pre-scheduled elective surgery procedure from home.

Suggested Data Collection Question: Was the patient admitted from home?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 Patient was admitted from home.

2 Patient was not admitted from home or unable to determine from medical record documentation.

Notes for Abstraction:

- Patients who have to stay overnight at a location other than their primary residence due to long distance travel for procedure are considered admitted from home.

Suggested Data Sources:

- Face sheet
- Nursing admission assessment
- Physician's notes
- Preop checklist

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Anesthesia Start Date*
Collected For:	PBM-06,
Definition:	The date the anesthesia for the procedure started.
Suggested Data Collection Question:	On what date did the anesthesia for the procedure start?
Format:	**Length:** 10 – MM-DD-YYYY (includes dashes) **Type:** Date **Occurs:** 1
Allowable Values:	MM-DD-YYYY MM = Month (01-12) DD = Day (01-31) YYYY = Year (2001-Current Year) Leave Blank if Unable to Determine
Notes for Abstraction:	If the Anesthesia Start Date cannot be determined from medical record documentation, enter UTD. When the date documented is obviously invalid (not a valid format/range [12-39-20xx] or after the Discharge Date or Anesthesia End Date) and no other documentation can be found that provides the correct information, the abstractor should select "UTD." Example: Patient expires on 02-12-20xx and documentation indicates the Anesthesia Start Date was 03-12-20xx. Other documentation in the medical record supports the date of death as being accurate, but no other documentation of the Anesthesia Start Date can be found. Since the Anesthesia Start Date is outside of the parameter for care (after the Discharge Date [death]) and no other documentation is found, the abstractor should leave blank. If the Anesthesia Start Date is incorrect (in error) but it is a valid date and the correct date can be supported with other documentation in the medical record, the correct date may be entered. If supporting documentation of the correct date cannot be found, the medical record must be abstracted as documented or at "face value." Examples: The anesthesia form is dated 12-10-2007, but other documentation in the medical record supports that the correct date was 12-10-2009. Enter the correct date of 12-10-2009 as the Anesthesia Start Date. An Anesthesia End Date of 11-20-20xx is documented but the Anesthesia Start Date is documented as 11-10-20xx. If no other documentation can be found to support another Anesthesia Start Date, then it must be abstracted as 11-10-20xx because the date is not considered invalid or outside the parameter of care.

Suggested Data Sources:

Other Suggested Sources:

- Intraoperative record
- Circulator record
- Post-anesthesia evaluation record
- Operating room notes

Additional Notes:

Suggested Data Sources:

Note: The anesthesia record is the priority data source for this data element, if a valid Anesthesia Start Date is found on the anesthesia record, use that date. If a valid date is not on the anesthesia record, other suggested data sources may be used in no particular order to determine the Anesthesia Start Date.

Priority Source:

- Anesthesia record

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Blood Administration Location*
Collected For:	PBM-02, PBM-03, PBM-04, PBM-05,
Definition:	The hospital setting (intraoperative or non-intraoperative) where the blood product began infusing.
Suggested Data Collection Question:	In what setting did the blood product begin infusing?
Format:	**Length:** 1 **Type:** Alphanumeric **Occurs:** 1-12

Allowable Values:

1 Intraoperative setting

2 Non-introperative setting

3 Unable to determine

Notes for Abstraction:

- Select setting for each unit transfused based on the physical location of the patient.
- Intraoperative setting is anytime during the operation.
- Non-intraoperative setting is any area outside of the operating room. For example, setting such as the intensive care unit, surgical floor or emergency room.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Nursing notes
- Nursing flow sheet
- Nursing admission assessment
- Progress notes
- Physician's notes
- Operative notes
- Operating room notes
- Operative report
- Procedure notes
- ICU notes
- PACU/recovery room record

Blood Administration Documentation Sheet

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Blood Bank Records*

Collected For: PBM-01, PBM-02, PBM-03, PBM-04, PBM-05,

Definition: Documentation that the patient received red blood cells (RBCs), plasma or platelets after hospital arrival.

Suggested Data Collection Question: Was there documentation that the patient received RBCs, plasma or platelets after hospital arrival?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1-12

Allowable Values:

Select all that apply: 1 RBCs

2 Plasma

3 Platelets

4 None of the above or unable to determine from medical record documentation

Notes for Abstraction:

- Include transfusions given in the emergency room or observation area.

Suggested Data Sources: Blood Bank Records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name: *Blood ID Number*

Collected For: PBM-05,

Definition: Documentation of the actual blood bank identification number in the intraoperative record for the unit that was transfused.

Suggested Data Collection Question: Was there documentation of a blood bank identification number for the unit or dose of blood transfused during surgery?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 There is documentation of a blood bank identification number for the unit that was transfused.

2 There is no documentation of a blood bank identification number for the unit that was transfused or unable to determine from medical record documentation.

Notes for Abstraction:

Suggested Data Sources:

- Anesthesia record
- Operative report

Blood administration record

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Blood Type Testing Ordered*

Collected For: PBM-07,

Definition: A type and screen and/or type and crossmatch was ordered preoperatively for the elective surgery.

Suggested Data Collection Question: Was a type and screen and/or type and crossmatch ordered preoperatively?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 A type and screen and/or type and crossmatch was ordered preoperatively.

2 A type and screen and/or type and crossmatch was not ordered preoperatively or unable to determine

Notes for Abstraction:

Suggested Data Sources:

- Physician orders
- Preop checklist

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for Plasma*

Collected For: PBM-03,

Definition: Documentation by the physician/advance practice nurse/physician assistant or (physician/APN/PA) of the clinical indication for the plasma transfusion unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused plasma unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused plasma unit.

2 There was no documentation of a clinical indication for the transfusion or unable to determine from the medical record.

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first four plasma transfusion units closest to hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING BLOOD:

- Anesthesia record
- Consultation notes
- Emergency department record
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for Platelets*

Collected For: PBM-04,

Definition: Documentation by the physician/advance practice nurse/physician assistant (physician/APN/PA) of the clinical indication for the transfused platelet unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused platelet unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused platelet unit.

2 There was no documentation of clinical indication for the platelet transfusion or unable to determine from the medical record

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first three units transfused after hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING PLASMA:

- Anesthesia record
- Consultation notes
- Emergency department record
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for RBCs*

Collected For: PBM-02,

Definition: Documentation by the physician/advance practice nurse/physician assistant (physician/APN/PA) of the clinical indication for the tranfused red blood cell (RBCs) unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused RBC unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 6

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused RBC unit.

2 There was no clinical indication documented by the physician/APN/PA for the transfused RBC unit or unable to determine from medical record documentation.

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first six RBC transfusion units after hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING RBCs:

- Anesthesia record
- Consultation notes
- Emergency department record
- Operative notes
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Education Addressed Risks, Benefits and Alternatives to Transfusion*
Collected For:	PBM-01,
Definition:	Documentation that information addressing risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion or the initial transfusion was deemed a medical emergency after hospital arrival.
Suggested Data Collection Question:	Was there documentation that information regarding risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion event or was the initial transfusion deemed a medical emergency after hospital arrival?
Format:	**Length:** 1 **Type:** Numeric **Occurs:** 1

Allowable Values:

1 Information addressing the risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion after hospital arrival.

2 Information addressing the risks, benefits and alternatives to transfusion was not given to the patient/caregiver prior to the initial transfusion after hospital arrival or unable to determine from medical record documentation.

Notes for Abstraction:

- Use only documentation provided in the medical record.
- If the patient refused information about risks, benefits and alternatives to transfusion, select “1.”
- The caregiver is defined as the patient’s family or any other person (e.g., guardian) who will be responsible for care of the patient.

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Nursing notes
- Progress notes
- Operative notes
- Admission forms
- Consent form
- Emergency department record
- Progress notes
- Nursing notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Patient ID Verification*

Collected For: PBM-05,

Definition: Documentation that two unique patient identifiers were checked during a two-person verification process (or the use of automated identification technology may be used in place of one of the individuals) prior to the administration of the transfusion unit/dose (bag).

Suggested Data Collection Question: Was there documentation that two unique patient identifiers were checked or automated identification was used in place of one person during the verification process prior to the administration of the blood transfusion unit/dose (bag)?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 12

Allowable Values:

1 There was documentation that two unique patient identifiers were checked during the two person verification process or an automated identification system was used in place of one of the individuals prior to the administration of the transfusion unit/dose (bag).

2 There was no documentation that two unique patient identifiers or automated identification were used during the two-person identification check prior to the administration of the transfusion unit/dose (bag) or unable to determine from medical record documentation.

Notes for Abstraction:

- *Patient ID Verification* must be associated with the blood product and RBC ID that was selected for abstraction.
- *Patient ID Verification* can be documented by the signature of two persons that attest that two unique patient identifiers were checked to verify the identification of the patient prior to the transfusion or the signature of one person and an automated identification device.
- Patient identifiers that could be used include; name, date of birth, patient identification number or unique identifier given at the time the crossmatch was drawn.
- The patient room number should not be used to identify the patient.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Nursing notes
- Progress notes
- Physician's notes
- Operative notes
- Operative report
- Procedure notes
- PACU/recovery room record

- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Plasma ID*

Collected For: PBM-03, PBM-05,

Definition: The number assigned to designate whether the plasma unit was the first, second or third unit transfused after hospital arrival.

Suggested Data Collection Question: What number was assigned to the plasma unit selected for abstraction?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 First Plasma Unit

2 Second Plasma Unit

3 Third Plasma Unit

Notes for Abstraction:

- The abstractor assigns a plasma identification (ID) number for each unit evaluated.
- Each allowable value is only used one time and is determined by the order in which it was administered.
- Abstract up to three plasma transfusion units per patient.
- Include plasma transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Platelet ID*

Collected For: PBM-04, PBM-05,

Definition: The number assigned to designate whether the platelet unit was the first, second or third unit that was transfused after hospital arrival.

Suggested Data Collection Question: What number was assigned to the platelet unit selected for abstraction?

Format:

Length: 2
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 First Platelet Unit

2 Second Platelet Unit

3 Third Platelet Unit

Notes for Abstraction:

- The abstractor assigns a platelet identification (ID) number for each unit evaluated.
- Each allowable value is only used one time and is determined by the order in which it was administered.
- Abstract up to three platelet units per patient
- Include platelet transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Hematocrit*

Collected For: PBM-02,

Definition: Documentation of the closest hematocrit (hct) completed prior to the RBC transfusion.

Suggested Data Collection Question: What was documented as the closest pre-transfusion hct prior to the RBC transfusion?

Format:

Length: 4
Type: Alphanumeric
Occurs: 1 - 6

Allowable Values:

Enter the patient's closest hematocrit result (number only, reported in percent) performed prior to each RBC transfusion.

UTD = Unable to Determine

- For abstraction, select either the pre-transfusion hematocrit or the hemoglobin result; both are not required.
- Select the result associated with the RBC ID selected for abstraction.
- When recording the allowable value for hematocrit, input 23.00 if the patient's hematocrit is 23%.

Notes for Abstraction:

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Hemoglobin*

Collected For: PBM-02,

Definition: Documentation of the closest hemoglobin (hgb) completed prior to the RBC transfusion.

Suggested Data Collection Question: What was documented as the closest pre-transfusion hgb prior to the RBC transfusion?

Format:

Length: 4
Type: Alphanumeric
Occurs: 1 - 6

Allowable Values:

Enter the patient's closest hemoglobin result reported in g/dL performed prior to transfusion.

UTD = Unable to Determine

- For abstraction, select either the pre-transfusion hematocrit or the hemoglobin result; both are not required.
- Select the hemoglobin result that is associated with the RBC ID selected for abstraction.
- If the hemoglobin result is 9.9 g/dL, enter 9.9.

Notes for Abstraction:

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion PT/INR Result*

Collected For: PBM-03,

Definition: Documentation of PT/INR result completed prior to the plasma transfusion.

Suggested Data Collection Question: What was the PT/INR result completed prior to the plasma transfusion.

Format:

Length: 1 - 5
Type: Alphanumeric
Occurs: 1 - 3

Allowable Values:

Enter the closest PT/INR result to the plasma transfusion.

UTD = Unable to determine

Notes for Abstraction:

- Enter the PT/INR result that is associated with the plasma ID selected for abstaction.
- An allowable value should be entered with one decimal. For example, a PT/INR of 1.5 should be entered as written. INR values over 10 should be entered as 10.00.

Suggested Data Sources:

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Platelet Count*

Collected For: PBM-04,

Definition: Documentation of the closest platelet count completed prior to the platelet transfusion.

Suggested Data Collection Question: What was the closest platelet count documented prior to the platelet transfusion?

Format:

Length: 1 - 5
Type: Alphanumeric
Occurs: 1 - 3

Allowable Values:

Enter the patient's closest platelet count result, in 10^9/µL performed prior to the platelet transfusion selected for abstraction.

UTD = Unable to Determine

Note:

- Select the platelet count result that is associated with the Platelet ID selected for abstraction.
- An allowable value for a platelet count result should be entered as '11.00' for a platelet count of 11,000.

Notes for Abstraction:

Suggested Data Sources:

- Anesthesia record
- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Preoperative Anemia Screening Date*

Collected For: PBM-06,

Definition: The date that preoperative anemia screening or a hemoglobin (hgb)or hematocrit (hct) result was completed.

Suggested Data Collection Question: What date was preoperative anemia screening or a hgb or hct result completed?

Format:

Length: 10 - MM-DD-YYYY (includes dashes)
Type: Date
Occurs: 1

Allowable Values:

MM-DD-YYYY

MM = Month (01-12)
DD = Day (01-31)
YYYY = Year (2001-Current Year)
UTD

Notes for Abstraction:

- Select the *Preoperative Anemia Screening Date* associated with the elective surgical procedure selected for abstraction.*Preoperative Transfusion Testing*.
- The medical record must be abstracted as documented (taken at "face value"). When the date documented is obviously in error (not a valid date/format) and no other documentation is found that provides this information, the abstractor should select UTD.
- Example: Documentation indicates the Preoperative Anemia Screening Date was 03-42-2008. No other documentation in the medical record provides a valid date. Since the Preoperative Anemia Screening Date is outside of the range listed in the Allowable Values for "Day," it is not a valid date, and the abstractor should select UTD.

Suggested Data Sources:

- Nursing notes
- Progress notes
- Preop checklist
- Pre-arrival laboratory reports

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Preoperative Blood Type Testing*

Collected For: PBM-07,

Definition: Documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time.

Suggested Data Collection Question: Was there documentation of a type and screen or type and crossmatch completed prior to anesthesia start time?

Format:

Length: 1
Type: Numeric
Occurs: 1

Allowable Values:

1 There is documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time.

2 There is no documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time or unable to determine from medical record documentation.

Notes for Abstraction:

- If type and screen and type and crossmatch were completed prior to the surgical procedure, select “1”.
- Anesthesia Start Time is the same as surgery start time.

Suggested Data Sources:

- Consultation notes
- History and physical
- Progress notes
- Preop checklist
- Pre-arrival laboratory reports

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *RBC ID*

Collected For: PBM-02, PBM-05,

Definition: The number assigned to designate whether the RBC transfusion was the first through the sixth RBC transfusion unit that was transfused after hospital arrival.

Suggested Data Collection Question: What RBC unit was selected for abstraction?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 6

Allowable Values:

1 First RBC Unit

2 Second RBC Unit

3 Third RBC Unit

4 Fourth RBC Unit

5 Fifth RBC Unit

6 Sixth RBC Unit

Notes for Abstraction:

- The abstractor assigns a RBC identification (ID) number for each unit evaluated.
- Each allowable value is used only one time and is determined by the order in which it was administered.
- Abstract up to six RBC transfusion units per patient.
- Include RBC transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Operative report
- Medication administration record (MAR)
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion

None	None

Data Element Name:	*RBC Unit Exclusions*
Collected For:	PBM-02, PBM-05,
Definition:	Red blood cell (RBC) units that are excluded from abstraction. The following RBC units excluded from abstraction are; units used for a massive transfusion protocol or documentation of hemorrhagic shock, uncrossmatched units given during an emergency situation and units used to prime equipment for treatment.
Suggested Data Collection Question:	Was this unit transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment?
Format:	**Length:** 1 **Type:** Alphanumeric **Occurs:** 1-6

Allowable Values:

1. There was documentation that this unit was transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment

1. There was no documentation that this unit was transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment or unable to determine from medical record documentation.

Notes for Abstraction:

- If the initial six units transfused are excluded due to the exclusion criteria, abstract the next six units that were tranfused. If the patient only received RBC units that are excluded, then no RBC units should be abstracted.

Suggested Data Sources:

- Anesthesia record
- Circulation record
- Emergency department record
- Laboratory report
- Nursing notes
- Nursing flow sheet
- Progress notes
- Physician orders
- Physician’s notes
- Operative notes
- Operating room notes
- Operative report
- Procedure notes
- ICU notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Surgery Scheduled Timeframe*

Collected For: PBM-06,

Definition: The elective surgery was scheduled in less than 14 days from the planned surgery start date.

Suggested Data Collection Question: Was the elective surgery scheduled in less than 14 days from the planned surgery?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 There was documentation that the elective surgery was scheduled in less than 14 days from the planned surgery.

2 There was no documentation that the elective surgery was scheduled in less than 14 days from the planned surgery or unable to determine from medical record documentation.

Notes for Abstraction:

Suggested Data Sources:

- Preop checklist

Preoperative paperwork

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Transfusion Consent*

Collected For: PBM-01,

Definition: Documentation of a signed consent **prior** to the first transfusion of RBCs, platelets or plasma.

Suggested Data Collection Question: Was there documentation of a signed consent **prior** to the first blood transfusion?

Format:

Length: 1
Type: Numeric
Occurs: 1

Allowable Values:

1 There was documentation of a signed consent prior to the first blood transfusion.

2 The first blood transfusion was deemed a medical emergency.

3 There was no documentation of a blood transfusion consent prior to the first blood transfusion or unable to determine from medical record documentation.

Notes for Abstraction:

- The consent may be signed by the patient or caregiver.
- If organizations require a consent prior to every transfusion, then review the record for the first transfusion to answer this data element.
- For hospitals that use a general consent for treatment that includes transfusions, select “Yes”.
- If a patient receives chronic transfusions and a previous consent is acceptable for a defined timeframe within the institution, select “1” if the consent is valid.

Suggested Data Sources:

- Emergency department record
- History and physical
- Nursing notes
- Progress notes
- Operative notes
- Consent form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Transfusion Order*

Collected For: PBM-05,

Definition: An order to transfuse was written by the physician/advance practice nurse/physician assistant (physician/APN/PA) **prior** to the initiation of the transfusion.

Suggested Data Collection Question: Was there documentation of an order to transfuse **prior** to the transfusion?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 12

Allowable Values:

1 There was documentation of an order to transfuse prior to transfusion.

2 There was no documentation of an order to transfuse prior to transfusion or unable to determine from medical record documentation.

Notes for Abstraction:

- A verbal or telephone order that was written prior to the transfusion is acceptable.
- The Transfusion Order must be associated with the blood product unit ID that was selected for abstraction.
- Note: Transfusion Order may apply to more than one unit/dose (bag). For example: An order written to "Transfuse two doses of platelets" would apply to both bags that were administered.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE ORDER TO TRANSFUSE:

- Anesthesia record
- Consultation notes
- Emergency department record
- Operative notes
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Transfusion Start Date*
Collected For:	PBM-05,
Definition:	The date that the blood transfusion unit/dose (bag) was administered.
Suggested Data Collection Question:	What is the date that the blood transfusion unit/dose (bag) was administered?
Format:	**Length:** 10 – MM-DD-YYYY (includes dashes) **Type:** Date **Occurs:** 1 - 12
Allowable Values:	MM-DD-YYYY MM = Month (01-12) DD = Day (01-31) YYYY = Year (2001-Current Year) UTD
Notes for Abstraction:	• Abstract the Transfusion Date associated with the Transfusion Start Time of the unit/dose (bag) from the blood product ID selected for abstraction. • Some of the dates of the transfusion units may be the same date. Record a transfusion date for each unit abstracted up to three units for plasma or platelets or up to six units for RBCs. • The medical record must be abstracted as documented (taken at "face value"). When the date documented is obviously in error (not a valid date/format) and no other documentation is found that provides this information, the abstractor should select UTD. Example: Documentation indicates the Transfusion Start Date was 03-42-2008. No other documentation in the medical record provides a valid date. Since the Transfusion Start Date is outside of the range listed in the Allowable Values for "Day," it is not a valid date and the abstractor should select UTD.
Suggested Data Sources:	• Anesthesia record • Emergency department record • Nursing notes • Progress notes • Operative notes • Blood administration record
Additional Notes:	

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Transfusion Start Time*
Collected For:	PBM-05,
Definition:	The start time (military time) of the unit/dose (bag) of RBCs, plasma or platelets that was administered.
Suggested Data Collection Question:	What was the start time of the blood unit/dose (bag) administration?
Format:	**Length:** 5 - HH:MM (with or without colon) or UTD **Type:** Time **Occurs:** 1 - 12

Allowable Values:

Select the Transfusion Start Time associated with the Transfusion Start Date of the unit/dose (bag) from the associated blood product ID being abstracted.

HH = Hour (00-23)
MM = Minutes (00-59)
UTD = Unable to Determine

Notes for Abstraction:

Time must be recorded in military time format. With the exception of Midnight and Noon:

- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour

Examples:
Midnight - 00:00 Noon - 12:00
5:31 am - 05:31 5:31pm - 17:31
11:59 am - 11:59 11:59pm - 23:59

- For times that include “seconds,” remove the seconds and record the time as is. Example: 15:00:35 would be recorded as 15:00
- If more than one Transfusion Start Time is documented, use the earliest time documented.
- The medical record must be abstracted as documented (taken at “face value”). When the time documented is obviously in error (not a valid format/range) and no other documentation is found that provides this information, the abstractor should select “UTD.”
- Example: Documentation indicates the Transfusion Start Time was 3300. Since the Transfusion Start Time is outside of the range in the Allowable Values for “Hour,” it is not a valid time and the abstractor should select “UTD.”

Suggested Data Sources:

- Anesthesia record

- Emergency department record
- Nursing notes
- Operative notes
- Operative report
- Blood administration form

Additional Notes:

Select the Transfusion Start Time associated with the Transfusion Start Date of the unit/dose (bag) from the blood product ID identified for abstraction.

Time must be recorded in military time format.
With the exception of Midnight and Noon:

- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour.

The medical record must be abstracted as documented (taken at "face value"). When the time documented is obviously in error (not a valid format/range) and no other documentation is found that provides this information, the abstractor should select "UTD."

Example:
Documentation indicates the Transfusion Start Time was 3300. Since the Transfusion Start Time is outside of the range in the Allowable Values for "Hour," it is not a valid time and the abstractor should select "UTD."

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Vital Sign Monitoring*
Collected For:	PBM-05,
Definition:	Documentation of blood pressure (BP), pulse and temperature monitored at specific intervals for the transfusion. The intervals are: • Pre-transfusion, within 15 minutes of the initiation of the transfusion and within one hour of transfusion completion
Suggested Data Collection Question:	Was there documentation of BP and temperature monitored for all of the specified intervals for the transfusion?
Format:	**Length:** 2 **Type:** Numeric **Occurs:** 1 -12
Allowable Values:	**1** There was documentation for all of the BP, pulse and temperature monitoring intervals for the transfusion. **2** There was no documentation for all of the blood pressure, pulse and temperature monitoring intervals for the transfusion or unable to determine from medical record documentation.
Notes for Abstraction:	• All vital signs must be recorded at the following times: pre-transfusion, within 15 minutes of the initiation of the transfusion and within one hour of transfusion completion. To select "1", all recordings must be documented. • The pre-transfusion BP, pulse and temperature must be within one hour of the Transfusion Start Time. Vitals documented at the start of the transfusion are considered “within one hour of transfusion initiation". • For blood that may be transfused within 15 minutes, select "1" if the pre-transfusion and the within one hour of transfusion completion vitals are documented. • Vitals documented at the completion of the transfusion are considered “within one hour of transfusion completion". • The "unit" or "dose" information for the Vital Sign Monitoring data element must be associated with the blood product ID that was selected for abstraction.
Suggested Data Sources:	• Anesthesia record • Consultation notes • Emergency department record • Nursing notes • Progress notes • Operative notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 2.2 Left Ventricular Assistive Device (LVAD) and Heart Transplant		
Code	ICD-9-CM Description	Shortened Description
33.6	Combined heart-lung transplantation	COMB HEART/LUNG TRANSPLA
37.51	Heart transplantation	HEART TRANSPLANTATION
37.52	Implantation of total replacement heart system	IMPLANT TOT REP HRT SYS
37.53	Replacement or repair of thoracic unit of total replacement heart system	REPL/REP THORAC UNIT HRT
37.54	Replacement or repair of other implantable component of total replacement heart system	REPL/REP OTH TOT HRT SYS
37.62	Insertion of non-implantable heart assist system	INS NON-IMPL HRT ASSIST
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of heart assist system	REMOVE HEART ASSIST SYS
37.65	Implant of external heart assist system	IMP EXT HRT ASSIST SYST
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.68	Insertion of percutaneous external heart assist device	PERCUTAN HRT ASSIST SYST

Table 5.01 Coronary Artery Bypass Graft (CABG)		
Code	ICD-9-CM Description	Shortened Description
36.10	Aortocoronary bypass for heart revascularization, not otherwise specified	AORTOCORONARY BYPASS NOS
36.11	(Aorto)coronary bypass of one coronary artery	(AORTO)COR BYPAS-1 COR ART
36.12	(Aorto)coronary bypass of two coronary arteries	(AORTO)COR BYPAS-2 COR ART
36.13	(Aorto)coronary bypass of three coronary arteries	(AORTO)COR BYPAS-3 COR ART
36.14	(Aorto)coronary bypass of four coronary arteries	(AORT)COR BYPAS-4+ COR ART
36.15	Single internal mammary-coronary artery bypass	1 INT MAM-COR ART BYPASS
36.16	Double internal mammary-coronary artery bypass	2 INT MAM-COR ART BYPASS
36.17	Abdominal-coronary artery bypass	ABD-CORON ARTERY BYPASS
36.19	Other bypass anastomosis for heart revascularization	HRT REVAS BYPS ANAS NEC

Table 5.02 Other Cardiac Surgery		
Code	ICD-9-CM Description	Shortened Description
35.10	Open heart valvuloplasty, without replacement, unspecified valve	OPEN VALVULOPLASTY NOS
35.11	Open heart valvuloplasty of aortic valve without replacement	OPN AORTIC VALVULOPLASTY
35.12	Open heart valvuloplasty of mitral valve without replacement	OPN MITRAL VALVULOPLASTY
35.13	Open heart valvuloplasty of pulmonary valve without replacement	OPN PULMON VALVULOPLASTY
35.14	Open heart valvuloplasty of tricuspid valve without	OPN TRICUS

	replacement	VALVULOPLASTY
35.20	Replacement of unspecified heart valve	REPLACE HEART VALVE NOS
35.21	Replacement of aortic valve with tissue graft	REPLACE AORT VALV-TISSUE
35.22	Other replacement of aortic valve	REPLACE AORTIC VALVE NEC
35.23	Replacement of mitral valve with tissue graft	REPLACE MITR VALV-TISSUE
35.24	Other replacement of mitral valve	REPLACE MITRAL VALVE NEC
35.25	Replacement of pulmonary valve with tissue graft	REPLACE PULM VALV-TISSUE
35.26	Other replacement of pulmonary valve	REPLACE PULMON VALVE NEC
35.27	Replacement of tricuspid valve with tissue graft	REPLACE TRIC VALV-TISSUE
35.28	Other replacement of tricuspid valve	REPLACE TRICUSP VALV NEC
35.31	Operations on papillary muscle	PAPILLARY MUSCLE OPS
35.32	Operations on chordae tendineae	CHORDAE TENDINEAE OPS
35.33	Annuloplasty	ANNULOPLASTY
35.34	Infundibulectomy	INFUNDIBULECTOMY
35.35	Operations on trabeculae carneae cordis	TRABECUL CARNEAE CORD OP
35.39	Operations on other structures adjacent to valves of heart	TISS ADJ TO VALV OPS NEC
35.42	Creation of septal defect in heart	CREATE SEPTAL DEFECT
35.50	Repair of unspecified septal defect of heart with prosthesis	PROSTH REP HRT SEPTA NOS
35.51	Repair of atrial septal defect with prosthesis, open technique	PROS REP ATRIAL DEF-OPN
35.53	Repair of ventricular septal defect with prosthesis, open technique	PROS REP VENTRIC DEF-OPN
35.54	Repair of endocardial defect with prosthesis	PROS REP ENDOCAR CUSHION
35.60	Repair of unspecified septal defect with tissue graft	GRFT REPAIR HRT SEPT NOS
35.61	Repair of atrial septal defect with tissue graft	GRAFT REPAIR ATRIAL DEF
35.62	Repair of ventricular septal defect with tissue graft	GRAFT REPAIR VENTRIC DEF
35.63	Repair of endocardial cushion defect with tissue graft	GRFT REP ENDOCAR CUSHION
35.70	Other and unspecified repair of unspecified septal defect of heart	HEART SEPTA REPAIR NOS
35.72	Other and unspecified repair of ventricular septal defect	VENTR SEPTA DEF REP NEC
35.73	Other and unspecified repair of endocardial cushion defect	ENDOCAR CUSHION REP NEC
35.81	Total repair of tetralogy of Fallot	TOT REPAIR TETRAL FALLOT
35.82	Total repair of total anomalous pulmonary venous connection	TOTAL REPAIR OF TAPVC
35.83	Total repair of truncus arteriosus	TOT REP TRUNCUS ARTERIOS
35.84	Total correction of transposition of great vessels, not elsewhere classified	TOT COR TRANSPOS GRT VES
35.91	Interatrial transposition of venous return	INTERAT VEN RETRN TRANSP

35.92	Creation of conduit between right ventricle and pulmonary artery	CONDUIT RT VENT-PUL ART
35.93	Creation of conduit between left ventricle and aorta	CONDUIT LEFT VENTR-AORTA
35.94	Creation of conduit between atrium and pulmonary artery	CONDUIT ARTIUM-PULM ART
35.98	Other operations on septa of heart	OTHER HEART SEPTA OPS
35.99	Other operations on valves of heart	OTHER HEART VALVE OPS

Table 5.08 Vascular Surgery

Code	ICD-9-CM Description	Shortened Description
38.14	Endarterectomy, aorta	ENDARTERECTOMY OF AORTA
38.16	Endarterectomy, abdominal arteries	ABDOMINAL ENDARTERECTOMY
38.18	Endarterectomy, lower limb arteries	LOWER LIMB ENDARTEREC T
38.34	Resection of vessel with anastomosis, aorta	AORTA RESECTION & ANAST
38.36	Resection of vessel with anastomosis, abdominal arteries	ABD VESSEL RESECT/ANAST
38.37	Resection of vessel with anastomosis, abdominal veins	ABD VEIN RESECT & ANAST
38.44	Resection of vessel with replacement, aorta, abdominal	RESECT ABDM
38.48	Resection of vessel with replacement, lower limb arteries	LEG ARTERY RESEC W REPLA
38.49	Resection of vessel with replacement, lower limb veins	LEG VEIN RESECT W REPLAC
38.64	Other excision of vessels, aorta, abdominal	EXCISION OF AORTA
39.25	Aorta-iliac-femoral bypass	AORTA-ILIAC-FEMOR BYPASS
39.26	Other intra-abdominal vascular shunt or bypass	INTRA-ABDOMIN SHUNT NEC
39.29	Other (peripheral) vascular shunt or bypass	VASC SHUNT & BYPASS NEC

Table 5.11 Cardiac Surgery

Code	ICD-9-CM Description	Shortened Description
35.10	Open heart valvuloplasty without replacement, unspecified valve	OPEN VALVULOPLASTY NOS
35.11	Open heart valvuloplasty of aortic valve without replacement	OPN AORTIC VALVULOPLASTY
35.12	Open heart valvuloplasty of mitral valve without replacement	OPNMITRAL VALVULOPLASTY
35.13	Open heart valvuloplasty of pulmonary valve without replacement	OPN PULMON VALVULOPLASTY
35.14	Open heart valvuloplasty of tricuspid valve without replacement	OPN TRICUS VALVULOPLASTY
35.20	Replacement of unspecified heart valve	REPLACE HEART VALVE NOS
35.21	Replacement of aortic valve with tissue graft	REPLACE AORT VALVE-TISSUE
35.22	Other replacement of aortic valve	REPLACE AORT VALVE NEC

35.23	Replacement of mitral valve with tissue graft	REPLACE MITR VALVE-TISSUE
35.24	Other replacement of mitral valve	REPLACE MITRAL VALVE NEC
35.25	Replacement of pulmonary valve with tissue graft	REPLACE PULM VALV-TISSUE
35.26	Other replacement of pulmonary valve	REPLACE PULMON VALVE NEC
35.27	Replacement of tricuspid valve with tissue graft	REPLACE TRICUSP VALV NEC
35.28	Other replacement of tricuspid valve	REPLACE TRICUSP VALV NEC
35.31	Operations on papillary muscle	PAPILLARY MUSCLE OPS
35.32	Operations on chordae tendineae	CHORDAE TENDINEAE OPS
35.33	Annuloplasty	ANNULOPLASTY
35.34	Infundibulectomy	INFUNDIBULECTOMY
35.35	Operations of trabeculae carneae cordis	TRABECUL CARNEAE CORD OP
35.39	Operations on other structures adjacent to valves of heart	TISS ADJ TO VALV OPS NEC
35.42	Creation of septal defect in heart	CREATE SEPTAL DEFECT
35.50	Repair of unspecified septal defect of heart with prosthesis	PROSTH REP HRT SEPTA NOS
35.51	Repair of atrial septal defect with prosthesis, open technique	PROS REP ATRIAL DEF-OPN
35.53	Repair of ventricular septal defect with prosthesis, open technique	PROS REP VENTRIC DEF-OPN
35.54	Repair of endocardial cushion defect with prosthesis	PROS REP ENDOCAR CUSHION
35.60	Repair of unspecified septal defect of heart with tissue graft	GRFT REPAIR HRT SEPT NOS
35.61	Repair of atrial septal defect with tissue graft	GRAFT REPAIR ATRIAL DEF
35.62	Repair of ventricular septal defect with tissue graft	GRAFT REPAIR VENTRIC DEF
35.63	Repair of endocardial cushion defect with tissue graft	GRFT REP ENDOCAR CUSHION
35.70	Other and unspecified repair of unspecified septal defect of heart	HEART SEPTA REPAIR NOS
35.71	Other and unspecified repair of atrial septal defect	ATRIA SEPTA DEF REP NEC
35.72	Other and unspecified repair of ventricular septal defect	VENTR SEPTA DEF REP NEC
35.73	Other and unspecified repair of endocardial cushion defect	ENDOCAR CUSHION REP NEC
35.81	Total repair of tetralogy of Fallot	TOT REPAIR TETRAL FALLOT
35.82	Total repair of total anomalous pulmonary venous connection	TOTAL REPAIR OF TAPVC
35.83	Total repair of truncus arteriosus	TOT REP TRUNCUS ARTERIOS

Table 5.11 Cardiac Surgery (cont.)		
Code	ICD-9-CM Description	Shortened Description

35.84	Total connection of transposition of great vessels, not elsewhere classified	TOT COR TRANSPOS GRT VES
35.91	Interatrial transposition of venous return	INTERAT VEN RETRN TRANSP
35.92	Creation of conduit between right ventricle and pulmonary artery	CONDUIT RT VENT-PUL ART
35.93	Creation of conduit between left ventricle and aorta	CONDUIT LEFT VENTR-AORTA
35.94	Creation of conduit between atrium and pulmonary artery	CONDUIT ARTIUM-PULM ART
35.98	Other operations on septa of heart	OTHER HEART SEPTA OPS
35.99	Other operations on valves of heart	OTHER HEART VALVE OPS
36.03	Open chest coronary artery angioplasty	OPEN CORONRY ANGIOPLASTY
36.10	Aortocoronary bypass for heart revascularization, not otherwise specified	AORTOCORONARY BYPASS NOS
36.11	Aortocoronary bypass of one coronary artery	AORTOCOR BYPASS-1 COR ART
36.12	Aortocoronary bypass of two coronary arteries	AORTOCOR BYPASS-2 COR ART
36.13	Aortocoronary bypass of three coronary arteries	AORTOCOR BYPASS-3 COR ART
36.14	Aortocoronary bypass of four or more coronary arteries	AORTOCOR BYPASS-4+ COR ART
36.15	Single internal mammary-coronary artery bypass	1 INT MAM-COR ART BYPASS
36.16	Double internal mammary-coronary artery bypass	2 INT MAM-COR ART BYPASS
36.17	Abdominal-coronary artery bypass	ABD-CORON ARTERY BYPASS
36.19	Other bypass anastomosis for heart revascularization	HRT REVAS BYPS ANAS NEC
36.31	Open chest transmyocardial revascularization	OPEN CHEST TRANS REVASC
36.32	Other transmyocardial revascularization	OTH TRANSMYO REVASCULAR
36.39	Other heart revascularization	OTH REVASCULAR
36.91	Repair of aneurysm of coronary vessel	CORON VESS ANEURYSM REP
36.99	Other operations on vessels of heart	HEART VESSEL OP NEC
37.10	Incision of heart, not otherwise specified	INCISION OF HEART NOS
37.11	Cardiotomy	CARDIOTOMY
37.31	Pericardiectomy	PERICARDIECTOMY
37.32	Excision of aneurysm of heart	HEART ANEURYSM EXCISION
37.33	Excision or destruction of other lesion or tissue of heart, open approach	EXC/DEST HRT LESION OPEN
37.35	Partial ventriculectomy	PARTIAL VENTRICULECTOMY
37.41	Implantation of prosthetic cardiac support device around the heart	IMPL CARDIAC SUPPORT DEV
37.49	Other repair of heart and pericardium	HEART/PERICARD REPR NEC
37.51	Heart transplantation	HEART TRANSPLANTATION

37.52	Implantation of total replacement heart system	IMPLANT TOT REP HRT SYS
37.53	Replacement or repair of thoracic unit of total replacement heart system	REPL/REP THORAC UNIT HRT
37.54	Replacement or repair of other implants component of total replacement heart system	REPL/REP OTH TOT HRT SYS
37.62	Insertion of non-implantable heart assist system	INS NON-IMPL HRT ASSIST
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of heart assist system	REMOVE HEART ASSIST SYS
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.67	Implantation of cardiomyostimulation system	IMP CARDIOMYOSTIMUL SYS

Table 5.22 Elective Hip Replacement

Code	ICD-9-CM Description	Shortened Description
00.70	Revision of hip replacement, both acetabular and femoral components	REV HIP REPL-ACETAB/FEM
00.71	Revision of hip replacement, acetabular component	REV HIP REPL-ACETAB COMP
00.72	Revision of hip replacement, femoral component	REV HIP REPL-FEM COMP
00.73	Revision of hip replacement, acetabular liner and/or femoral head only	REV HIP REPL-LINER/HEAD
00.77	Hip bearing surface, ceramic-on-polyethylene	HIP SURFACE, CERMC/POLY
00.85	Resurfacing hip, total, acetabulum and femoral head	RESRF HIP,TOTAL-ACET/FEM
00.86	Resurfacing hip, partial, femoral head	RESRF HIP,PART-FEM HEAD
00.87	Resurfacing hip, partial, acetabulum	RESRF HIP,PART-ACETABLUM
81.51	Total hip replacement	TOTAL HIP REPLACEMENT
81.52	Partial hip replacement	PARTIAL HIP REPLACEMENT
81.53	Revision of hip replacement	REVISE HIP REPLACEMENT

Table 5.23 Elective Total Knee Replacement

Code	ICD-9-CM Description	Shortened Description
00.80	Revision of knee replacement, total (all components)	REV KNEE REPLACEMT-TOTAL
00.81	Revision of knee replacement, tibial component	REV KNEE REPL-TIBIA COMP
00.82	Revision of knee replacement, femoral component	REV KNEE REPL-FEMUR COMP
00.83	Revision of knee replacement, patellar component	REV KNEE REPLACE-PATELLA
00.84	Revision of total knee replacement, tibial insert (liner)	REV KNEE REPL-TIBIA LIN
81.54	Total knee replacement	TOTAL KNEE REPLACEMENT
81.55	Revision of knee replacement	REVISE KNEE REPLACEMENT

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 9.1 Elective Cardiac Surgery (Selected Codes from Table 5.25)		
Code	ICD-9-CM Description	Shortened Description
35.71	Other and unspecified repair of atrial septal defect	ATRIA SEPTA DEF REP NEC
36.03	Open chest coronary artery angioplasty	OPEN CORONRY ANGIOPLASTY
36.31	Open chest transmyocardial revascularization	OPEN CHEST TRANS REVASC
36.32	Other transmyocardial revascularization	OTH TRANSMYO REVASCULAR
36.39	Other heart revascularization	OTH HEART REVASCULAR
36.91	Repair of aneurysm of coronary vessel	CORON VESS ANEURYSM REP
36.99	Other operations on vessels of heart	HEART VESSEL OP NEC
37.10	Incision of heart, not otherwise specified	INCISION OF HEART NOS
37.11	Cardiotomy	CARDIOTOMY
37.32	Excision of aneurysm of heart	HEART ANEURYSM EXCISION
37.33	Excision or destruction of other lesion or tissue of heart, open approach	EXC/DEST HRT LESION OPEN
37.35	Partial ventriculectomy	PARTIAL VENTRICULECTOMY
37.36	Excision or destruction of left atrial appendage (LAA)	EXC LEFT ATRIAL APPENDAG
37.41	Implantation of prosthetic cardiac support device around the heart	IMPL CARDIAC SUPPORT DEV
37.49	Other repair of heart and pericardium	HEART/PERICARD REPR NEC
37.51	Heart transplantation	HEART TRANSPLANTATION
37.52	Implantation of total internal biventricular heart replacement system	IMP TOT INT BI HT RP SYS
37.53	Replacement or repair of thoracic unit of (total) replacement heart system	REPL/REP THR UNT TOT HRT
37.54	Replacement or repair of other implantable component of (total) replacement heart system	REPL/REP OTH TOT HRT SYS
37.55	Removal of internal biventricular heart replacement system	REM INT BIVENT HRT SYS
37.60	Implantation or insertion of biventricular external heart assist system	IMP BIVN EXT HRT AST SYS
37.62	Insertion of temporary non-implantable extracorporeal circulatory assist device	INSRT NON-IMPL CIRC DEV
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of external heart assist system(s) or device(s)	REMVE EXT HRT ASSIST SYS
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.67	Implantation of cardiomyostimulation system	IMP CARDIOMYOSTIMUL SYS

Table 9.2 Elective Gynecological		
Code	ICD-9-CM Description	Shortened Description
68.31	Other incision and excision of uterus, subtotal abdominal hysterectomy, other incision and excision of uterus, laparoscopic supracervical hysterectomy [LSH]	Lap scervic hysterectomy
68.39	Other incision and excision of uterus, subtotal abdominal hysterectomy, other incision and excision of uterus, other and unspecified subtotal	Subtotl abd hyst NEC/NOS

	abdominal hysterectomy	
68.41	Other incision and excision of uterus, total abdominal hysterectomy, laparoscopic total abdominal hysterectomy	Lap total abdominal hyst
68.49	Other incision and excision of uterus, total abdominal hysterectomy, other and unspecified total abdominal hysterectomy	Total abd hyst NEC/NOS
68.51	Vaginal hysterectomy, laparoscopically assisted vaginal hysterectomy [LAVH]	Lap ast vag hysterectomy
68.59	Vaginal hysterectomy, other and unspecified vaginal hysterectomy	Vag hysterectomy NEC/NOS
68.61	Radical abdominal hysterectomy, laparoscopic radical abdominal hysterectomy	Lap radical abdomnl hyst
68.69	Radical abdominal hysterectomy, other and unspecified radical abdominal hysterectomy	Radical abd hyst NEC/NOS
68.71	Radical vaginal hysterectomy, laparoscopic radical vaginal hysterectomy [LRVH]	Lap radical vaginal hyst
68.79	Radical vaginal hysterectomy, other and unspecified radical vaginal hysterectomy	Radical vag hyst NEC/NOS
68.9	Other and unspecified hysterectomy	Hysterectomy NEC/NOS

Table 9.3 Previously Donated Autologous Transfusion

Code	ICD-9-CM Description	Shortened Description
99.02	Other nonoperative procedures, transfusion of blood and blood components, transfusion of previously collected autologous blood	TRANSFUS PREV AUTO BLOOD

Table 9.4 Packed Red Blood Cell Transfusion

Code	ICD-9-CM Description	Shortened Description
99.04	Other nonoperative procedures, transfusion of blood and blood components, transfusion of packed cells	PACKED CELL TRANSFUSION

Table 9.5 Platelet Transfusion

Code	ICD-9-CM Description	Shortened Description
99.05	Other nonoperative procedures, transfusion of blood and blood components, transfusion of platelets	PLATELET TRANSFUSION

Table 9.6 Plasma Transfusion

Code	ICD-9-CM Description	Shortened Description
99.07	Other nonoperative procedures, transfusion of blood and blood components, transfusion of other serum	SERUM TRANSFUSION NEC

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 9.7 Trauma		
Code	ICD-9-CM Description	Shortened Description
800	Fracture of vault of skull	CLOSED SKULL VAULT FX
801	Fracture of base of skull	CLOS SKULL BASE FRACTURE
802	Fracture of face bones	NASAL BONE FX-CLOSED
803	Other and unqualified skull fractures	CLOSE SKULL FRACTURE NEC
804	Multiple fractures involving skull or face with other bones	CL SKUL FX W OTH BONE FX
805	Fracture of vertebral column without mention of spinal cord injury	FX CERVICAL VERT NOS-CL
806	Fracture of vertebral column with spinal cord injury	C1-C4 FX-CL/CORD INJ NOS
807	Fracture of rib(s), sternum, larynx, and trachea	FRACTURE RIB NOS-CLOSED
808	Fracture of pelvis	FRACTURE ACETABULUM-CLOS
809	III-defined fractures of bones of trunk	FRACTURE TRUNK BONE-CLOS
810	Fracture of clavicle	FX CLAVICLE NOS-CLOSED
811	Fracture of scapula	FX SCAPULA NOS-CLOSED
812	Fracture of humerus	FX UP END HUMERUS NOS-CL
813	Fracture of radius and ulna	FX UPPER FOREARM NOS-CL
814	Fracture of carpal bones(s)	FX CARPAL BONE NOS-CLOSE
815	Fracture of metacarpal bones(s)	FX METACARPAL NOS-CLOSED
816	Fracture of one or more phalanges of hands	FX PHALANX, HAND NOS-CL
817	Multiple fractures of hand bones	MULTIPLE FX HAND-CLOSED
818	III-defined fractures of upper limb	FX ARM MULT/NOS-CLOSED
819	Multiple fractures involving both upper limbs, and upper limb with rib(s) and sternum	FX ARMS W RIB/STERNUM-CL
820	Fracture of neck of femur	FX FEMUR INTRCAPS NOS-CL
821	Fracture of other and unspecified parts of femur	FX FEMUR NOS-CLOSED
822	Fracture of patella	FRACTURE PATELLA-CLOSED
823	Fracture of tibia and fibula	FX UPPER END TIBIA-CLOSE
824	Fracture of ankle	FX MEDIAL MALLEOLUS-CLOS
825	Fracture of one or more tarsal and metatarsal bones	FRACTURE CALCANEUS-CLOSE
826	Fracture of one or more phalanges of foot	FX PHALANX, FOOT-CLOSED
827	Other, multiple, and ill-defined fractures of lower limb	FX LOWER LIMB NEC-CLOSED
828	Multiple fractures involving both lower limbs, lower with upper limb, and lower limb(s) with rib(s) and sternum	FX LEGS W ARM/RIB-CLOSED
829	Fracture of unspecified bones	FRACTURE NOS-CLOSED
830	Dislocation of jaw	DISLOCATION JAW-CLOSED
831	Dislocation of shoulder	DISLOC SHOULDER NOS-

		CLOS
832	Dislocation of elbow	DISLOCAT ELBOW NOS-CLOSE
833	Dislocation of wrist	DISLOC WRIST NOS-CLOSED
834	Dislocation of finger	DISL FINGER NOS-CLOSED
835	Dislocation of hip	DISLOCAT HIP NOS-CLOSED
836	Dislocation of knee	TEAR MED MENISC KNEE-CUR
837	Dislocation of ankle	DISLOCATION ANKLE-CLOSED
838	Dislocation of foot	DISLOCAT FOOT NOS-CLOSED
839	Other, multiple, and ill-defined dislocations	DISLOC CERV VERT NOS-CL
840	Sprains and strains of shoulder and upper arm	SPRAIN ACROMIOCLAVICULAR
841	Sprains and strains of elbow and forearm	SPRAIN RADIAL COLLAT LIG
842	Sprains and strains of wrist and hand	SPRAIN OF WRIST NOS
843	Sprains and strains of hip and thigh	SPRAIN ILIOFEMORAL
844	Sprains and strains of knee and leg	SPRAIN LATERAL COLL LIG
845	Sprains and strains of ankle and foot	SPRAIN OF ANKLE NOS
846	Sprains and strains of sacroiliac region	SPRAIN LUMBOSACRAL
847	Sprains and strains of other and unspecified parts of back	SPRAIN OF NECK
848	Other and ill-defined sprains and strains	SPRAIN OF NASAL SEPTUM
850	Concussion	CONCUSSION W/O COMA
851	Cerebral laceration and contusion	CEREBRAL CORTX CONTUSION
852	Subarachnoid, subdural, and extradural hemorrhage, following injury	TRAUM SUBARACHNOID HEM
853	Other and unspecified intracranial hemorrhage following injury	TRAUMATIC BRAIN HEM NEC
854	Intracranial injury of other and unspecified nature	BRAIN INJURY NEC
860	Traumatic pneumothorax and hemothorax	TRAUM PNEUMOTHORAX-CLOSE
861	Injury to heart and lung	HEART INJURY NOS-CLOSED
862	Injury to other and unspecified intrathoracic organs	DIAPHRAGM INJURY-CLOSED
863	Injury to gastrointestinal tract	STOMACH INJURY-CLOSED
864	Injury to liver	LIVER INJURY NOS-CLOSED
865	Injury to spleen	SPLEEN INJURY NOS-CLOSED
866	Injury to kidney	KIDNEY INJURY NOS-CLOSED
867	Injury to pelvic organs	BLADDER/URETHRA INJ-CLOS
868	Injury to other intra-abdominal organs	INTRA-ABDOM INJ NOS-CLOS
869	Internal injury to unspecified or ill-defined organs	INTERNAL INJ NOS-CLOSED
870	Open wound of ocular adnexa	LAC EYELID SKN/PERIOCULR
871	Open wound of eyeball	OCULAR LAC W/O PROLAPSE
872	Open wound of ear	OPN WOUND EXTERN EAR

		NOS
873	Other open wound of head	OPEN WOUND OF SCALP
874	Open wound of neck	OPN WND LARYNX W TRACHEA
875	Open wound of chest (wall)	OPEN WOUND OF CHEST
876	Open wound of back	OPEN WOUND OF BACK
877	Open wound of buttock	OPEN WOUND OF BUTTOCK
878	Open wound of genital organs (external), including traumatic amputation	OPEN WOUND OF PENIS
879	Open wound of other and unspecified sites, except limbs	OPEN WOUND OF BREAST
880	Open wound of shoulder and upper arm	OPEN WOUND OF SHOULDER
881	Open would of elbow, forearm, and wrist	OPEN WOUND OF FOREARM
882	Open wound of hand except finger(s) alone	OPEN WOUND OF HAND
883	Open wound of finger(s)	OPEN WOUND OF FINGER
884	Multiple and unspecified open wound of upper limb	OPEN WOUND ARM MULT/NOS
885	Traumatic amputation of thumb (complete) (partial)	AMPUTATION THUMB
886	Traumatic amputation of other finger(s) (complete) (partial)	AMPUTATION FINGER
887	Traumatic amputation of arm and hand (complete) (partial)	AMPUT BELOW ELB, UNILAT
890	Open wound of hip and thigh	OPEN WOUND OF HIP/THIGH
891	Open wound of knee, leg [except thigh], and ankle	OPEN WND KNEE/LEG/ANKLE
892	Open wound of foot except toe(s) alone	OPEN WOUND OF FOOT
893	Open wound of toe(s)	OPEN WOUND OF TOE
894	Multiple and unspecified open wound of lower limb	OPEN WOUND OF LEG NEC
895	Traumatic amputation of toe(s) (complete) (partial)	AMPUTATION TOE
896	Traumatic amputation of foot (complete) (partial)	AMPUTATION FOOT, UNILAT
897	Traumatic amputation of leg(s) (complete) (partial)	AMPUT BELOW KNEE, UNILAT
900	Injury to blood vessels of head and neck	INJUR CAROTID ARTERY NOS
901	Injury to blood vessels of thorax	INJURY THORACIC AORTA
902	Injury to blood vessels of abdomen and pelvis	INJURY ABDOMINAL AORTA
903	Injury to blood vessels of upper extremity	INJ AXILLARY VESSEL NOS
904	Injury to blood vessels of lower extremity and unspecified sites	INJ COMMON FEMORAL ARTER
905	Late effects of musculoskeletal and connective tissue injuries	LATE EFFEC SKULL/FACE FX
906	Late effects of injuries to skin and subcutaneous tissues	LT EFF OPN WND HEAD/TRNK
907	Late effects of injuries to the nervous system	LT EFF INTRACRANIAL INJ
908	Late effects of other and unspecified injuries	LATE EFF INT INJUR CHEST
909	Late effects of other and unspecified external causes	LATE EFF DRUG POISONING
910	Superficial injury of face, neck, and scalp except eye	ABRASION HEAD
911	Superficial injury of trunk	ABRASION TRUNK
912	Superficial injury of shoulder and upper arm	ABRASION SHOULDER/ARM

913	Superficial injury of elbow, forearm, and wrist	ABRASION FOREARM
914	Superficial injury of hand(s) except finger(s) alone	ABRASION HAND
915	Superficial injury of finger(s)	ABRASION FINGER
916	Superficial injury of hip, thigh, leg, and ankle	ABRASION HIP & LEG
917	Superficial injury of foot and toe(s)	ABRASION FOOT & TOE
918	Superficial injury of eye and adnexa	SUPERFIC INJ PERIOCULAR
919	Superficial injury of other, multiple, and unspecified sites	ABRASION NEC
920	Contusion of face, scalp, and neck except eye(s)	CONTUSION FACE/SCALP/NCK
921	Contusion of eye and adnexa	BLACK EYE NOS
922	Contusion of trunk	CONTUSION OF BREAST
923	Contusion of upper limb	CONTUSION SHOULDER REG
924	Contusion of lower limb and of other and unspecified sites	CONTUSION OF THIGH
925	Crushing injury of face, scalp, and neck	
926	Crushing injury of trunk	CRUSH INJ EXT GENITALIA
927	Crushing injury of upper limb	CRUSH INJ SHOULDER REG
928	Crushing injury of lower limb	CRUSHING INJURY THIGH
929	Crushing injury of multiple and unspecified sites	CRUSH INJ MULT SITE NEC
930	Foreign body on external eye	CORNEAL FOREIGN BODY
931	Foreign body in ear	FOREIGN BODY IN EAR
932	Foreign body in nose	FOREIGN BODY IN NOSE
933	Foreign body in pharynx and larynx	FOREIGN BODY IN PHARYNX
934	Foreign body in trachea, bronchus, and lung	FOREIGN BODY IN TRACHEA
935	Foreign body in mouth, esophagus, and stomach	FOREIGN BODY IN MOUTH
936	Foreign body in intestine and colon	FB IN INTESTINE & COLON
937	Foreign body in anus and rectum	FOREIGN BODY ANUS/RECTUM
938	Foreign body in digestive system, unspecified	FOREIGN BODY GI NOS
939	Foreign body in genitourinary tract	FB BLADDER & URETHRA
940	Burn confined to eye and adnexa	CHEMICAL BURN PERIOCULAR
941	Burn of face, head, and neck	BURN NOS HEAD-UNSPEC
942	Burn of trunk	BURN NOS TRUNK-UNSPEC
943	Burn of upper limb, except wrist and hand	BURN NOS ARM-UNSPEC
944	Burn of wrist(s) and hand(s)	BURN NOS HAND-UNSPEC
945	Burn of lower limb(s)	BURN NOS LEG-UNSPEC
946	Burns of multiple specified sites	BURN NOS MULTIPLE SITE
947	Burn of internal organs	BURN OF MOUTH & PHARYNX
948	Burns classified according to extent of body surface involved	BDY BRN < 10%/3D DEG NOS
949	Burn, unspecified	BURN NOS
950	Injury to optic nerve and pathways	OPTIC NERVE INJURY
951	Injury to other cranial nerve(s)	INJURY OCULOMOTOR NERVE
952	Spinal cord injury without evidence of spinal bone injury	C1-C4 SPIN CORD INJ NOS

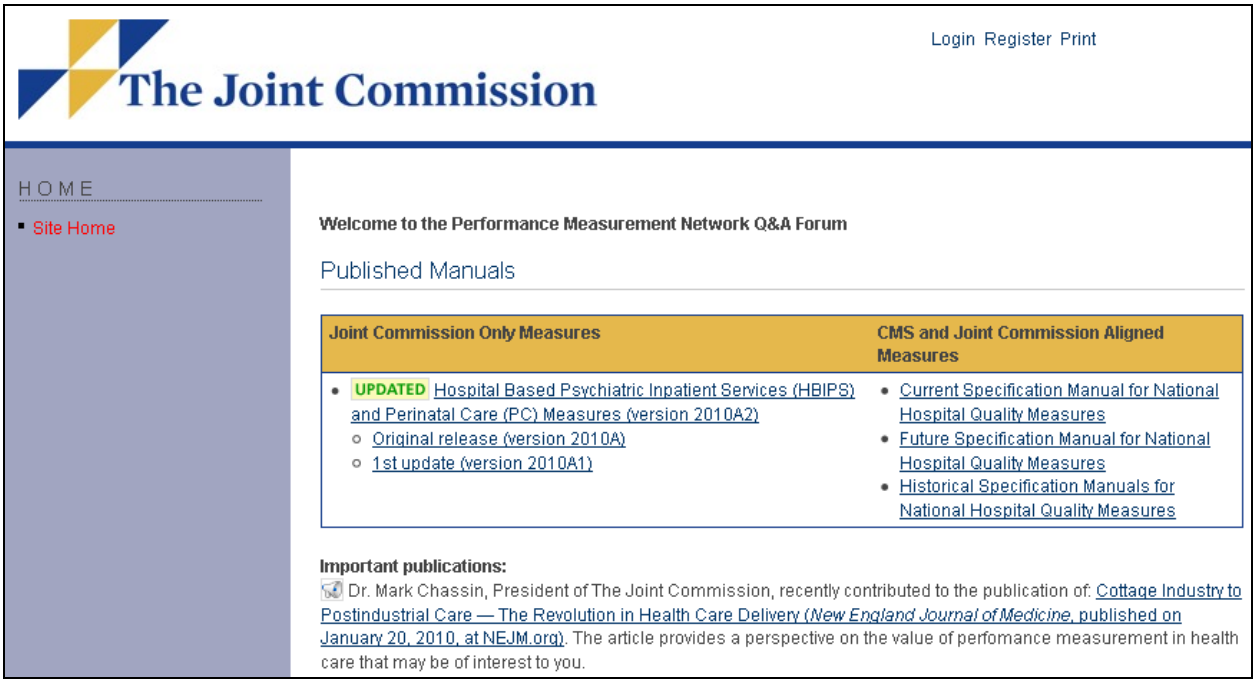
953	Injury to nerve roots and spinal plexus	CERVICAL ROOT INJURY
954	Injury to other nerve(s) of trunk, excluding shoulder and pelvic girdles	INJ CERV SYMPATH NERVE
955	Injury to peripheral nerve(s) of shoulder girdle and upper limb	INJURY AXILLARY NERVE
956	Injury to peripheral nerve(s), of pelvic girdle and lower limb	INJURY SCIATIC NERVE
957	Injury to other and unspecified nerves	INJ SUPERF NERV HEAD/NCK
958	Certain early complications of trauma	AIR EMBOLISM
959	Injury, other and unspecified	
960	Poisoning by antibiotics	POISONING-PENICILLINS
961	Poisoning by other anti-infectives	POISONING-SULFONAMIDES
962	Poisoning by hormones and synthetic substitutes	POIS-CORTICOSTEROIDS
963	Poisoning by primarily systemic agents	POIS-ANTIALLRG/ANTIEMET
964	Poisoning by agents primarily affecting blood constituents	POISONING-IRON/COMPOUNDS
965	Poisoning by analgesics, antipyretics, and antirheumatics	POISONING-OPIUM NOS
966	Poisoning by anticonvulsants and anti-Parkinsonism drugs	POISON-OXAZOLIDINE DERIV
967	Poisoning by sedatives and hypnotics	POISONING-BARBITURATES
968	Poisoning by other central nervous system depressants and anesthetics	POIS-CNS MUSCLE DEPRESS
969	Poisoning by psychotropic agents	POISON-ANTIDEPRESNT NOS
970	Poisoning by central nervous system stimulants	POISONING-ANALEPTICS
971	Poisoning by drugs primarily affecting the autonomic nervous system	POIS-PARASYMPATHOMIMETIC
972	Poisoning by agents primarily affecting the cardiovascular system	POIS-CARD RHYTHM REGULAT
973	Poisoning by agents primarily affecting the gastrointestinal system	POIS-ANTACID/ANTIGASTRIC
974	Poisoning by water, mineral, and uric acid metabolism drugs	POIS-MERCURIAL DIURETICS
975	Poisoning by agents primarily acting on the smooth and skeletal muscles and respiratory system	POISONING-OXYTOCIC AGENT
976	Poisoning by agents primarily affecting skin and mucous membrane, ophthalmological, otorhinolaryngological, and dental drugs	POIS-LOCAL ANTI-INFECT
977	Poisoning by other and unspecified drugs and medicinal substances	POISONING-DIETETICS
978	Poisoning by bacterial vaccines	POISONING-BCG VACCINE
979	Poisoning by other vaccines and biological substances	POISON-SMALLPOX VACCINE
980	Toxic effect of alcohol	TOXIC EFF ETHYL ALCOHOL
981	Toxic effect of petroleum products	TOXIC EFF PETROLEUM PROD
982	Toxic effect of solvents other than petroleum-based	TOXIC EFFECT BENZENE
983	Toxic effect of corrosive aromatics, acids, and caustic alkalis	TOX EFF CORROSIVE AROMAT

984	Toxic effect of lead and its compounds (including fumes)	TX EFF INORG LEAD COMPND
985	Toxic effect of other metals	TOXIC EFFECT MERCURY
986	Toxic effect of carbon monoxide	TOX EFF CARBON MONOXIDE
987	Toxic effect of other gases, fumes, or vapors	TOXIC EFF LIQ PETROL GAS
988	Toxic effect of noxious substances eaten as food	TOXIC EFF FISH/SHELLFISH
989	Toxic effect of other substances, chiefly nonmedicinal as to source	TOXIC EFFECT CYANIDES
990	Effects of radiation, unspecified	EFFECTS RADIATION NOS
991	Effects of reduced temperature	FROSTBITE OF FACE
992	Effects of heat and light	HEAT STROKE & SUNSTROKE
993	Effects of air pressure	BAROTRAUMA, OTITIC
994	Effects of other external causes	EFFECTS OF LIGHTNING
995	Certain adverse effects not elsewhere classified	ANAPHYLACTIC SHOCK
996	Complications peculiar to certain specified procedures	MALFUNC CARD DEV/GRF NOS
997	Complications affecting specified body systems, not elsewhere classified	NERVOUS SYST COMPLC NOS
998	Other complications of procedures, not elsewhere classified	POSTOPERATIVE SHOCK
999	Complications of medical care, not elsewhere classified	GENERALIZED VACCINIA

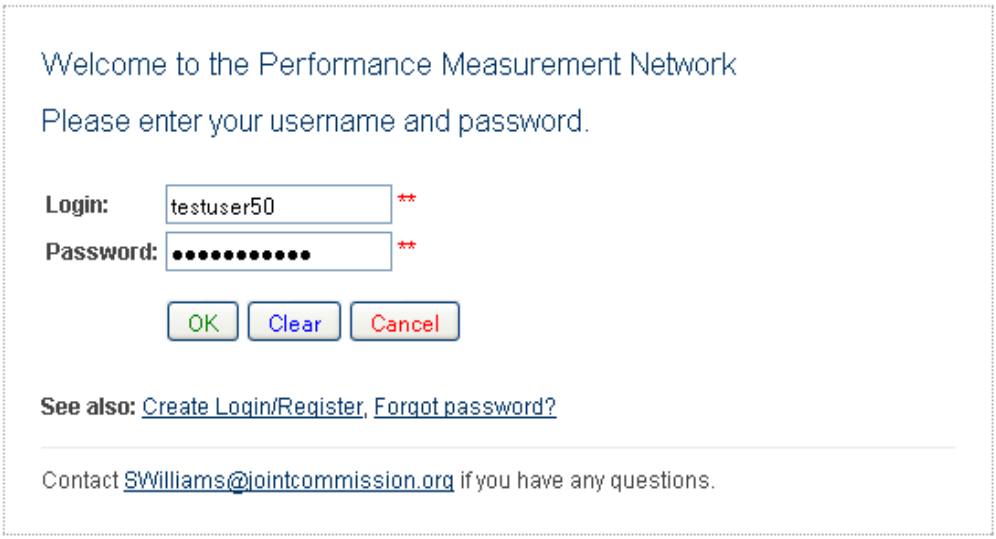
Navigating the Blood Management Project
Data Collection Tool

How to Log In and Get Started

1) Once you have registered and received your confirmation to submit data for the Blood Management Project, you may access the project website at: http://manual.jointcommission.org
2) Click on "Login" in the upper right hand corner.



3) Enter your Login and Password and click "ok".



Navigating the Blood Management Project
Data Collection Tool

4) Welcome to the Performance Measurement Network. Select the "Blood Mgmt Project" link from the left hand navigation bar.

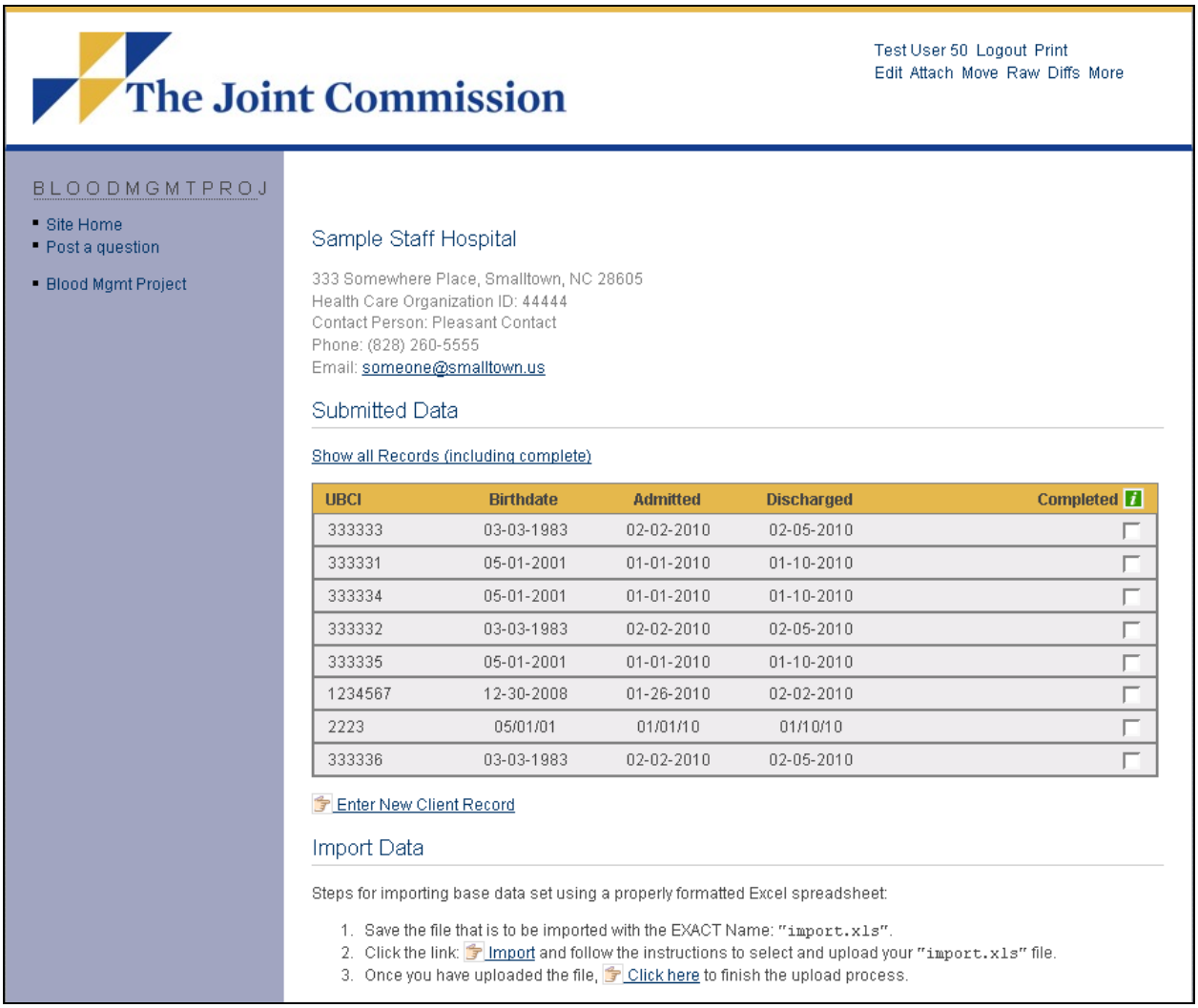
5) You are now on the Blood Management Project Page. You will see your hospitals(s) listed here. In the Project Help section, you will find a link to the measure specifications, an example of the import file template, and other material intended to assist you with your participation in this project. Please click on the hospital name to enter blood management data.

Navigating the Blood Management Project
Data Collection Tool

6) You are now on your hospital page. From this page, you can:

- update your hospital demographic information
- enter new records
- import new records
- view and update existing records
- add RBC, Plasma and Platelet events
- mark records as "complete"
- review records that have been completed
- view import attachments

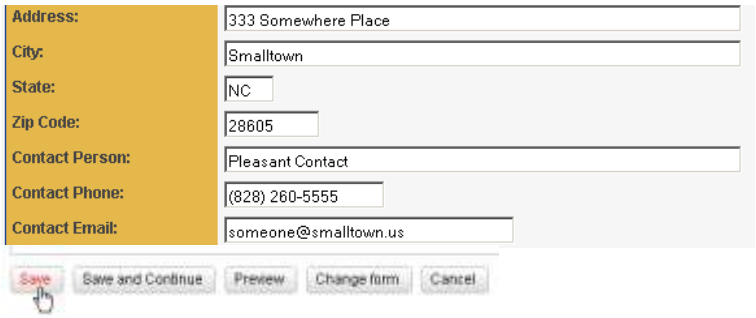
Each function will be discussed in detail below.



Navigating the Blood Management Project
Data Collection Tool
Updating your Hospital Demographic Information

a) To update your hospital's demographic information, click the "Edit" link, Fill out the form that appears, and click the "Save" button at the bottom of the form.

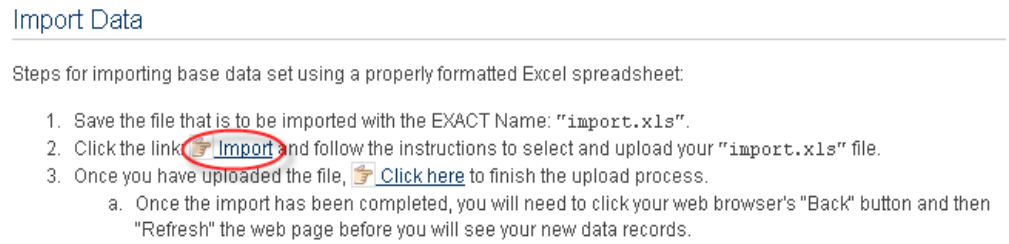
You will be directed to the Edit form, and you can change your hospital's contact details here. Click "Save" to save your changes, or "Cancel" to exit without saving.



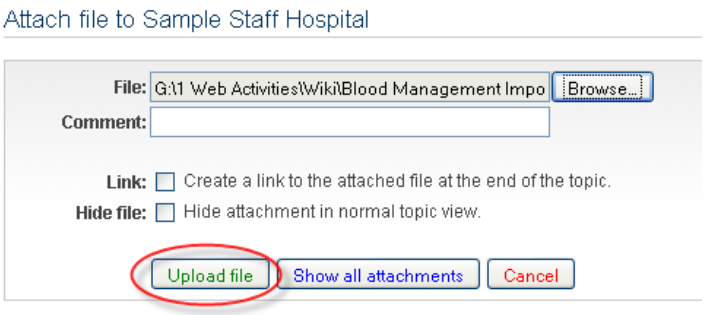
Navigating the Blood Management Project
Data Collection Tool

Importing Records

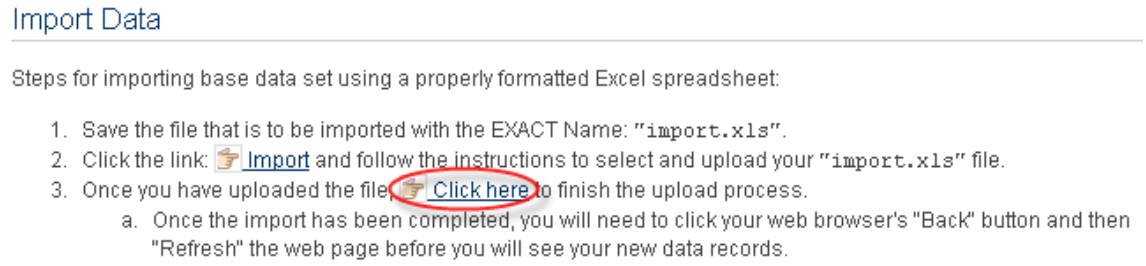
a) To import data, click on the "Import" link on your hospital home page. The template for this import file can be found on the project home page.



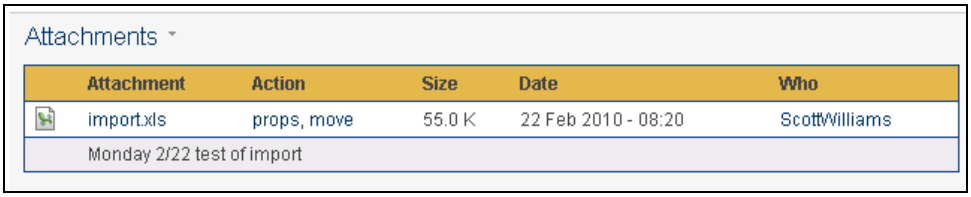
b) Click on "browse" to find and select your import file (which must be named "import.xls"), and click on "Upload File". You do not need to check the checkboxes, but <u>you may want to add a comment to keep track of your imports (e.g., April 2010 discharges; 51 records)</u>



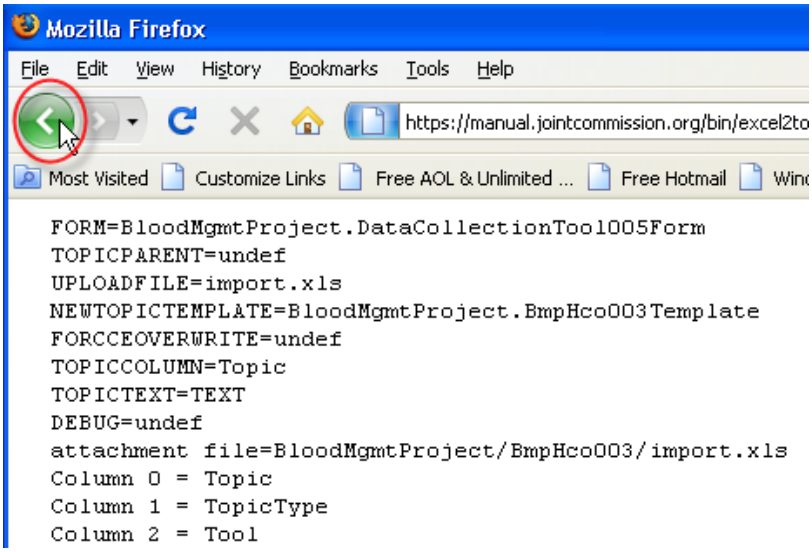
c) Once you have uploaded your file, you will need to click on the "Click here" link to finish the upload process. You'll then need to click your browser's "Back" button and "Refresh" your hospital page.



d) You may notice a form at the bottom of your hospital page. It displays the most recently imported file. This area will only be used to verify that your import was successful (note the date, time and comments to ensure that it represents the file you imported.



e) Your uploaded records are shown here (in a rather unappealing format!) and you will need to click on your browser's "Back" button to return to your hospital home page.



f) You are now back on your hospital's home page. Please click on your browser's "Refresh" button to view the records you just imported. Your records have been imported, but you will not be able to see them until the page is refreshed (or you navigate away from it and then back to it).

g) Your uploaded files should now viewable in the "Submitted Data" section of your hospital home page.

Navigating the Blood Management Project
Data Collection Tool

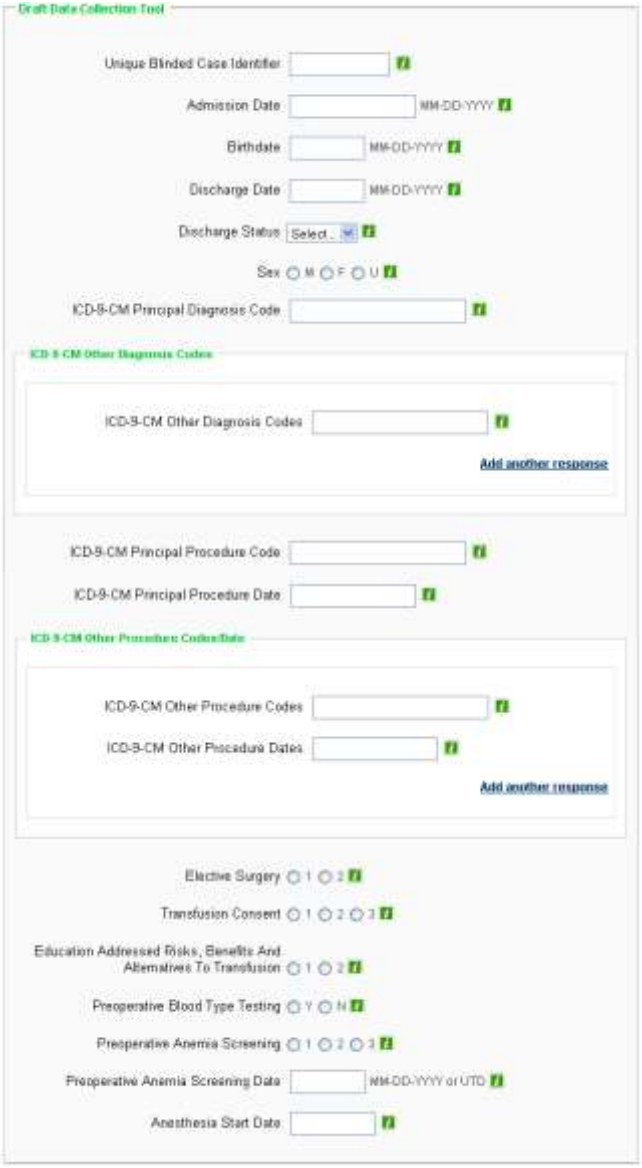
Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

Navigating the Blood Management Project
Data Collection Tool
Enter New Records (without using the file import

a) To enter a new record, click on the "Enter New Client Record" link (right below the data record table).

b) You are now viewing the data collection tool for Blood Management. Enter data for the client record. Note: hovering over the green "i" next to a data element will show you the question and allowable values associated with that data element as well as a link to the data element page.



c) Once you have completed data entry for this record, click on "Save Data Record".

Navigating the Blood Management Project
Data Collection Tool
To View and Update Existing Records

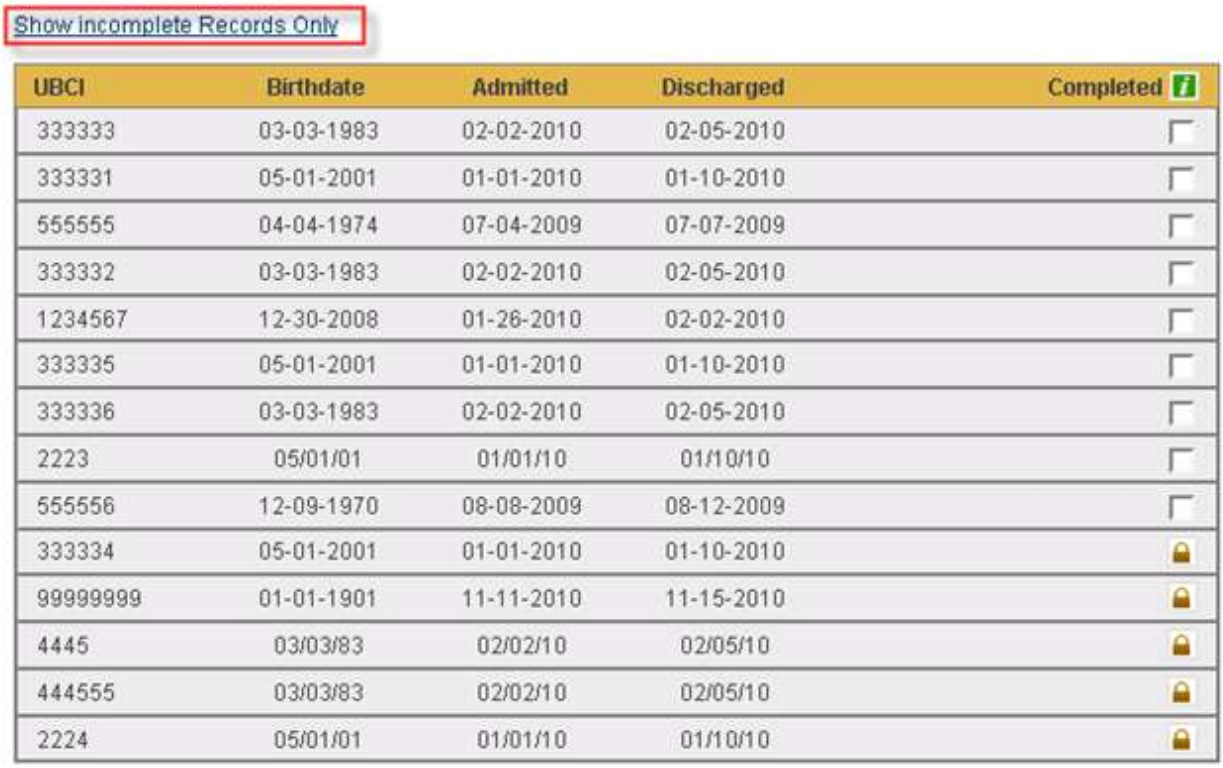
a) There are two ways to view the list of submitted records. The default view is of all incomplete records. If you would like to view all records, including completed (locked) records, click the link "Show all Records (including complete)".

View of the default setting showing a list of only incomplete records:

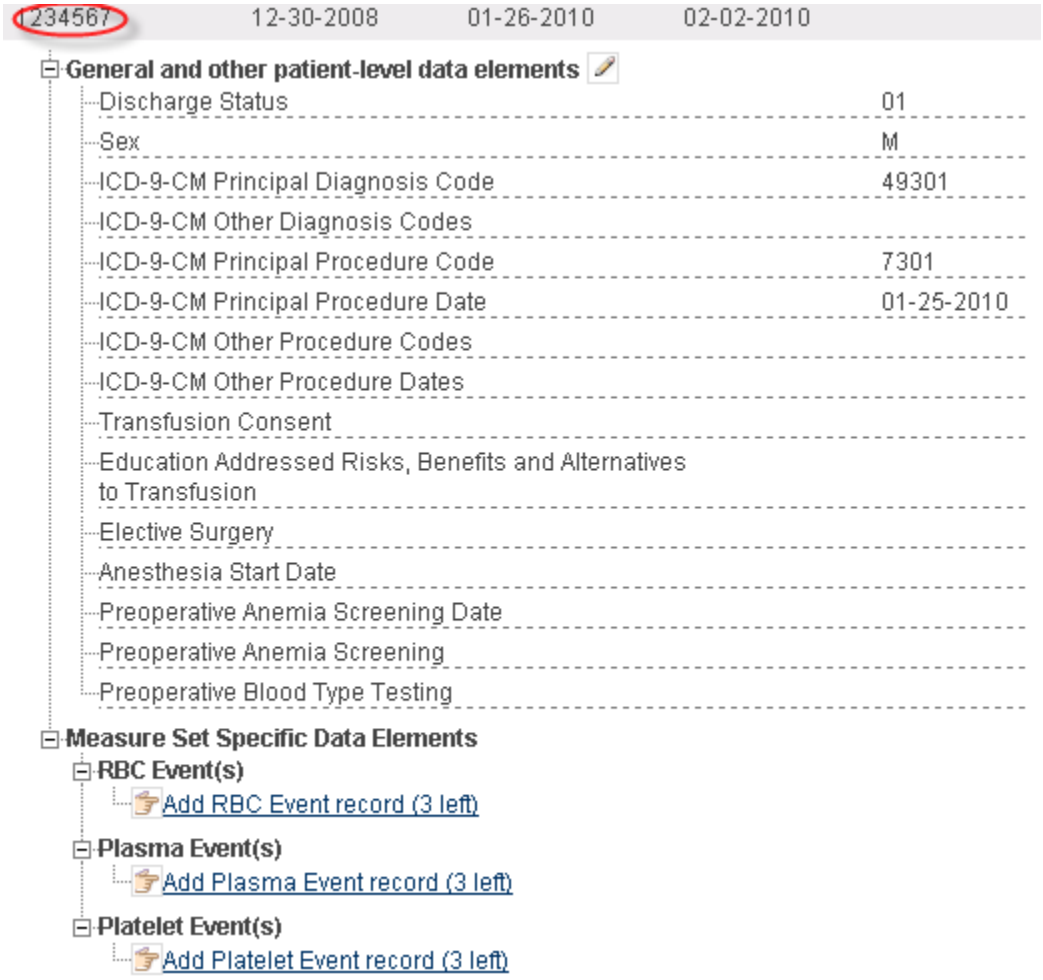
Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

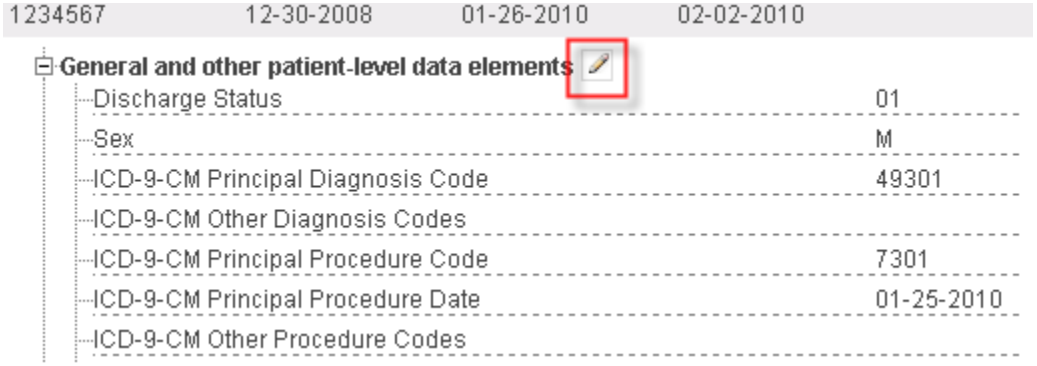
View of alternate setting showing list of all records (both incomplete and complete). To return the default setting, click the link "Show Incomplete Records Only"



b) To view or update data in an existing record, click on the UBCI number. This will create a drop down that includes all of the information for that client record. You can contract the drop down by clicking on the "-"or expand by clicking on the "+" before the different sections.

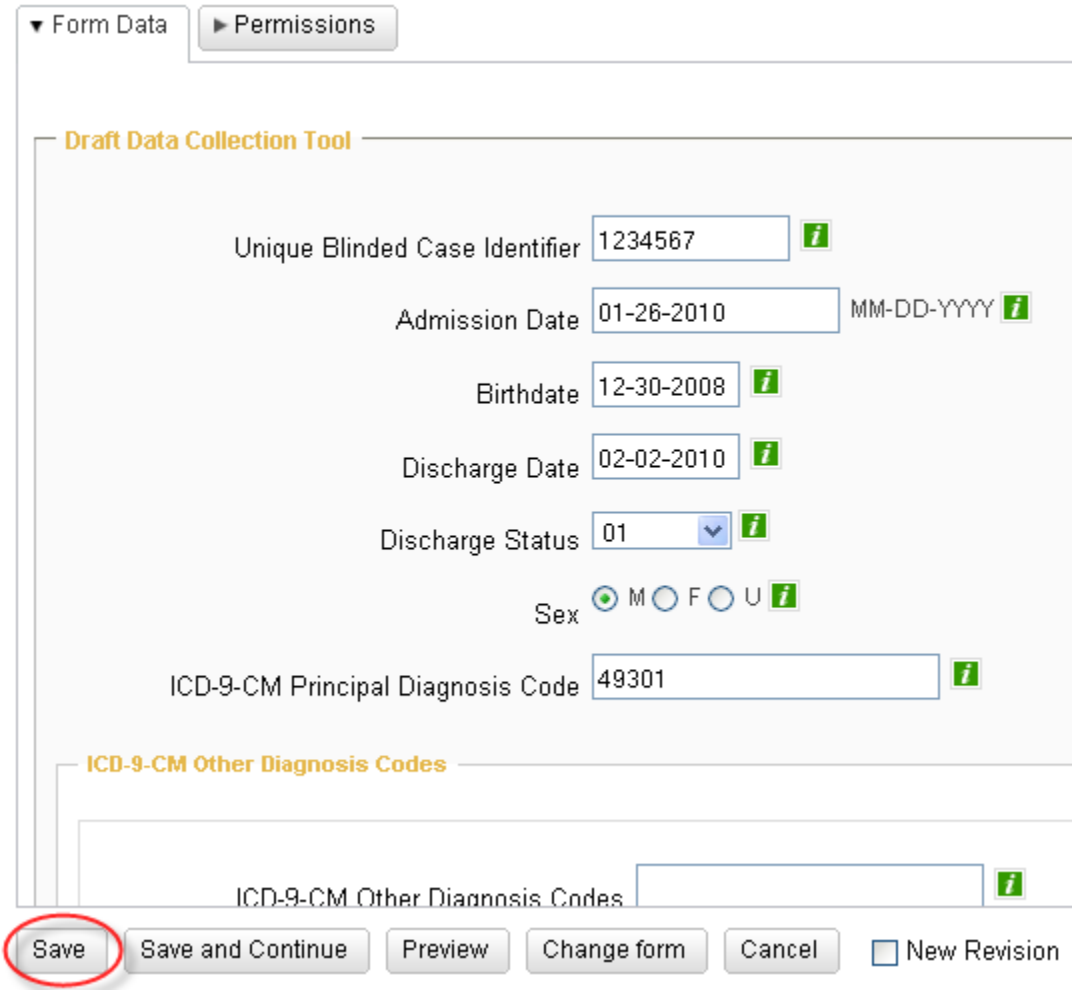


c) To edit the "General and other patient-level data elements", click on the pencil icon.



d) Make changes to the "General and other patient-level data elements" and click "Save" when you are done.

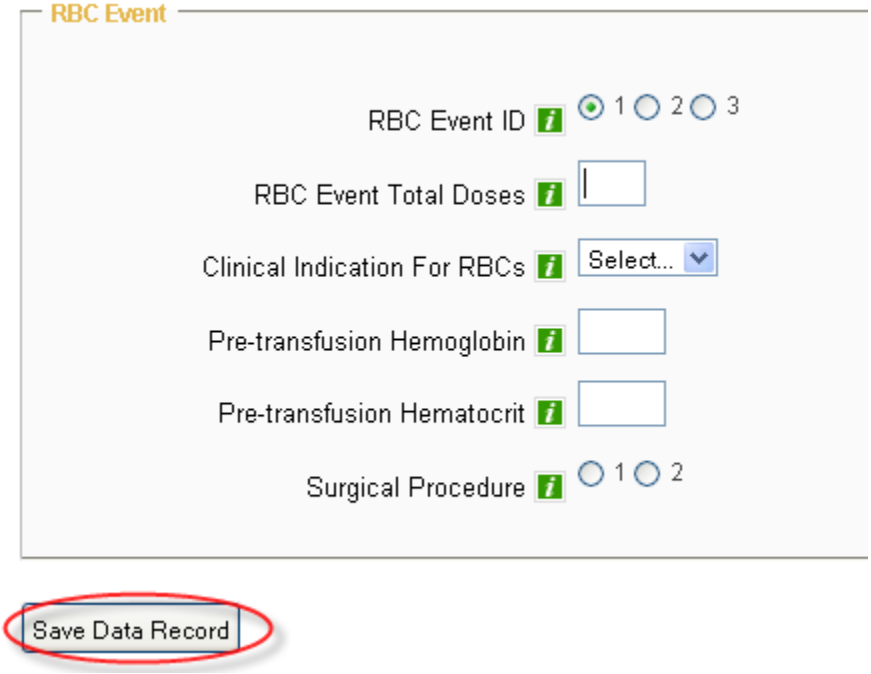
Navigating the Blood Management Project
Data Collection Tool



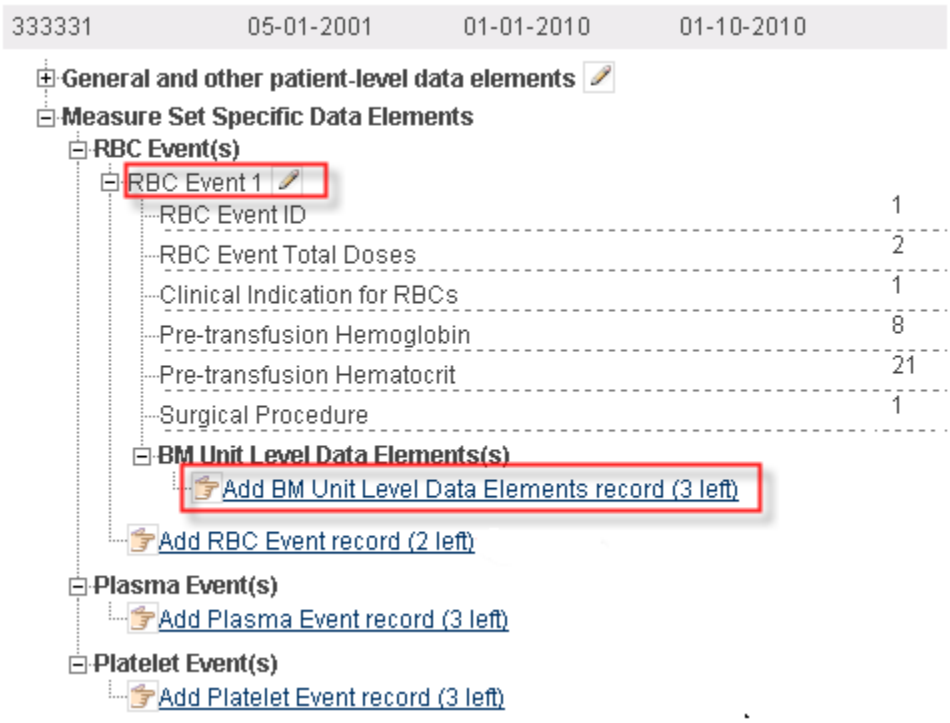
Navigating the Blood Management Project
Data Collection Tool
Add RBC Events and BM Unit Level Data Elements

a) To add a RBC event (NOTE: you can add up to three RBC events), click on the "Add RBC Event Record" Link.

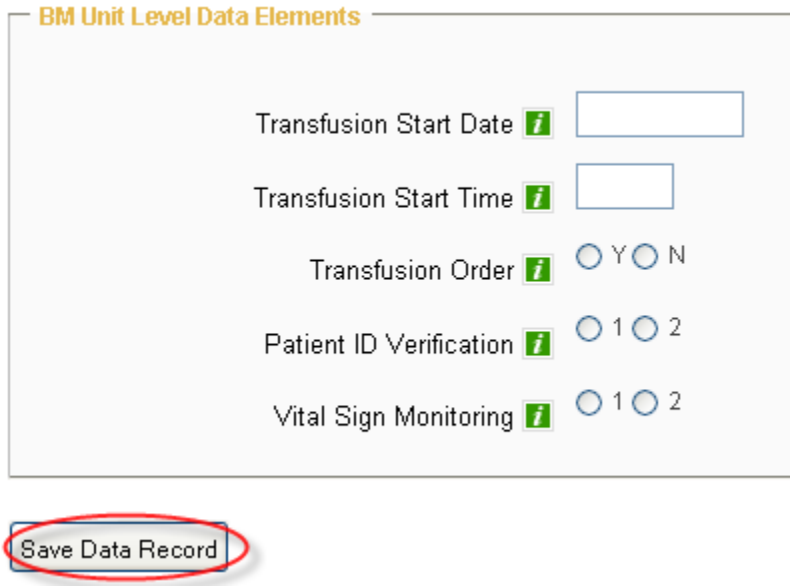
b) Enter data for RBC Event 1 and click "Save Data Record"



c) Data for "RBC Event 1" is now included with this client record. To edit the RBC Event data that you just entered, click on the pencil icon next to the event. To add unit level data for RBC Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)

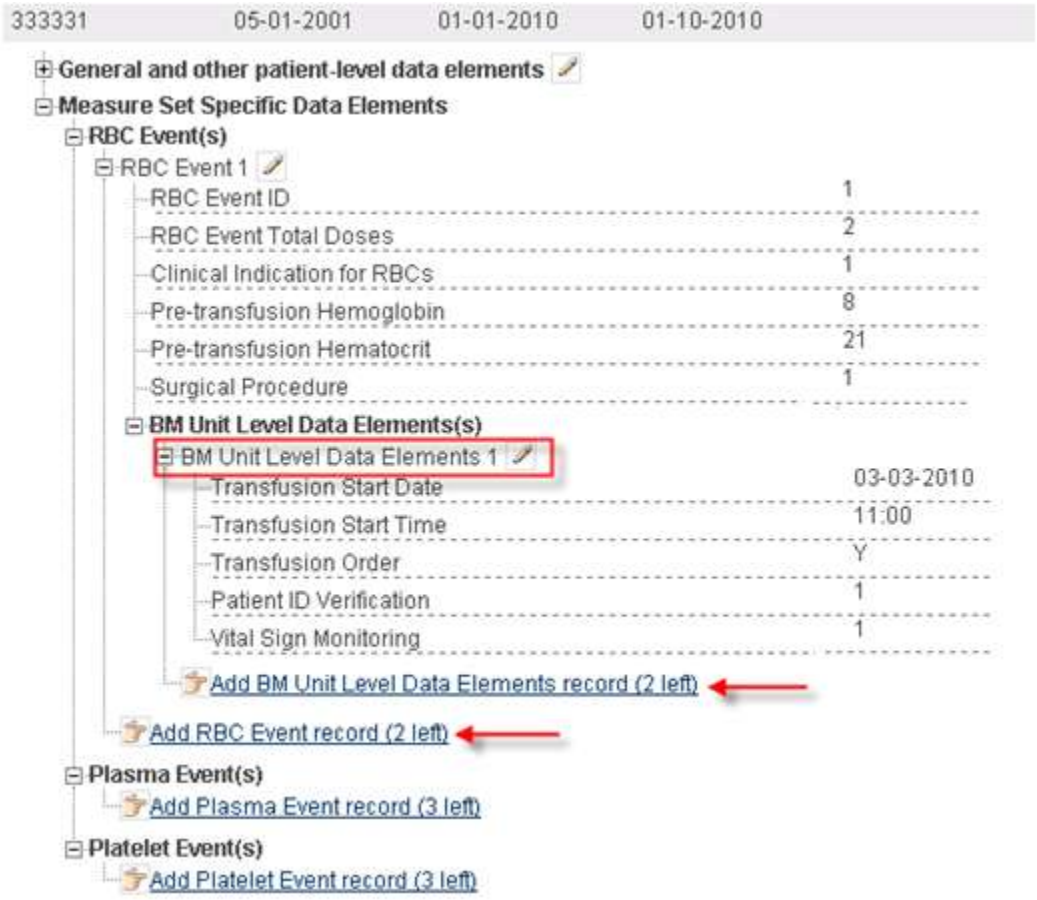


d) Enter data for the BM Unit Level Record for RBC Event 1 and click "Save Data Record"



e) Data for "BM Unit 1" for "RBC Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for RBC Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another RBC Event, click on "Add RBC Event Record".

Navigating the Blood Management Project Data Collection Tool

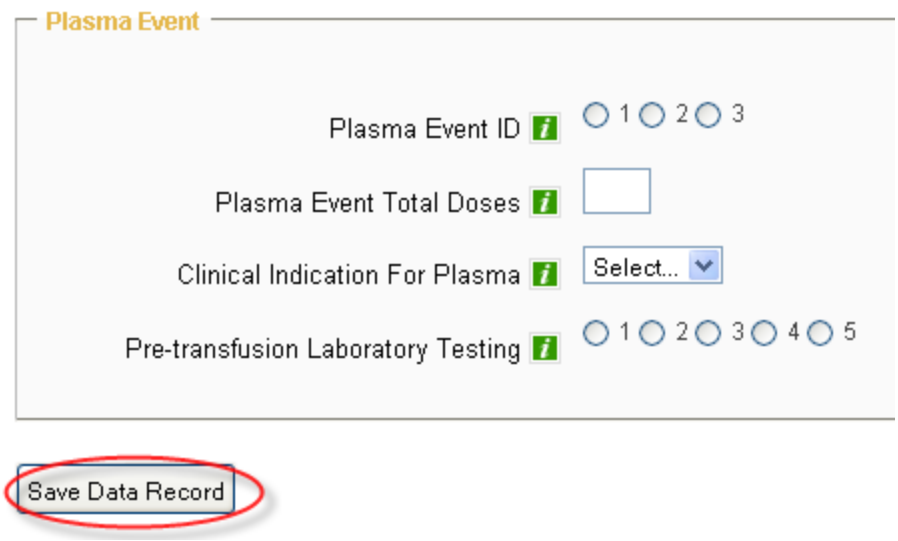


Navigating the Blood Management Project Data Collection Tool

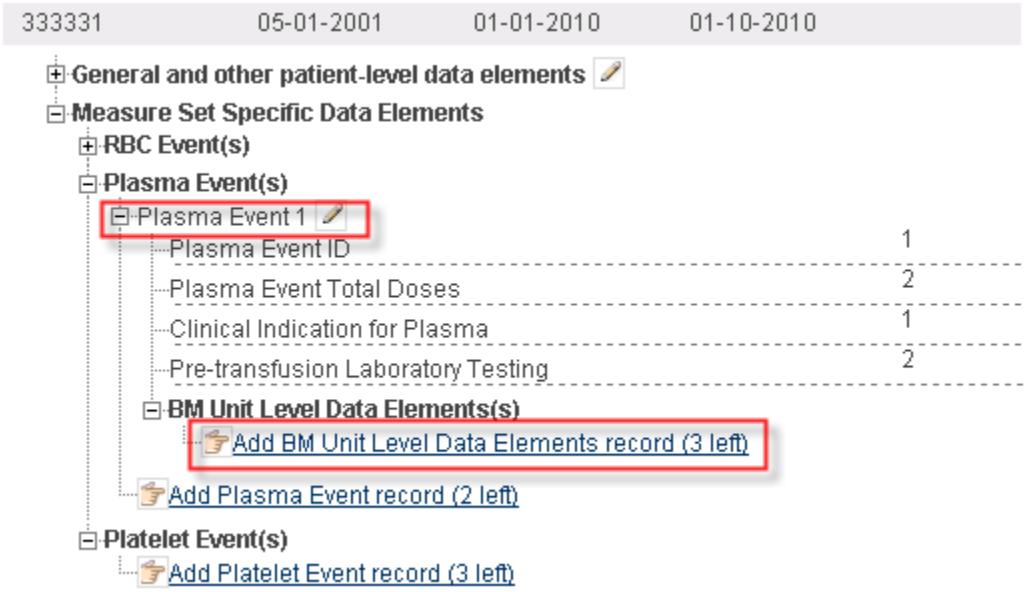
Add Plasma Events and BM Unit Level Data Elements

a) To add a Plasma event, click on the "Add Plasma Event Record" Link

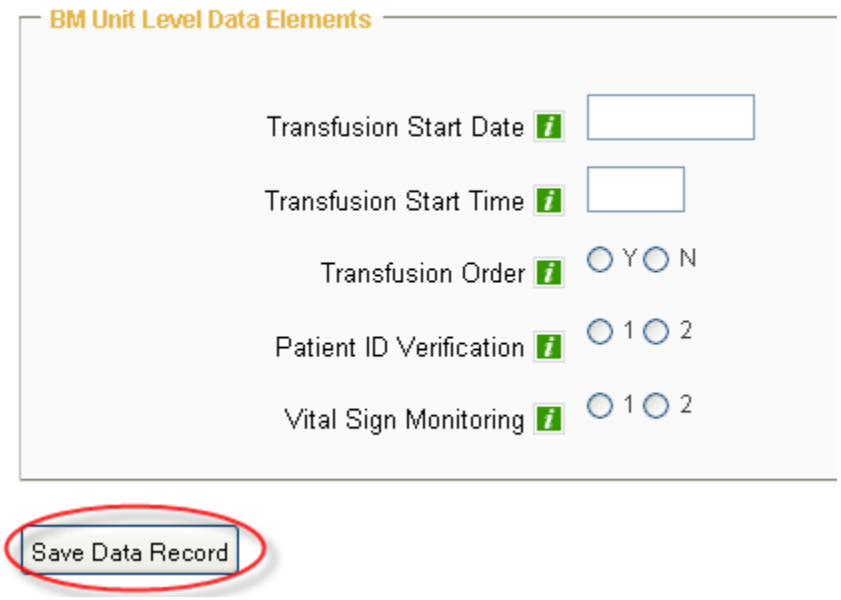
b) Enter data for Plasma Event 1 and click "Save Data Record"



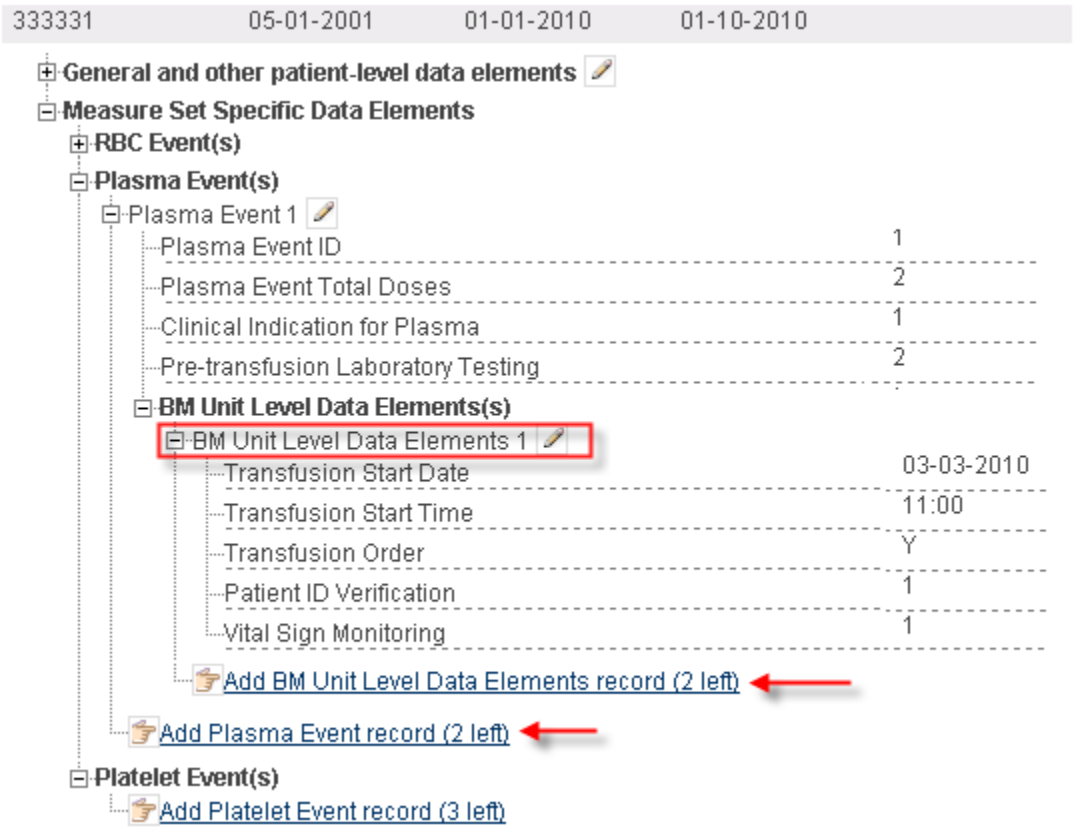
c) Data for "Plasma Event 1" is now included with this client record. To edit the Plasma Event data that you just entered, click on the pencil icon next to the event. To add unit level data for Plasma Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)



d) Enter data for the BM Unit Level Record for Plasma Event 1 and click "Save Data Record"



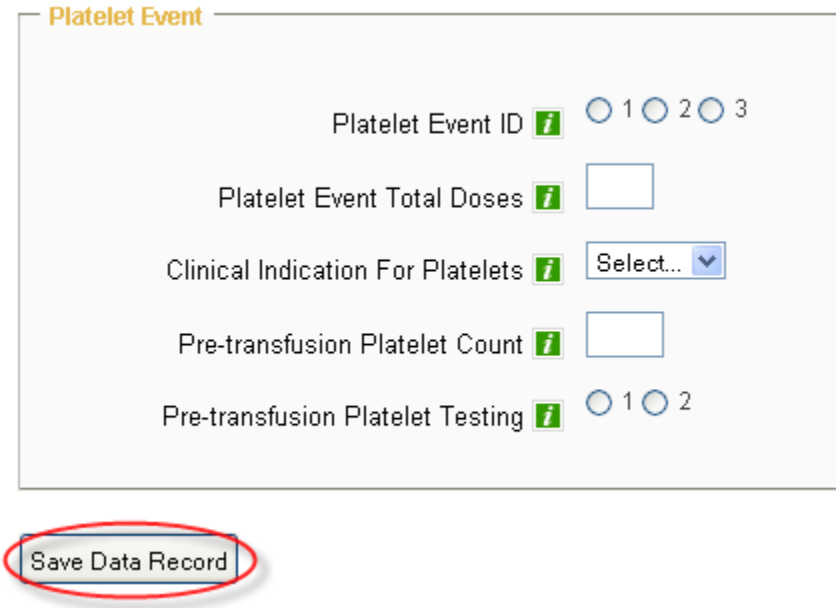
e) Data for "BM Unit Level 1" for "Plasma Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for Plasma Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another Plasma Event, click on "Add Plasma Event Record".



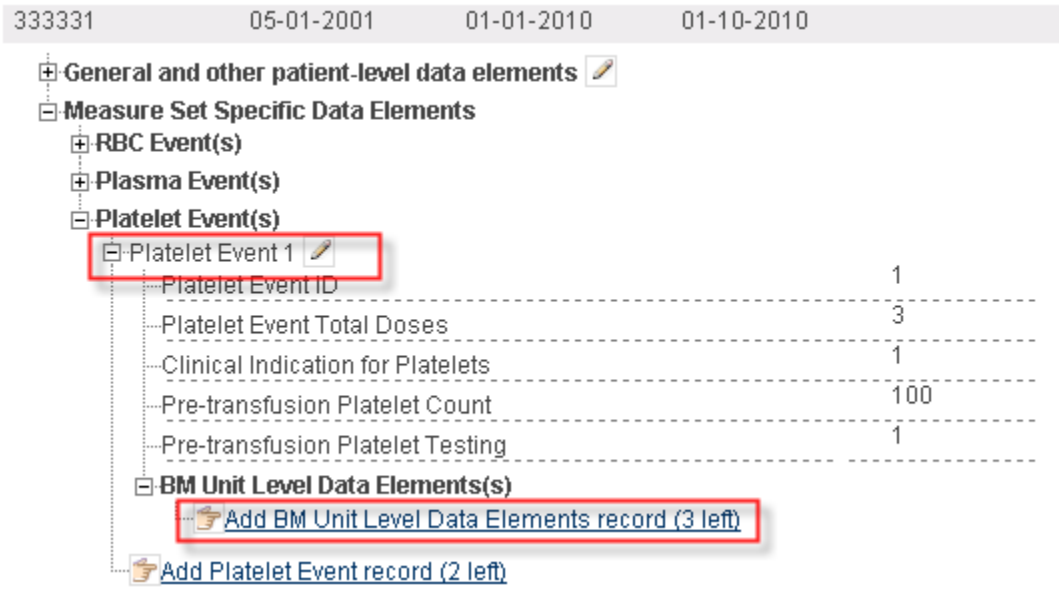
Navigating the Blood Management Project
Data Collection Tool
Add Platelet Events and BM Unit Level Data Elements

a) To add a Platelet event, click on the "Add Platelet Event Record" Link

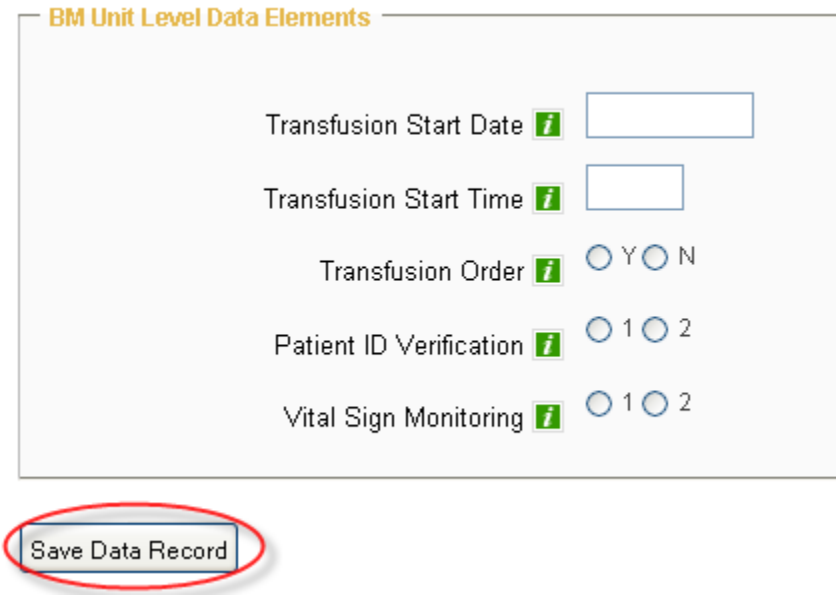
b) Enter data for Platelet Event 1 and click "Save Data Record"



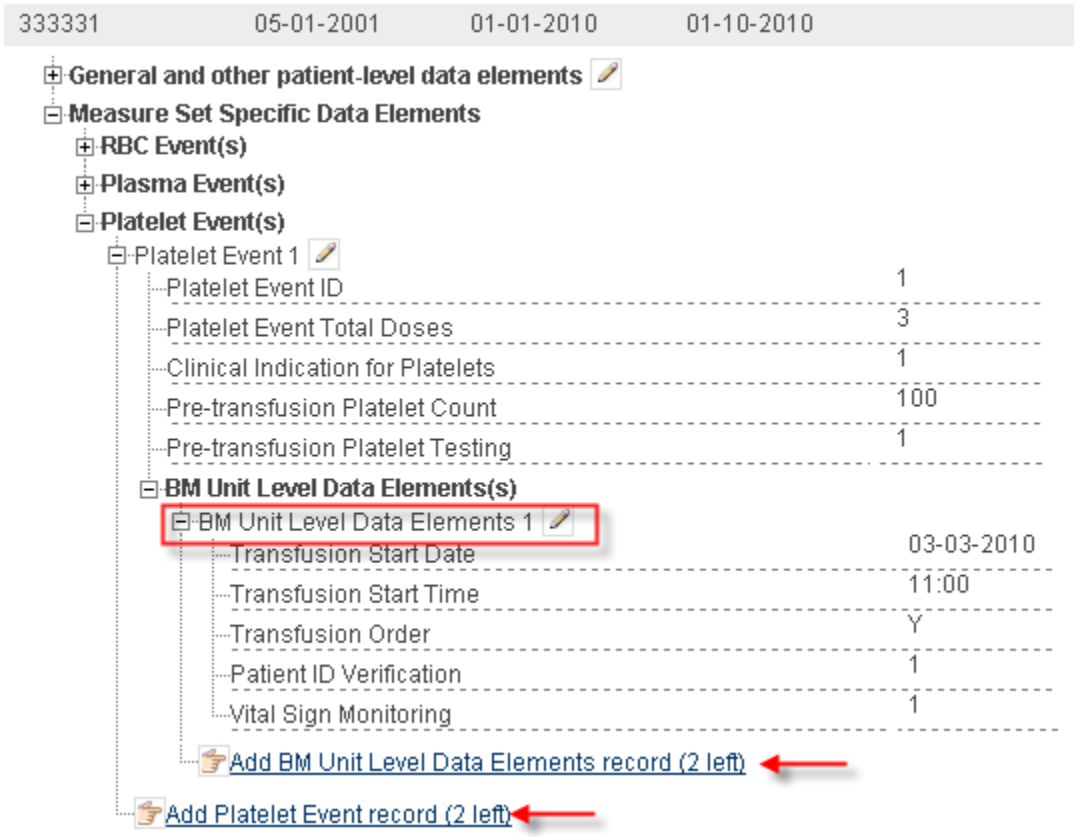
c) Data for "Platelet Event 1" is now included with this client record. To edit the Platelet Event data that you just entered, click on the pencil icon next to the event. To add unit level data for Platelet Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)



d) Enter data for the BM Unit Level Record for Platelet Event 1 and click "Save Data Record"



e) Data for "BM Unit Level 1" for "Platelet Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for Platelet Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another Platelet Event, click on "Add Platelet Event Record".



Marking Records As "Complete"

a) Once you are done entering and editing data for a record, you will need to mark the record as complete. **Please note: Once you check the box for a record under "Complete" you are BOTH marking the record as complete AND locking that record for any further editing**. When you click on the checkbox, the record will "disappear" from view. Do not be alarmed. The default view of the table is to only show incomplete records. To view the record you just completed, click on the link to "Show all Records (including complete)"

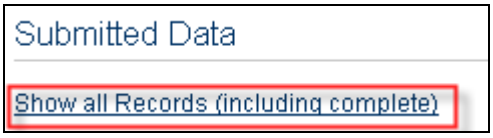

Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

Navigating the Blood Management Project
Data Collection Tool

Reviewing Records That Have Been Completed

a) To review a record that has been marked complete, switch the view on your hospital home page by clicking on the "Show all Records (including complete)" link.

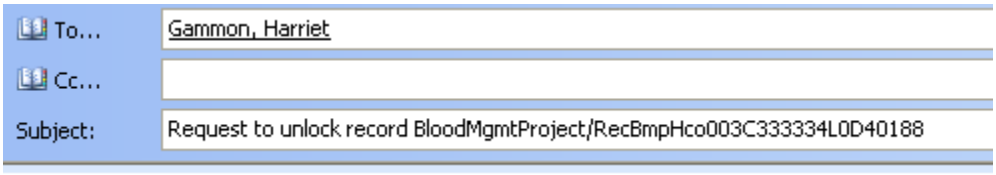


b) In this view you can see all records both complete and incomplete. Completed records are now LOCKED and can not be edited.

Show incomplete Records Only

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐
333334	05-01-2001	01-01-2010	01-10-2010	🔒
99999999	01-01-1901	11-11-2010	11-15-2010	🔒
4445	03/03/83	02/02/10	02/05/10	🔒
444555	03/03/83	02/02/10	02/05/10	🔒
2224	05/01/01	01/01/10	01/10/10	🔒

b) If, for any reason, you need to unlock a record, you will need to send an e-mail to the project leader, Harriet Gammon. To send your e-mail request, click on the "lock" icon, and an e-mail form should appear. It will be addressed to Harriet, and the subject line will contain a reference to the specific record.



c) In your e-mail, please briefly explain why the record needs to be unlocked (e.g., Accidentally clicked the "Complete" checkbox).

PATIENT BLOOD MANAGEMENT PERFORMANCE MEASURES PROJECT - Technical Advisory Panel

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Jeffrey Wagner, BSN, RN
Puget Sound Blood Center
Seattle, WA

Rosalyn Yomtovian, MD
Department of Veterans Affairs, Louis Stokes Medical Center
Case Western Reserve University School of Medicine
Cleveland, OH

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 1539 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Platelet Transfusion Indication
De.2 **Brief description of measure:** Percentage of transfused platelet doses (bags) with pre-transfusion platelet count result and clinical indication documented - applicable to inpatients of all ages.
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** PBM-04 is a part of the Patient Blood Management (PBM) measure set: PBM-01 (Transfusion Consent), PBM-02 (RBC Transfusion Indication), PBM-03 (Plasma Transfusion Indication, PBM-05 (Blood Administration Documentation), PBM-06 (Preoperative Anemia Screening), PBM-07(Preoperative Blood Type Testing and Antibody Screening)
De.4 **National Priority Partners Priority Area:** Care coordination, Safety, Overuse De.5 **IOM Quality Domain**: Effectiveness, Patient-centered, Safety De.6 **Consumer Care Need:** Getting better, Living with illness

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	NQF Staff
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Agreement will be signed and submitted prior to or at the time of measure submission A.4 **Measure Steward Agreement attached:**	**A** Y☐ N☐

B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	**B** Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement Accreditation	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Frequently performed procedure, Leading cause of morbidity/mortality, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** Each year 2 million doses of platelets are transfused in the US for various abnormalities of hemostasis. The number of units transfused as a result of an abnormal laboratory value in the absence of impaired hemostasis is unknown, but could be substantial. Platelets are transfused to treat or prevent bleeding associated with thrombocytopenia and/or platelet dysfunction. Platelets given therapeutically should help stop the bleeding, and if given prophylactically, post transfusion platelet counts should be obtained to monitor the response to determine the effectiveness of the transfusion. 1a.4 **Citations for Evidence of High Impact:** Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008. British committee for standards in haematology (1999) guidelines for the administration of blood and blood components and the management of transfused patients. Transfusion Medicine, 9, 227-238. Liumbruno G, Bennardello F, Lattanzio A, et al. (SIMTI) Working Party.Recommendations for the transfusion of plasma and platlets retrieved from the world wide web on October 12, 2010 at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2689068/?log%24=activity Slichter, SJ. Evidence-based platelet transfusion guidelines. American Society of Hematology 2007: 172-178.	**1a** C☐ P☐ M☐ N☐

Guidelines for the use of platelet transfusions. BR J Haematol 2003:122;10-23.
Mintz PD,ed. Transfusion therapy: clinical principles and practice. 3rd ed. Bethesda, MD: AABB 2011.

1b. Opportunity for Improvement

1b.1 **Benefits (improvements in quality) envisioned by use of this measure:** Despite nearly two decades of awareness of inconsistent transfusion practices and publication of clinical practice guideline, there has not been improvement in the wide variability of transfusion rates for platelets. Measuring and monitoring patients that receive platelets will provide data that can be used to determine if patients are receiving the best care based on the guidelines.

1b.2 **Summary of data demonstrating performance gap (variation or overall poor performance) across providers:**
Although most platelet transfusions are given prophylactic ally to patients undergoing chemotherapy, a large number of transfusions are given to "prepare" patients for procedures. This is a common occurrence that is not an evidence-based practice.
One hospital changed their policy of transfusing prophylactic platelets at 20,000/µL to a combined approach of considering the platelet count and patient status resulted in the consumption of half of their platelet usage with no apparent increase in hemorrhagic complications. In the recent TRAC study, platelet use for patients undergoing isolated primary coronary artery bypass graft surgery ranged from 0.4% to 90.4% at 408 hospitals.

1b.3 **Citations for data on performance gap:**
Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
McVay PA, Toy PT. Lack of increased bleeding after paracentesis and thoracentesis in patients with mild coagulation abnormalities. Transfusion 1991;31:164-71.
DeLoughery TG, Liebler JM, Simonds V, Goodnight SH. Invasive line placement in critically ill patients: Do hemostatic defects matter? Transfusion 1996;36:827-31.
Goldfarb G, Lebrec D. Percutaneous cannulation of the internal jugular vein in patients with coagulopathies: An experience based on 1000attempts. Anesthesiology 1982;56:321-3.
Goodnough LT, Tran MH, Yazer MH. Transfusion triggers In Waters, JH, ed. Blood Management Options for Better Patient Care Bethesda, MD; AABBPress 2008.
Guerrero EB, Zhao Y, Obrien SM, Ferguson TB, Peterson ED, et al. Variation in use of blood transfusion in coronary artery bypass graft surgery. JAMA 2010;304(14) 1568-1575.

1b.4 **Summary of Data on disparities by population group:**
NA

1b.5 **Citations for data on Disparities:**
NA

1b
C☐
P☐
M☐
N☐

1c. Outcome or Evidence to Support Measure Focus

1c.1 **Relationship to Outcomes** (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Transfusion of platelets has been associated with adverse events. Repeated platelet transfusions can cause alloimmunization and platelet refractoriness to future transfusions. Multiple infectious risks are associated with platelet transfusions, so patients should only be exposed to the least amount needed. Collecting data on the transfusion processes of care can reduce variability within hospitals and has been shown to improve patient outcomes.

1c.2-3. **Type of Evidence:** Observational study, Evidence-based guideline, Expert opinion, Systematic synthesis of research, Meta-analysis

1c.4 **Summary of Evidence** (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
A retrospective review of 608 patients did not find any increased bleeding in patients with bleeding twice the midpoint of normal or platelet counts of 50 – 99 x 109 /L.
A retrospective analysis of 490 intensive care unit (ICU) patients in whom 938 arterial and venous catheters

1c
C☐
P☐
M☐
N☐

were placed found that preprocedural transfusion did not appear to impact the complication rate. However, 18 of 57 patients that received transfusions were inappropriately prescribed.
A higher rate of bleeding was found in medical patients as opposed to trauma or surgery patients with rates of 9%, 1.4% and 0.6% respectively that was attributed to inexperience of medical residents. However, this inexperience did not improve the bleeding rate in a report of 1000 attempts at internal jugular vein cannulations in patients with coagulopathy of liver disease by the medical service group. Hemorrhagic complications occurred in 10 patients with only one requiring surgical repair.
Most series examining transfusion before line placement in patients with thrombocytopenia (with or without other coagulopathy, report a low incidence of bleeding complications (= 1% - 6%). It appears that preprocedure or prophylactic platelet transfusion has little impact on subsequent bleeding complications, but operator inexperience was noted as the greatest predictor of bleeding in several series.

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):**
NA

1c.6 Method for rating evidence: NA

1c.7 Summary of Controversy/Contradictory Evidence: Unknown

1c.8 Citations for Evidence (*other than guidelines***):** Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
McVay PA, Toy PT. Lack of increased bleeding after paracentesis and thoracentesis in patients with mild coagulation abnormalities. Transfusion 1991;31:164-71.
DeLoughery TG, Liebler JM, Simonds V, Goodnight SH. Invasive line placement in critically ill patients: Do hemostatic defects matter? Transfusion 1996;36:827-31.
Goldfarb G, Lebrec D. Percutaneous cannulation of the internal jugular vein in patients with coagulopathies: An experience based on 1000attempts. Anesthesiology 1982;56:321-3.
Goodnough LT, Tran MH, Yazer MH. Transfusion triggers In Waters, JH, ed. Blood Management Options for Better Patient Care Bethesda, MD; AABBPress 2008.
Guerrero EB, Zhao Y, Obrien SM, Ferguson TB, Peterson ED, et al. Variation in use of blood transfusion in coronary artery bypass graft surgery. JAMA 2010;304(14) 1568-1575.
Hajjar LA, Vincent JL, Galas FRBG, Nakamura RE, Silva CMP, et al. Transfusion requirements after cardiac surgery: the TRACS randomized controlled trial. JAMA 2010; 304(14)1559-1567.
Shander AS, Goodnough LT. Blood transfusion as a quality indicator in cardiac surgery. JAMA 2010;(14)1610-1611.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number***):**
It is reasonable to transfuse non-red cell hemostatic blood products based on clinical evidence of bleeding and preferably guided by point-of-care tests that assess hemostatic function in a timely and accurate manner. (#4-2 p. S36).

1c.10 Clinical Practice Guideline Citation: Perioperative Blood Transfusion and Blood Conservation in Cardiac Surgery: The Society of Thoracic Surgeons and The Society of Cardiovascular Anesthesiologists Clinical Practice Guideline. Ann. Thorac. Surg., May 2007; 83: S27 - S86.
1c.11 National Guideline Clearinghouse or other URL:
http://www.sts.org/sections/aboutthesociety/practiceguidelines

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom***):**
Level of evidence is C, Class IIa

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF)***:**
The classification system is the same as that used by the Joint Task Force for Guidelines of the American College of Cardiology (ACC) and the American Heart Association (AHA).
Classification of Recommendations
Class I: Conditions for which there is evidence and/or general agreement that a given procedure or

treatment is useful and effective. Class II: Conditions for which there is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of a procedure or treatment. IIa. Weight of evidence/opinion is in favor of usefulness/efficacy IIb. Usefulness/efficacy is less well established by evidence/opinion. Class III: Conditions for which there is evidence and/or general agreement that the procedure/treatment is not useful/effective, and in some cases may be harmful. Level of Evidence Level of Evidence A: Data derived from multiple randomized clinical trials Level of Evidence B: Data derived from a single randomized trial, or non-randomized studies Level of Evidence C: Consensus opinion of experts 1c.14 **Rationale for using this guideline over others:** This measure set includes elective cardiac surgery patients. This guideline is cited because it supports platelet usage based on clinical evidence and prefers that point-of-care testing is used to assess hemostatic function prior to transfusion.	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 **Do you have a web page where current detailed measure specifications can be obtained?** S.2 **If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 **Numerator Statement (***Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome***):** Number of platelet doses(bags) with pre-transfusion platelet count result and clinical indication documented 2a.2 **Numerator Time Window (***The time period in which cases are eligible for inclusion in the numerator***):** Episode of care 2a.3 **Numerator Details (***All information required to collect/calculate the numerator, including all codes, logic, and definitions***):** The doses(bags)in the numerator are a subset of the denominator doses. The following data elements are collected for the numerator; Clinical Indication for Platelets, Pre-transfusion Platelet Count and Platelet ID. Detailed descriptions are provided in attachment for Section 2a.30.	
2a.4 **Denominator Statement (***Brief, text description of the denominator - target population being measured***):** Number of transfused platelet doses (bags) evaluated 2a.5 **Target population gender:** Female, Male 2a.6 **Target population age range:** Patients of all ages admitted to hospital 2a.7 **Denominator Time Window (***The time period in which cases are eligible for inclusion in the denominator***):** Episode of Care	**2a-specs** **C☐** **P☐** **M☐** **N☐**

2a.8 Denominator Details (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions***):**
Admission Date
Blood Administration Location
Blood Bank Records
ICD-9-CM Principal or Other Procedure Codes
Platelet ID
Pre-transfusion Platelet Count
Detailed descriptions are provided in attachment for Section 2a.30.

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population***):**

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
This measure could be stratified using the data element Blood Administration Location. The definition is the location where the blood transfusion started. Allowable values are: Intraoperative or Non-intraoperative Setting.

2a.12-13 Risk Adjustment Type: No risk adjustment necessary

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**

2a.15-17 Detailed risk model available Web page URL or attachment:

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Higher score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**
Algorithms are provided in attachment for Section 2a.30.

2a.22 Describe the method for discriminating performance *(e.g., significance testing)***:**
During the six-month pilot, the distribution of the hospital rates was reviewed over time.

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
For pilot testing, hospitals were requested to submit 10 cases of patients with platelet transfusions that were discharged from the designated six months. Post pilot, the sample size will be based on the number of platelet units transfused per discharge month or quarter.
Hospitals that choose to sample have the option of sampling quarterly or monthly. A hospital may choose to use a larger sample size than required. Hospitals with an initial population size less than the minimum number of doses/bags transfused per quarter/month for the measure, cannot apply sampling to the measure.

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested)*
Documentation of original self-assessment, Paper medical record/flow-sheet, Lab data

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
The Joint Commission developed a web-based data collection tool that was used by hospitals and for reliability testing during the pilot test. When the measures are made part of The Joint Commission's ORYX data collection and reporting program, the data would be collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy of the data collection tool with the specifications.

2a.26-28 Data source/data collection instrument reference web page URL or attachment: Attachment

The_Patient Blood_Management_Tool [1]-634279278614826626.pdf

2a.29-31 Data dictionary/code table web page URL or attachment: Attachment PBMSpecifications-634279425608300826.pdf

2a.32-35 Level of Measurement/Analysis (*Check the level(s) for which the measure is specified and tested)*
Facility/Agency, Can be measured at all levels

2a.36-37 Care Settings (*Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 Clinical Services (*Healthcare services being measured, check all that apply*)
Clinicians: PA/NP/Advanced Practice Nurse, Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)*: A sample of 194 medical records were reabstracted at 12 randomly selected acute care hospitals of different sizes and locations throughout the country from July through September 2010.

2b.2 Analytic Method *(type of reliability & rationale, method for testing)*:
Hospitals for reliability testing were randomly selected based on multiple characteristics, including region (west, south, north central, northeast), hospital type (teaching/non-teaching, rural/urban), and bed size (0-99, 100-199, 200-299, 300+). The objectives of the reliability site visits included: evaluation of the reliability of the individual measures and associated data elements, assessment of data collection effort including abstraction time and estimated cost, assessment of measure specifications including definitions, abstraction guidelines, etc. and assessment of sampling strategies. To prepare for the reliability site visits, the data collection tool that was used by the pilot hospitals was enhanced and tested. During the reliability site visit, Joint Commission staff re-abstracted a sub-set of records that had been previously submitted by the hospital into the enhanced data collection tool without knowing the measure specific data values that the hospital had submitted. When reabstraction was completed for each record, the results from the hospital and Joint Commission staff were compared and differences adjudicated in the program. Focus group interviews were conducted at each hospital and findings were discussed with each hospital to understand what aspects could be improved. A comparison of calculated indicator rates using data originally abstracted by hospitals and the data that were reabstracted by The Joint Commission staff was adjudicated on each measure and the individual data elements. Statistical analysis utilized Kappa scores and p values.

2b.3 Testing Results *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
The number of originally abstracted denominator events was 33 with a computed original measure rate of 73%. The number of re-abstracted denominator events was 34 with a re-abstracted measure rate of 68%. The absolute difference was 5% with a Kappa score of 0.571. The percent of hospital identified population verified as 99%. The match rate for 51 events for the individual data elements was: Clinical Indication for Platelets 65%, Platelet Event ID 94%, Platelet Event Total Doses 94%, and Pre-transfusion Platelet Count 78%. Measure specifications have been revised to strengthen and provide additional clarity to the data element definitions and abstraction guidelines.

2b C☐ P☐ M☐ N☐

2c. Validity testing

2c.1 Data/sample *(description of data/sample and size)*: Face validity was tested by a total of 63 hospitals of various sizes and geographic locations across the country that represented over 300 individuals during August and May 2009. Measure specifications were sent to the test hospitals for review. In addition, on-site focus interviews were conducted at five hospitals. Criterion validity was evaluated during the reliability site visits mentioned above as well as through an online survey that the participating hospitals completed.

2c C☐ P☐ M☐ N☐

2c.2 Analytic Method *(type of validity & rationale, method for testing)*:
The measure information form and the data dictionary were evaluated for face validity. The following parts of the measure information form were evaluated: numerator statement, numerator inclusions, numerator exclusions, denominator statement, denominator inclusions, denominator exclusions and an overall understanding of the measure information form. Each area was scored utilizing a five-point Likert scale. For each data element, the hospitals were asked to comment on the clarity and understanding of the abstraction guidelines and data definitions. In addition, the data dictionary was reviewed for overall understanding, usefulness and clarity utilizing a five-point Likert scale. Qualitative analysis was performed on measure feedback received during the focus group interviews and from the online surveys.

2c.3 Testing Results *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
A total of 58 hospitals completed the face validity evaluation and rated the overall understanding of the numerator and denominator statements an average 4.3% that ranked the measure 4th out of the 10 measures. Modifications to improve the understanding and clarity of the measure specifications were made prior to pilot testing based on feedback received from the hospitals during the face validity evaluation. Analysis of the online survey revealed 98% (57/58) of the pilot hospitals recommended moving the measure forward to the pilot test with suggested modifications. Note: For alpha testing, samples of all three blood products were proposed for one measure population.

2d. Exclusions Justified

2d.1 Summary of Evidence supporting exclusion(s):

2d.2 Citations for Evidence:

2d.3 Data/sample *(description of data/sample and size)*:

2d.4 Analytic Method *(type analysis & rationale)*:

2d.5 Testing Results *(e.g., frequency, variability, sensitivity analyses)*:

2d
C☐
P☐
M☐
N☐
NA☐

2e. Risk Adjustment for Outcomes/ Resource Use Measures

2e.1 Data/sample *(description of data/sample and size)*:

2e.2 Analytic Method *(type of risk adjustment, analysis, & rationale)*:

2e.3 Testing Results *(risk model performance metrics)*:

2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:

2e
C☐
P☐
M☐
N☐
NA☐

2f. Identification of Meaningful Differences in Performance

2f.1 Data/sample from Testing or Current Use *(description of data/sample and size)*: A sample of patients was selected from the eligible measure population. For each patient, a maximum of the first three 'events' (based on transfusion order) that could include up to three units or doses of blood from each of the three types of blood products were used for measurement purposes.

2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance *(type of analysis & rationale)*:
Z-scores were used to determine hospital measure rates that were significantly different from the overall average.

2f
C☐
P☐
M☐
N☐

2f.3 Provide Measure Scores from Testing or Current Use *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*: Mean Rate for All Hospitals = 74.9% Overall Rate for All Hospitals = 72.2% Standard Deviation = 24.8% Median Rate for All Hospitals = 83.3% Min. = 13.8% Max. = 100% Lower Quartile = 55.5% Upper Quartile = 100% Z< -2* = 2 Z< 2** = 0	
2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: **2g.2 Analytic Method** *(type of analysis & rationale)*: **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*:	**2g** C☐ P☐ M☐ N☐ NA☐
2h. Disparities in Care **2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**	**2h** C☐ P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	***2*** C☐ P☐ M☐ N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information **3a.1 Current Use:** Not in use but testing completed **3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large)** *(If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years)*: We intend to incorporate these Patient Blood Management measures into our ORYX initiative with associated public reporting on Quality Check when there is a national call for these measures. **3a.3 If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** The specifications will be posted on the Joint Commission website for public use in 2011. **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*)	**3a** C☐ P☐ M☐ N☐

3a.4 Data/sample *(description of data/sample and size)*: **3a.5 Methods** *(e.g., focus group, survey, QI project)*: **3a.6 Results** *(qualitative and/or quantitative results and conclusions)*:	
3b/3c. Relation to other NQF-endorsed measures **3b.1 NQF # and Title of similar or related measures:**	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): **3b.2 Are the measure specifications harmonized? If not, why?**	**3b** C☐ P☐ M☐ N☐ NA☐
3c. Distinctive or Additive Value **3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** **5.1 If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:**	**3c** C☐ P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** C☐ P☐ M☐ N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	**Eval Rating**
4a. Data Generated as a Byproduct of Care Processes **4a.1-2 How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	**4a** C☐ P☐ M☐ N☐
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) No **4b.2 If not, specify the near-term path to achieve electronic capture by most providers.** The project will begin Phase III in January 2011 to retool the specifications for retrieval from an electronic health record.	**4b** C☐ P☐ M☐ N☐
4c. Exclusions	**4c**

4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications? No **4c.2 If yes, provide justification.**	C☐ P☐ M☐ N☐ NA☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.**	**4d** C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** Abstraction time for PBM-04 varied based on whether the patient received platelets and the number of doses (bags) transfused to each patient. Fewer platelets were transfused during testing than RBCs, so the extra layer of abstraction by 'event' was not as critical to reliability. However, for consistency, all blood products will be abstracted by unit/dose (bag) and the initial four platelet doses (bags) will be evaluated. There were similar issues related to the difficulty abstractors had in determining how to match the hospital indication with the pilot indication as mentioned for PBM-02 for the data element Clinical Indication for Platelets, but post pilot, hospitals will not have to categorize the indication to a pre-defined list of reasons. Intraoperatively, documentation of a blood transfusion pre-transfusion lab results and clinical indication was lacking in most paper-based records. So, in order to assist hospitals to focus their efforts on areas with low rates of compliance, this measure will be stratified so that hospitals can track results based on administration location. The "closest" platelet count value will be abstracted without a "within 24 hour timeframe" requirement for consistency with the other transfusion measures. Pilot hospitals were requested to estimate the time to abstract one unit of plasma for the six-month pilot. Twenty hospitals estimated an average time of 30 minutes to abstract a unit of blood with an average cost of $21-25 per hour. However, these costs do not include the time or cost involved in identifying the patient population, staff training or data collection tool instruction. It should also be noted that the learning curve varied widely due to the staff experience and expertise that were utilized for a 'time-limited' project. Due to the amount of time needed to manually abstract the volume of blood transfusions, we believe that these measures are most suitable for abstraction from an electronic medical record (EHR). Retrieval from an EHR could capture 100% of all units that were transfused and would decrease or eliminate the associated abstraction burden. This method would also improve the identification of patients who received blood since procedure codes to document blood use are not standardized across the country. In the meantime, patients can be identified using blood bank records or procedure codes. During the 12 reliability site visits, two Joint Commission staff also found that the abstraction time varied widely based on the method of record retrieval (e.g., paper record, scanned record or electronic information) at each hospital and the amount of blood transfused per case. Based on hospital feedback, measure specifications have been revised to strengthen and provide additional clarity to data element definitions and abstraction guidelines. The timing and frequency of data collection will remain monthly or quarterly as it does for the other Joint Commission measure sets. Maintaining patient confidentially was not an issue during the pilot test, since blinded hospital and patient identifiers are used on all data received by the Joint Commission staff for data quality reviews. **4e.2 Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** The majority of hospitals already have processes in place to abstract measures if the patients are identified using procedure codes. However, some hospitals document total hospital blood use using blood bank records that would have to be cross-referenced by the patient medical record number to determine how much and the type of blood product each patient received which adds to the abstraction burden. After identifying the patients, the time to collect the data elements for this measure from the operative section	**4e** C☐ P☐ M☐ N☐

of the record would be increased, if available, using manual abstraction. This measure would evaluate the first three doses of platelets regardless of the number transfused. Hospitals with Blood Management or conservation programs may have fewer doses to review and those with efficient or electronic processes to document blood may have lower abstraction costs. 4e.3 **Evidence for costs:** 4e.4 **Business case documentation:** There continues to be considerable unexplained variation in transfusion practices across organizations, products and patient populations. Recent evidence is mounting that demonstrates significant harm from unnecessary blood transfusions. Monitoring transfusions will provide information so hospitals can begin to identify patients who are transfused outside of recommendations. It has been found that hospitals that track blood use at the patient specific level have a higher percentage of appropriate transfusions than those that do not track blood use at that level. Measuring blood use should decrease the amount of blood transfused and improve patient safety.	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** **C☐** **P☐** **M☐** **N☐**
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited ☐**
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y☐** **N☐** **A☐**
CONTACT INFORMATION	
Co.1 **Measure Steward (Intellectual Property Owner)** Co.1 **Organization** The Joint Commission, One Renaissance Boulevard., Oakbrook Terrace, Illinois, 60181 Co.2 **Point of Contact** Jerod M., Loeb, PhD, jloeb@jointcommission.org, 630-792-5920-	
Measure Developer If different from Measure Steward Co.3 **Organization** The Joint Commission, One Renaissance Boulevard., Oakbrook Terrace, Illinois, 60181 Co.4 **Point of Contact** Harriet, Gammon, MSN, RN, CPHQ, hgammon@jointcommission, 630-792-5926-	
Co.5 **Submitter If different from Measure Steward POC** Harriet, Gammon, MSN, RN, CPHQ, hgammon@jointcommission, 630-792-5926-, The Joint Commission	
Co.6 **Additional organizations that sponsored/participated in measure development**	
ADDITIONAL INFORMATION	
Workgroup/Expert Panel involved in measure development Ad.1 **Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.** The technical advisory panel determined priority areas in blood management for measure development. They	

reviewed public comments and were actively involved in all phases of the project to identify and develop the numerator and denominator statements. Measure recommendations for National Quality Forum endorsement were made after careful review of the pilot results and site feedback.
Ad.2 If adapted, provide name of original measure: **Ad.3-5 If adapted, provide original specifications URL or attachment**
Measure Developer/Steward Updates and Ongoing Maintenance **Ad.6 Year the measure was first released:** **Ad.7 Month and Year of most recent revision:** 12, 2010 **Ad.8 What is your frequency for review/update of this measure?** Biannually **Ad.9 When is the next scheduled review/update for this measure?** 06, 2011
Ad.10 Copyright statement/disclaimers: No royalty or use fee is required for copying or reprinting this manual, but the following are required as a condition of usage: 1) disclosure that the Specifications Manual is periodically updated, and that the version being copied or reprinted may not be up-to-date when used unless the copier or printer has verified the version to be up-to-date and affirms that, and 2) users participating in Joint Commission accreditation, including performance measures systems, are required to update their software and associated documentation based on the published manual production timelines. Example Acknowledgement: The Specifications Manual for National Hospital Inpatient Quality Measures Patient Blood Management Performance Measure Set is periodically updated by The Joint Commission. Users of the Specifications Manual for National Hospital Inpatient Quality Measures Patient Blood Management Performance Measure Set must update their software and associated documentation based on the published manual production timelines.
Ad.11 -13 Additional Information web page URL or attachment: Attachment TAPLISTWEBc-634276990361839498.doc
Date of Submission (*MM/DD/YY*)**:** 12/29/2010

Patient Blood Management (PBM)

Set Measures

Set Measure ID	Measure Short Name
PBM-01	Transfusion Consent
PBM-02	RBC Transfusion Indication
PBM-03	Plasma Transfusion Indication
PBM-04	Platelet Transfusion Indication
PBM-05	Blood Administration Documentation
PBM-06	Preoperative Anemia Screening
PBM-07	Preoperative Blood Type Testing and Antibody Screening

Measure Set Specific Data Elements

Element Name	Collected For
Admission From Home	PBM-06,
Anesthesia Start Date	PBM-06,
Blood Administration Location	PBM-02, PBM-03, PBM-04, PBM-05,
Blood Bank Records	PBM-01, PBM-02, PBM-03, PBM-04, PBM-05,
Blood ID Number	PBM-05,
Blood Type Testing Ordered	PBM-07,
Clinical Indication for Plasma	PBM-03,
Clinical Indication for Platelets	PBM-04,
Clinical Indication for RBCs	PBM-02,
Education Addressed Risks, Benefits and Alternatives to Transfusion	PBM-01,
Patient ID Verification	PBM-05,
Plasma ID	PBM-03, PBM-05,
Platelet ID	PBM-04, PBM-05,
Pre-transfusion Hematocrit	PBM-02,
Pre-transfusion Hemoglobin	PBM-02,
Pre-transfusion PT/INR Result	PBM-03,
Pre-transfusion Platelet Count	PBM-04,
Preoperative Anemia Screening Date	PBM-06,
Preoperative Blood Type Testing	PBM-07,
RBC ID	PBM-02, PBM-05,
RBC Unit Exclusions	PBM-02, PBM-05,
Surgery Scheduled Timeframe	PBM-06,
Transfusion Consent	PBM-01,
Transfusion Order	PBM-05,
Transfusion Start Date	PBM-05,
Transfusion Start Time	PBM-05,
Vital Sign Monitoring	PBM-05,

Related Materials

Document Name
z. Appendix E - Miscellaneous Tables

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-01

Performance Measure Name: Transfusion Consent

Description: Patients with a signed consent who received information about the risks, benefits and alternatives of transfusion prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency.

Rationale: Planning a discussion with a licensed practitioner regarding the risks, benefits and alternatives of transfusion is an opportunity for the patient to participate in decisions about his or her care. It is a process that takes into consideration, each patient's preferences, clinical needs and provides information in compliance with the regulations and policies of the state and facility. Even though policies related to informed consent may vary among hospitals, all hospitals require some type of consent prior to treatment unless emergency care is needed. The elements of performance for the Joint Commission Standard RI.01.03.01 related to the informed consent process include a discussion about the risks, benefits and alternatives, and a discussion about the risk, if care is not received. This measure is also supported by the Joint Commission's National Patient Safety Goal (NPSG) 13 that encourages patients' active involvement in their own care as a patient safety strategy.

For many years, the American Association of Blood Banks (AABB) organization has supported the consent process for transfusion and has developed several standards such as AABB Standard 5.19.1. AABB requires that at a minimum, a recipient consent for transfusion and that should include; a description of the risks, benefits and treatment alternatives, the opportunity to ask questions and the right to accept or refuse transfusion.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with a signed consent who received information about the risks, benefits and alternatives prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Education Addressed Risks, Benefits and Alternatives to Transfusion*
- *Transfusion Consent*

Denominator Statement: Patients who received red blood cell, plasma or platelet transfusions

Included Populations: Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.3-9.6 or a transfusion documented from Blood Bank Records.

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data collection sources for required data elements include administrative data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document tranfusions may use blood bank records to identify the population.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Hospitals may want to evaluate the cases according to medical or surgical designation that were not included in the numerator in order to determine if the consent was signed and/or if all or only part of the educational components were given or if documentation was insufficient. Based on this information, hospitals may assess the barriers impacting this measure that could be improved.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

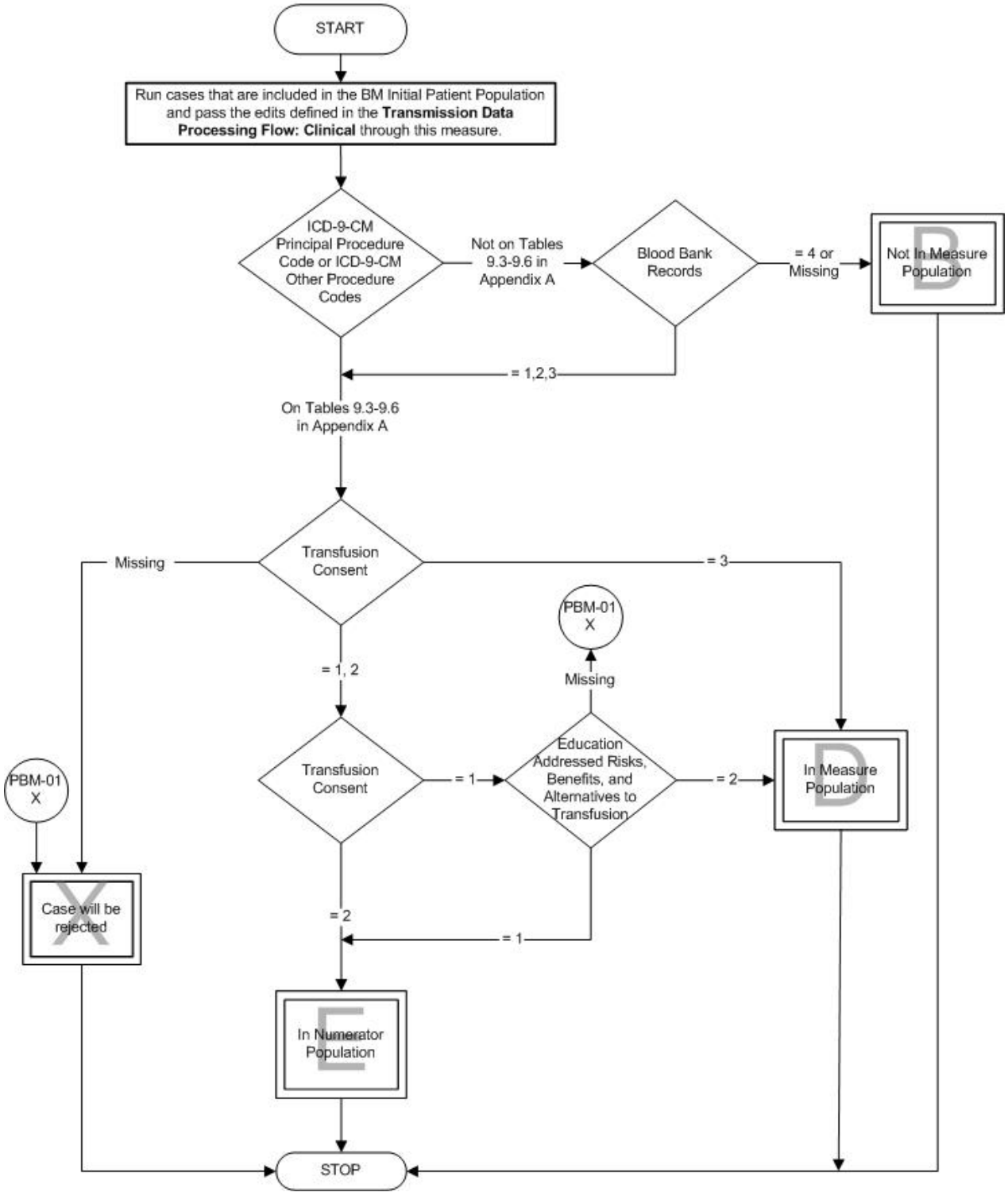
- Speiss BD, Counts RB, Gould SA. Perioperative Transfusion Medicine, Williams and Wilkins; 1998; 201-204.
- Stowell C, Sazama K. Informed Consent in Blood Transfusion and Cellular Therapies: Patients, Donors and Research Subjects. AABB Press; 2007; ISBN #978-1-56395-254-8.
- Burch JW, Uhl L. Guidelines for Informed Consent in Transfusion Medicine. AABB Press; 2006; ISBN #1-56395-146-0.2008.
- Standards for Blood Banks and Transfusion Services, 25th ed. Bethseda, MD: AABB 2008.
- The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL. Joint Commission Resources, Inc, 2009.
- The Joint Commission, “National Patient Safety Goals (NPSG)”, IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.

Measure Algorithm:

PBM–01: Transfusion Consent

Numerator: Patients with a signed consent who received information about the risks, benefits and alternatives prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency

Denominator: Patients who received red blood cells, platelets or plasma



Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-02

Performance Measure Name: RBC Transfusion Indication

Description: The number of transfused red blood cell (RBC) units with a pre-transfusion hemoglobin (hgb) or hematocrit (hct) result and clinical indication documented from patients of all ages who received RBCs.

Rationale: Improvement of the safety and quality of care that a hospital provides includes the review of the use of blood and blood products. Despite current evidence and best practice guidelines, clinical practice regarding when to transfuse varies among physicians and institutions even though most would agree that blood products should only be given when the benefits outweigh the harm. Many advocate that transfusion decisions should be based on a clinical assessment and not on laboratory values alone to avoid inappropriate over-or-under transfusion. Measuring whether an "indication for transfusion" and a pre-transfusion laboratory value was documented may improve the utilization of blood components. In addition, implementing such a process may simplify the hospital's review for appropriateness of the transfusion when auditing records for accreditation and regulatory agencies. In a study by Friedman and Ebrahim, there was a significant correlation between red blood cell transfusions that lacked documentation of the clinical necessity for transfusion and justification of the transfusion.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of RBC units with pre-transfusion hemoglobin or hematocrit result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for RBCs*
- *Pre-transfusion Hematocrit*
- *Pre-transfusion Hemoglobin*
- *RBC ID*

Denominator Statement: Number of transfused red blood cell units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Tables 9.3 or 9.4 or a RBC transfusion documented from Blood Bank Records.
- The first six RBCs units transfused after hospital arrival

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*
- *RBC Unit Exclusions*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received RBCs.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Hospitals may want to use the data to further evaluate the process for determining the need for blood products based on the clinical indications and correlating it with the pre-transfusion value that was documented. This information may assist hospitals to determine if the patients were transfused appropriately or if efforts should be directed toward additional documentation efforts for monitoring blood product usage. Data may be grouped by service designation or by blood products to identify specific areas for staff review.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

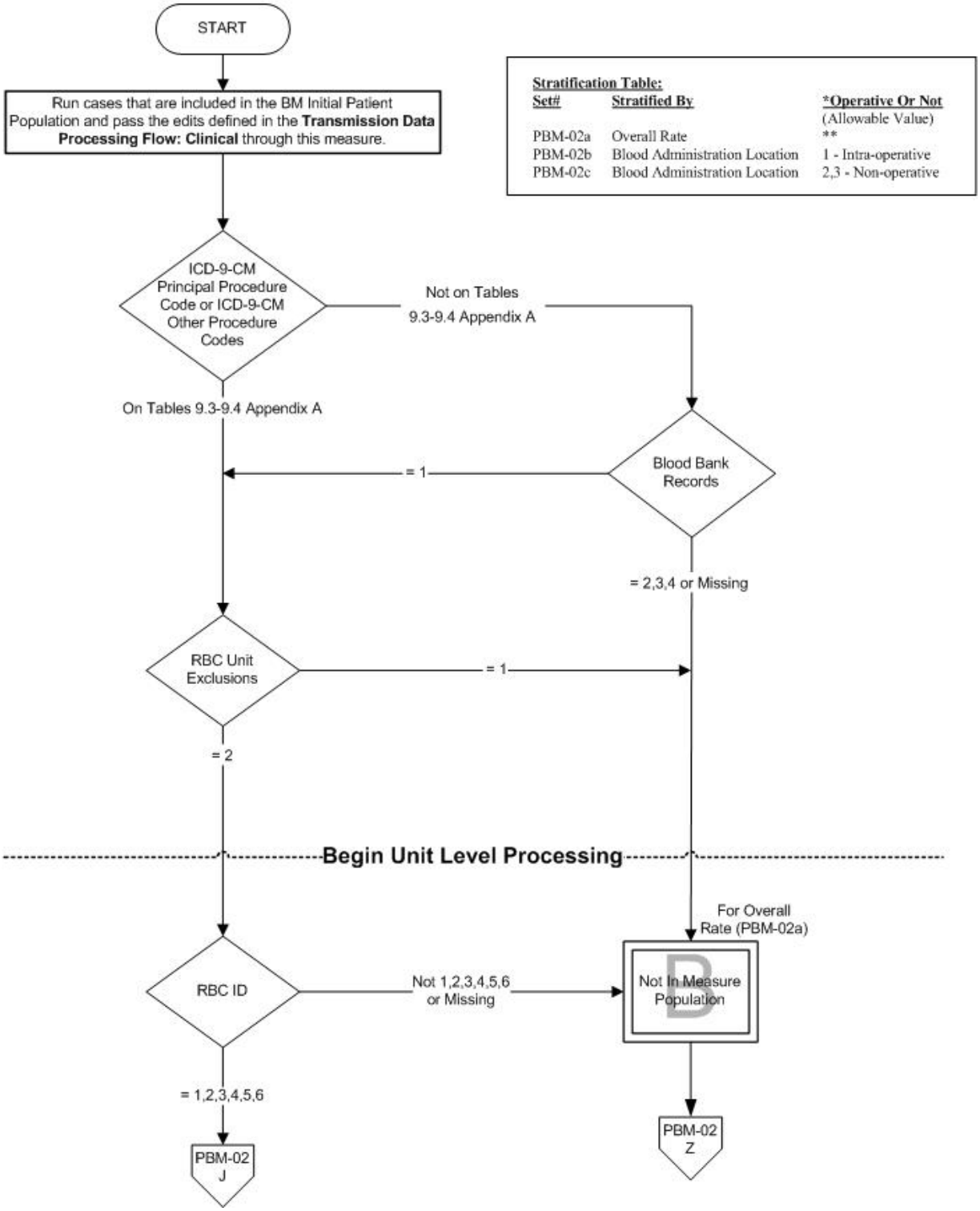
- Friedman MT, Ebrahim A. Adequacy of physician documentation of red blood cell transfusion and correlation with assessment of transfusion appropriateness. Arch Pathol Lab Med. 2006;130: 474-79.
- Corwin HL, Parsonnet KC, Gettinger A. RBC transfusion in the ICU: is there a reason? Chest. 1995;108: 767-771.
- Tobin SN, Campbell DA, Boyce NW. Durability of response to a targeted intervention to modify clinician transfusion practices in a major teaching hospital. MJA. 2001;174:445-448.
- Clinical practice guideline: Red blood cell transfusion in adult trauma and critical care. Crit Care Med 2009 Vol.37, No.12.

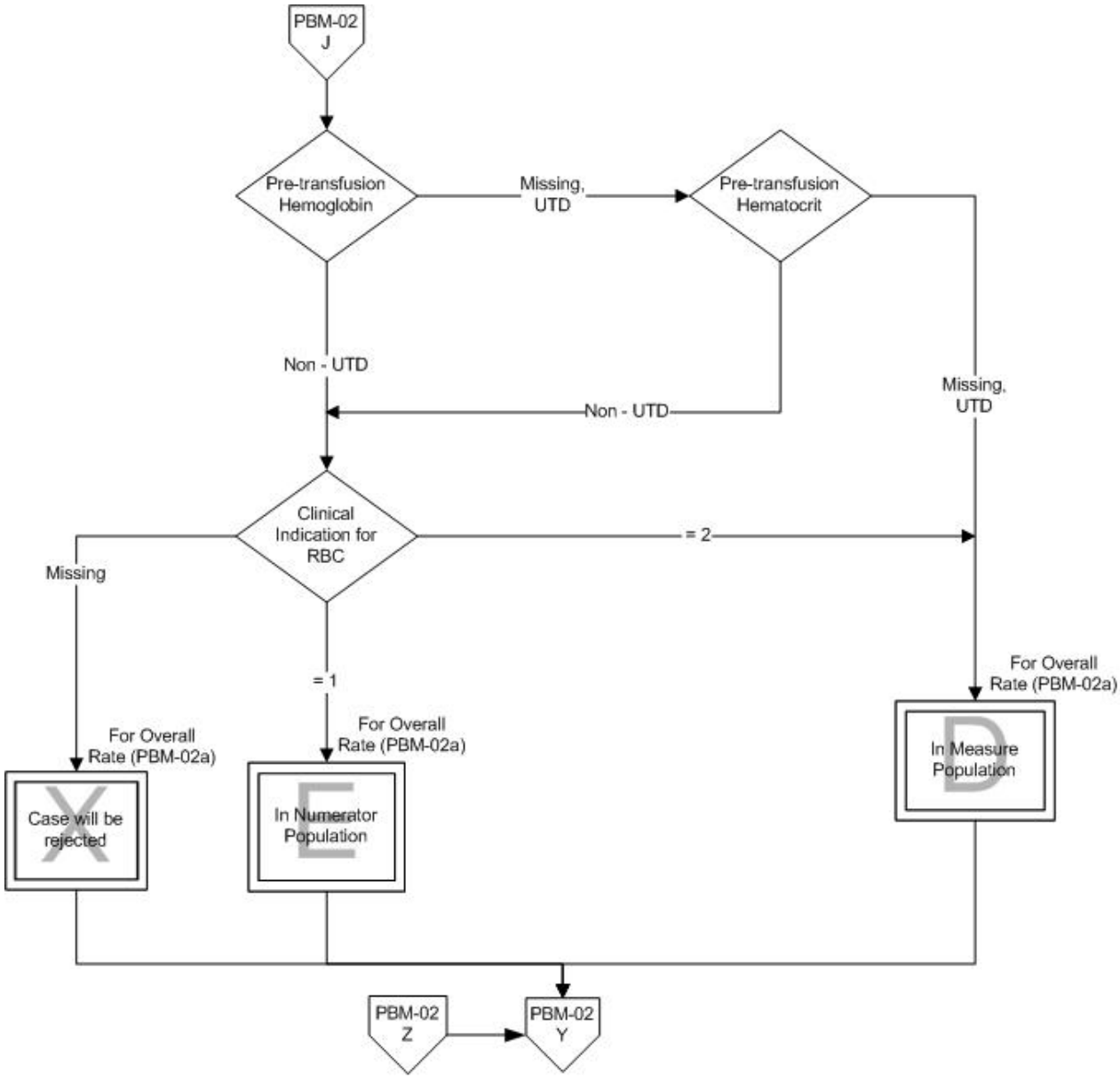
Measure Algorithm:

PBM–02: RBC Transfusion Indication

Numerator: Number of RBC units (bags) with pre-transfusion hemoglobin or hematocrit result and clinical indication documented

Denominator: Number of transfused red blood cell units evaluated





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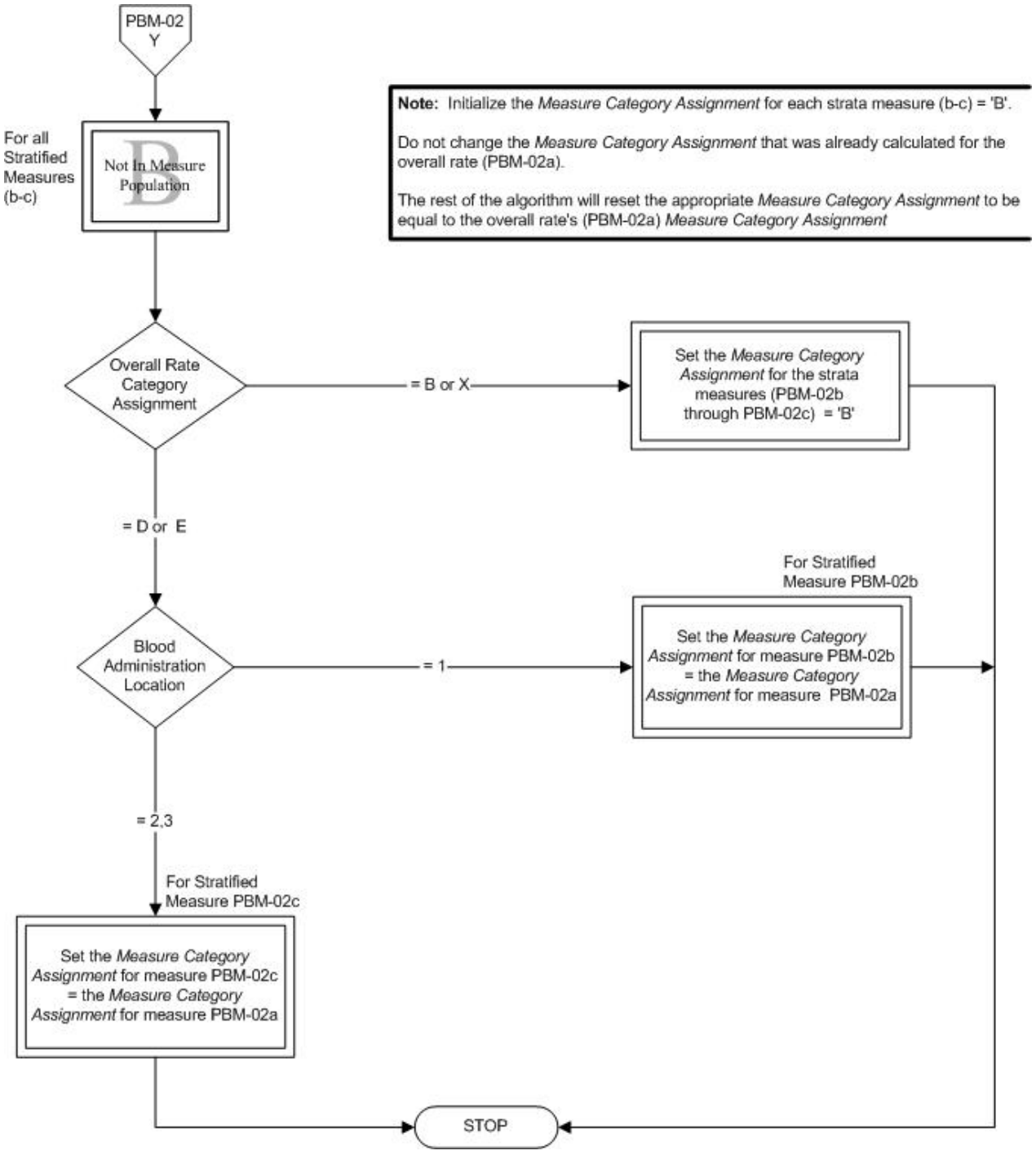


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-03

Performance Measure Name: Plasma Transfusion Indication

Description: The number of transfused plasma units with a pre-transfusion PT/INR result and clinical indication documented from patients of all ages who received plasma.

Rationale: The use of plasma has increased and is disproportionally high compared to other countries with similar levels of health care. Indications for transfusing plasma are very limited, and as a result, published studies often show unjustifiable use of plasma. According to the National Heart Lung and Blood Institute, plasma should be administered only to increase the level of clotting factors in patients with a demonstrated deficiency. If the prothrombin time (PT) and partial thromboplastin time (PTT) are < 1.5 times normal, a plasma transfusion is rarely needed. However, plasma is frequently transfused to patients with mild-to moderate elevations in PT despite numerous studies that have not shown a correlation between the risk of bleeding and mild-to moderate test results. In a study by Wahab et al, transfusion of plasma for mild abnormalities of coagulation values resulted in a partial normalization in a minority of patients, and failed to correct the PT in 99% of the patients. In a 2004 study by Hui, the need to correct prolonged international normalized ratios (INRs) for patients on warfarin emerged as the primary indication for plasma followed by massive transfusions.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of plasma units with pre-transfusion PT/INR result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for Plasma*
- *Plasma ID*
- *Pre-transfusion PT/INR Result*

Denominator Statement: Number of transfused plasma units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.6 or a plasma transfusion documented from Blood Bank Records
- The first three plasma units transfused from hospital arrival

Excluded Populations:

- Discharges with an ICD-9-CM Principal Diagnosis Code of trauma as defined in Appendix A, Table 9.7.

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Diagnosis Code*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received plasma.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Data from this measure may be used to review the type of invasive procedures or surgeries that use plasma in order to further evaluate appropriateness of use.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

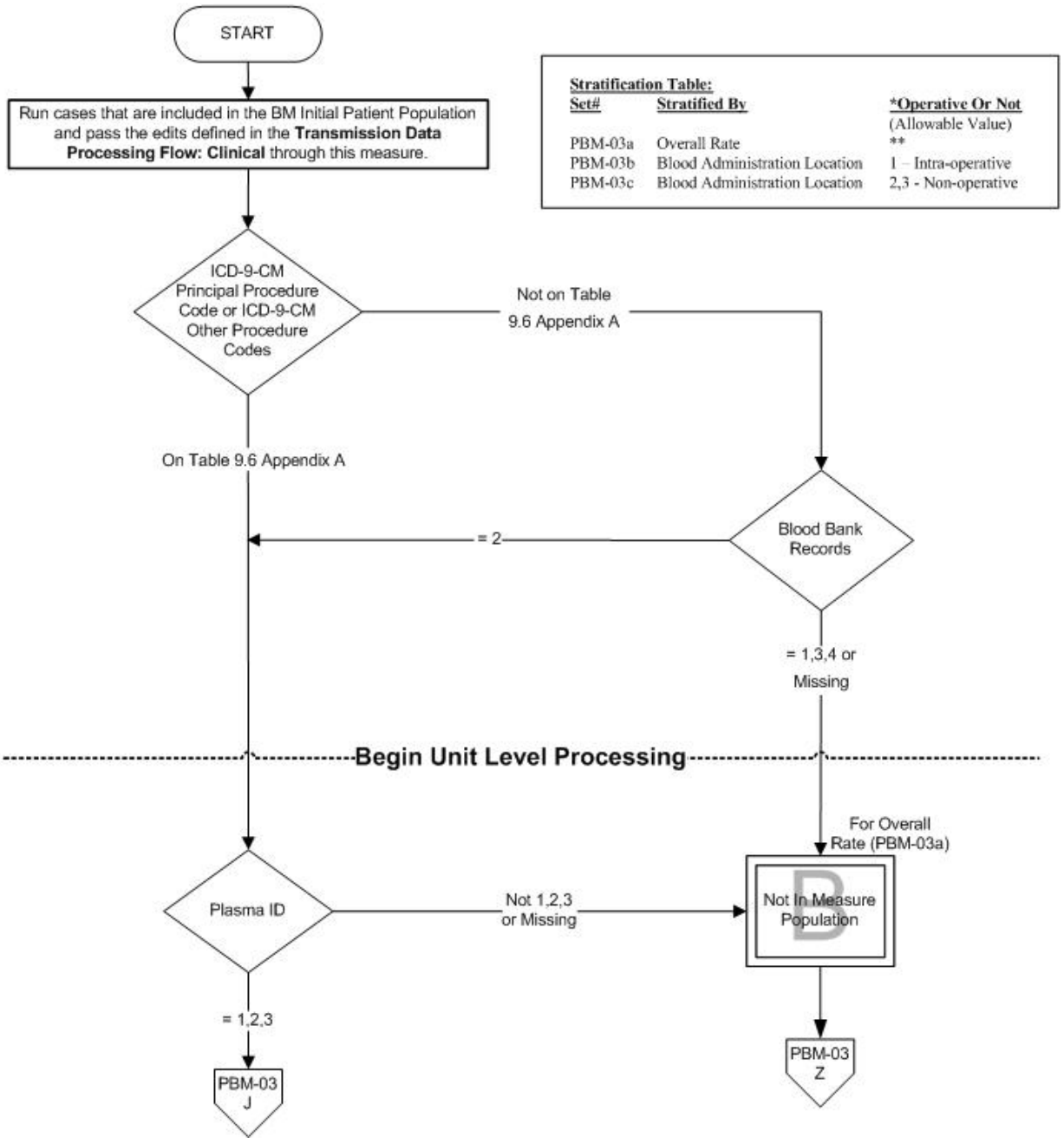
- Hui C, Williams I, Davis K. Clinical audit of the use of fresh-frozen plasma and platelets in a tertiary teaching hospital and the impact of a new transfusion request form. Int Med J. 2005;35:283-288.
- Wallis JP, Dzik S. Is fresh frozen plasma overtransfused in the United States? Transfusion. 2004;44:1674-75.
- Ardel-Wahab OI, Healy B, Dzik WH. Effect of fresh-frozen plasma transfusion on prothrombin time and bleeding in patients with mild coagulation abnormalities. Transfusion. 2006;46:1479-1285.
- Segal J, Dzik WH; Transfusion Medicine/Hemostasis Clinical Trials Network. Paucity of studies to support that abnormal coagulation test results predict bleeding in the setting of invasive procedures: an evidenced-based review. Transfusion. 2005;45:1413-25.

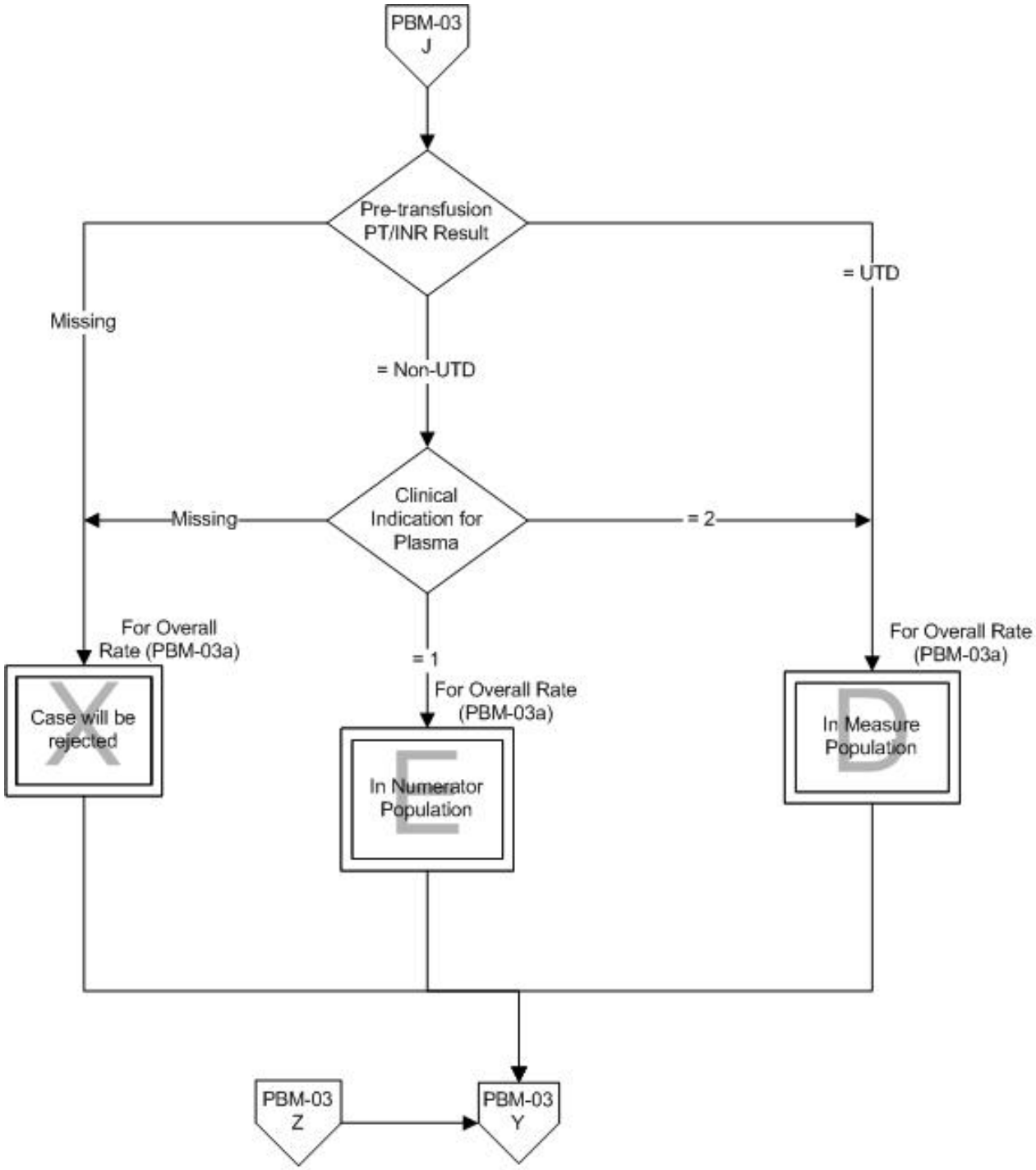
Measure Algorithm:

PBM–03: Plasma Transfusion Indication

Numerator: Number of plasma units with pre-transfusion PT/INR result and clinical indication documented

Denominator: Number of transfused plasma units evaluated





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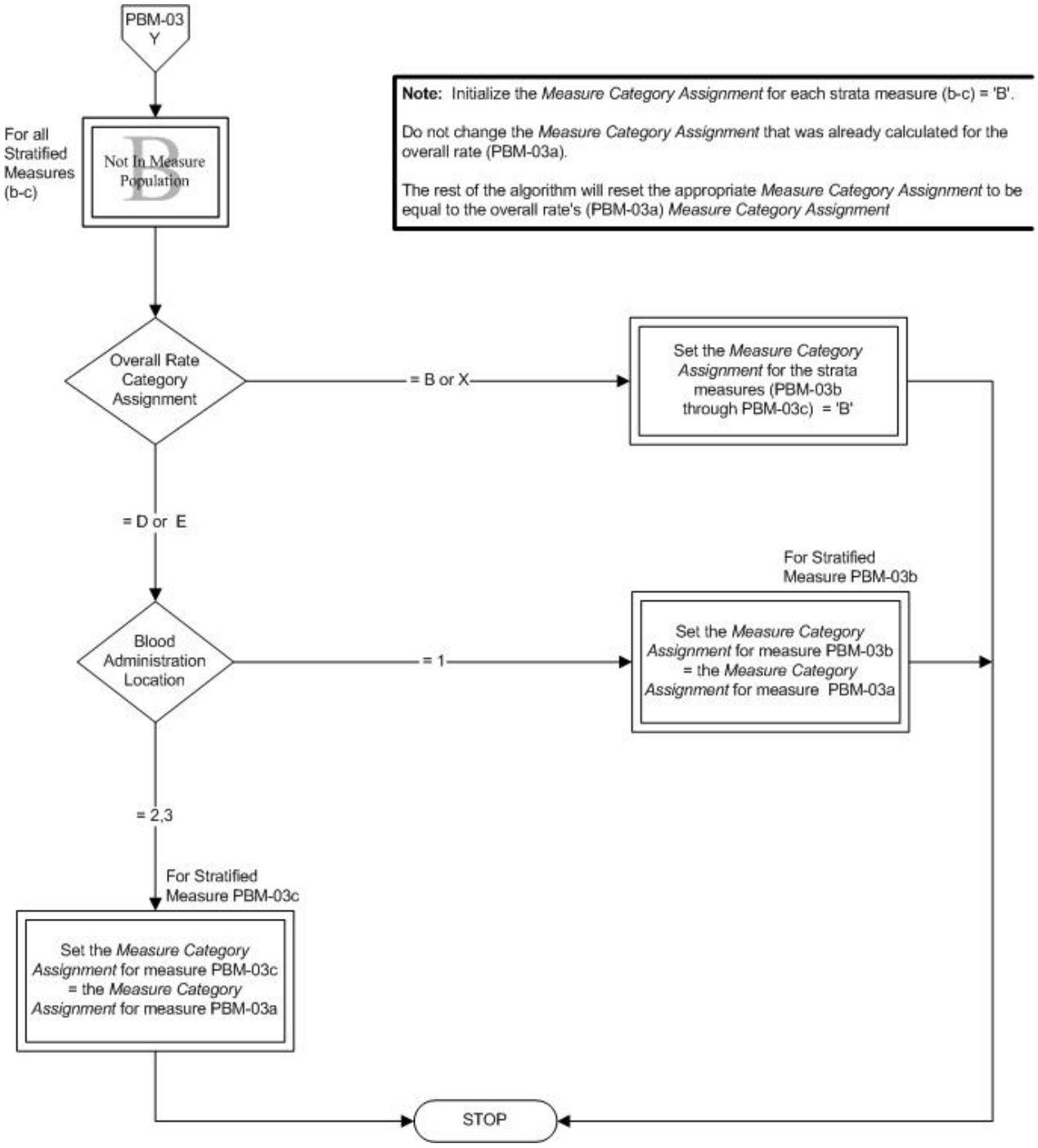


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-04

Performance Measure Name: Platelet Transfusion Indication

Description: The number of transfused platelet units with pre-transfusion platelet count and clinical indication documented from patients of all ages who received platelets.

Rationale: Platelets are transfused to treat or prevent bleeding associated with thrombocytopenia and/or platelet dysfunction. Platelets given therapeutically should help stop the bleeding, and if given prophylactically, post transfusion platelet counts should be obtained to monitor the response to determine the effectiveness of the transfusion. Repeated platelet transfusions can cause alloimmunization and cause platelet refractoriness to future transfusions. Multiple infectious risks are associated with platelet transfusions so patients should only be exposed to the least amount needed.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of platelet units with pre-transfusion platelet count result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for Platelets*
- *Platelet ID*
- *Pre-transfusion Platelet Count*

Denominator Statement: Number of transfused platelet units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.5 or a platelet transfusion documented from Blood Bank Records
- The first three platelet units transfused after hospital arrival

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Blood Administration Location*
- *Blood Bank Records*

- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received platelets.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Data from this measure may be used to evaluate the utilization and approriateness of platelets used by an organization.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

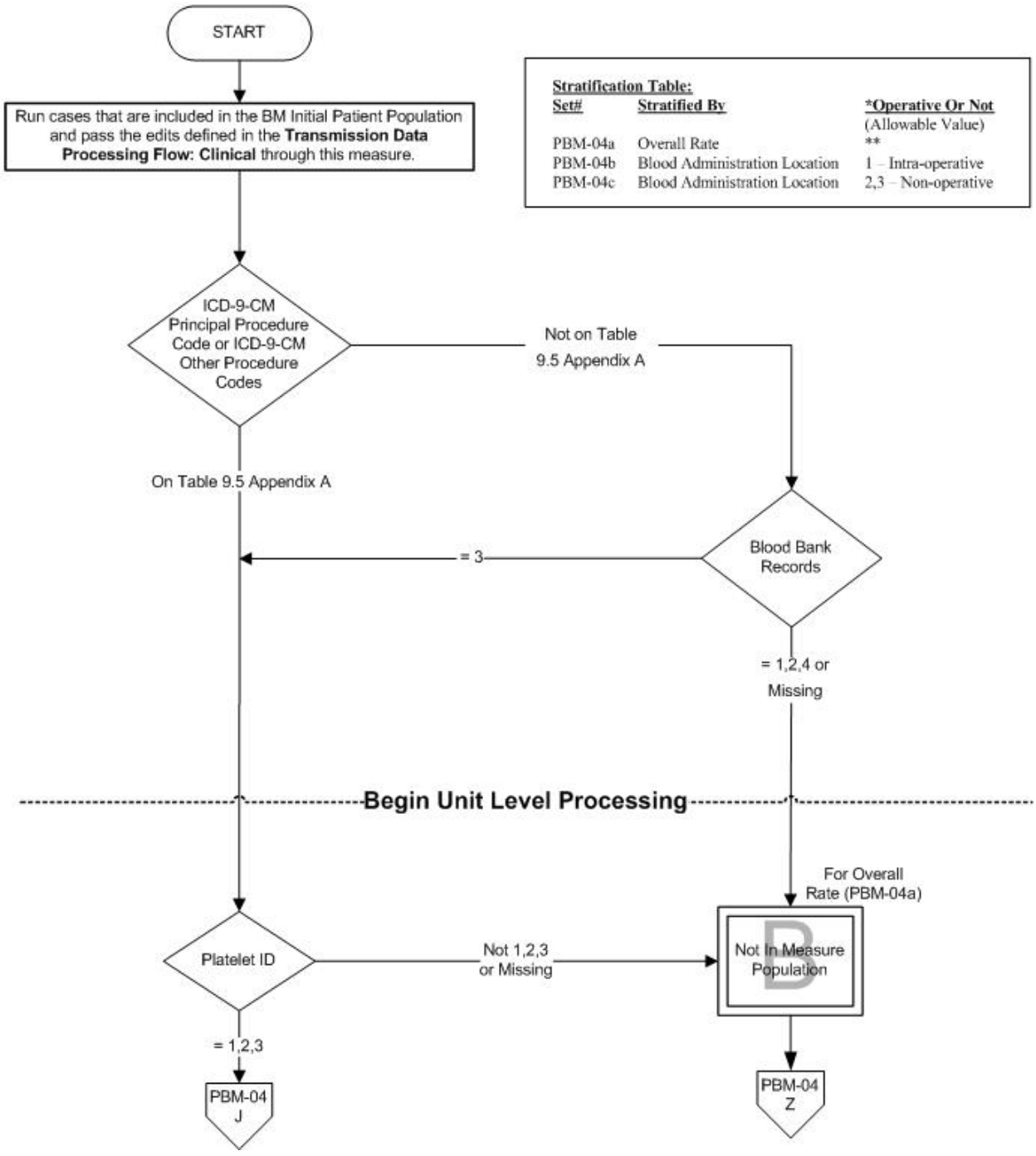
- Garrioch M, Sandbach J, Pirie E, Morrison A, Todd A, Green R. Reducing red cell transfusion by audit, education and a new guideline in a large teaching hospital. Transfusion Med. 2004;14:25-31.
- Petrides M. Red cell transfusion “trigger”: A review. Southern Med J. 2003; 96:664-667.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- BR J Haematol 1998, 101:609 - 617.

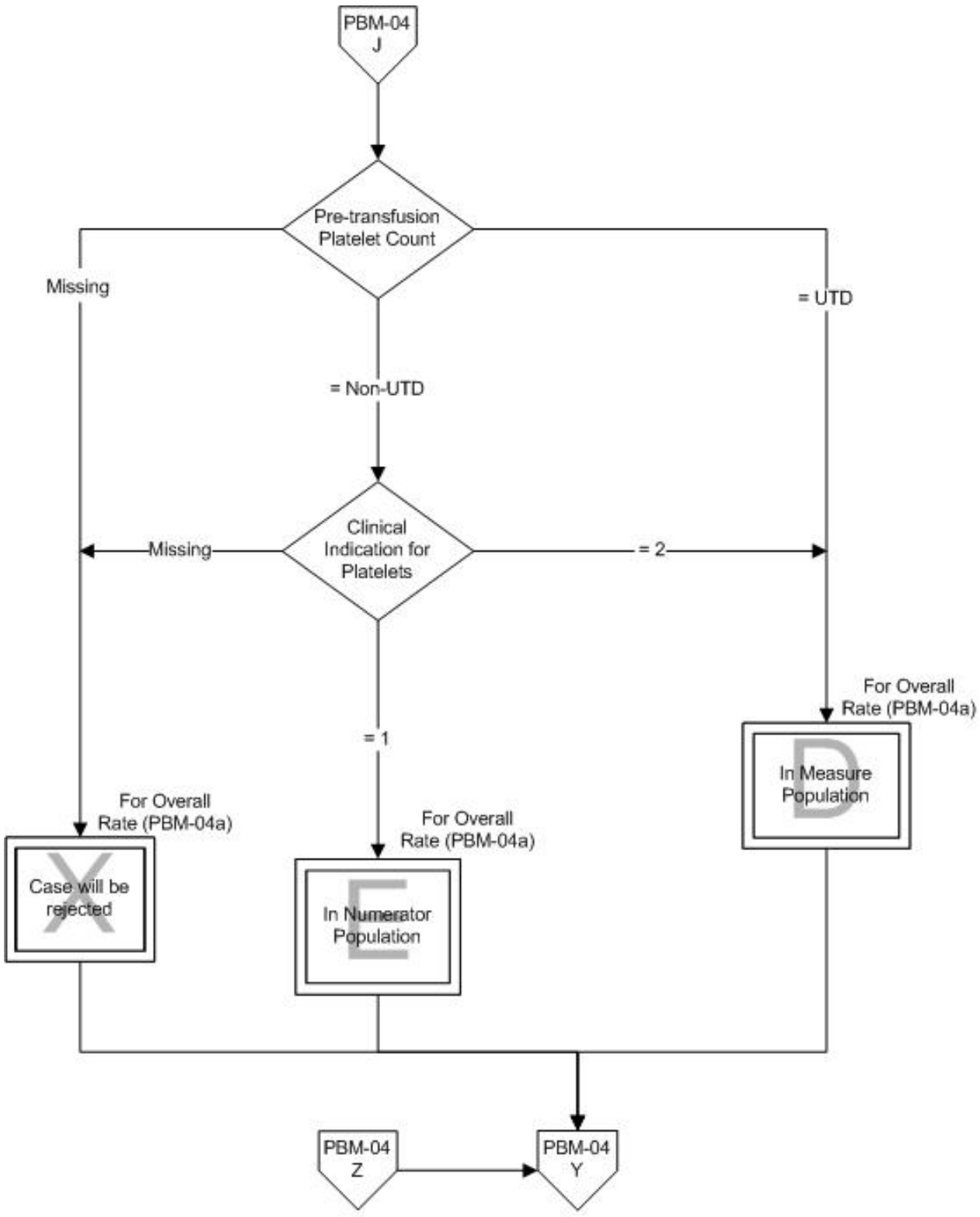
Measure Algorithm:

PBM–04: Platelet Transfusion Indication

Numerator: Number of platelet doses with pre-transfusion platelet count result and clinical indication documented

Denominator: Number of transfused platelet units evaluated





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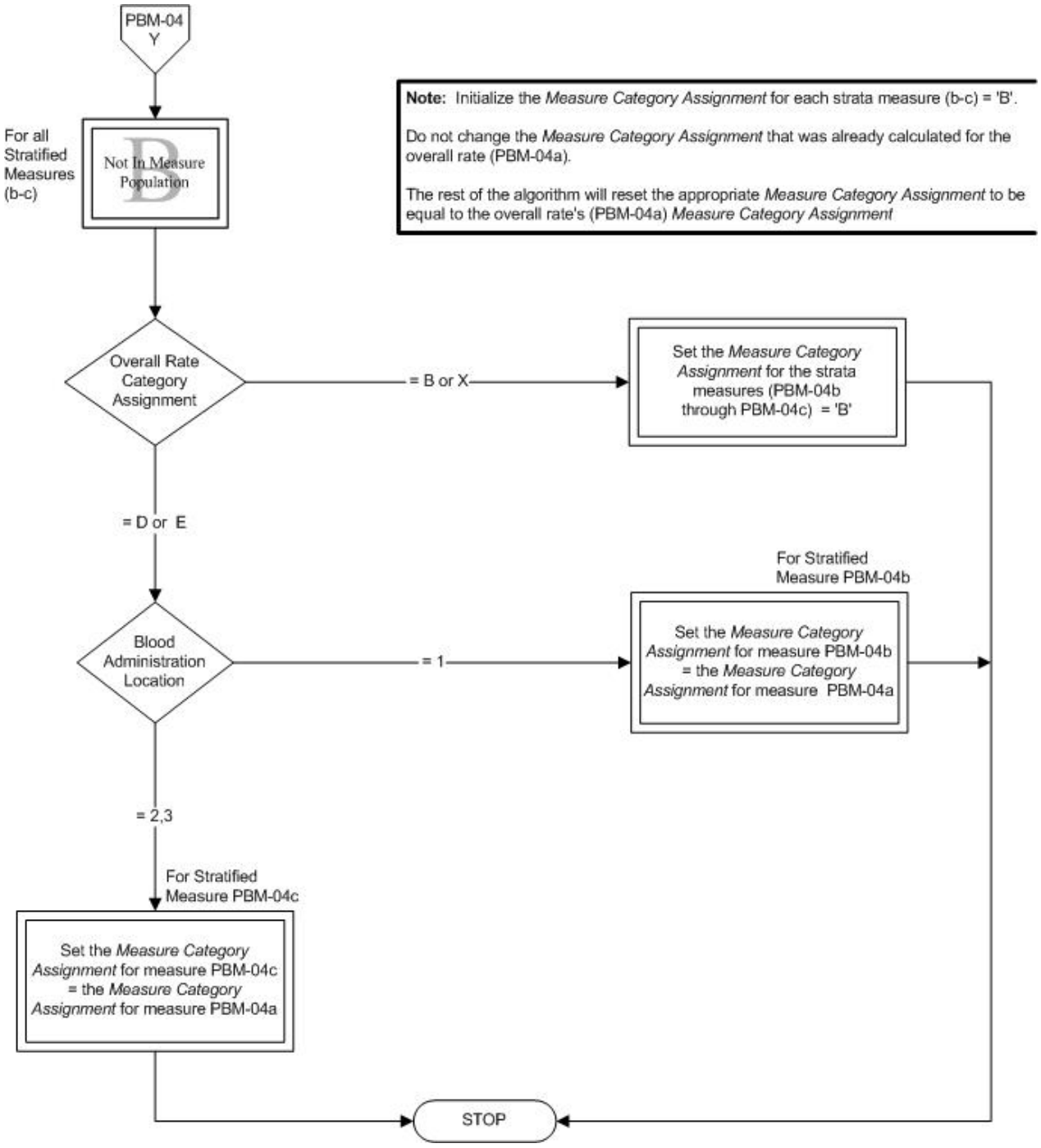


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-05

Performance Measure Name: Blood Administration Documentation

Description: The number of transfused red blood cells, plasma or platelet transfusion units/doses (bags) that had documentation of the following: patient identification and an order to transfuse (Blood ID Number) confirmed prior to the initiation of transfusion, transfusion start date and time, and blood pressure, pulse and temperature recorded at specific intervals.

Rationale: Since the majority of blood units are transfused in hospitals, specific policies and procedures have been developed by each hospital to address documentation of blood administration standards in accordance with their state and federal regulations. Though documentation components vary among organizations, identification of the patient and confirmation of the order to transfuse are common indicators used for all blood products since incomplete patient identification could result in an adverse outcome. Prior to administering blood or blood products, patient identification by two identifiers is required by numerous organizations including the AABB Standard 5.19.3, and the Joint Commission National Patient Safety Goal (NPSG) 1. In addition, numerous organizations require or advise that the licensed staff confirm that there is a transfusion order as directed by the AABB Standard 5.19.6 and the elements of performance for the Joint Commission NPSG.01.01.01.

Patient monitoring during the transfusion is an important component related to patient safety. The first 10 to 15 minutes of the transfusion are considered the most critical to assess for a potential transfusion reaction and close observation during this time is recommended in the AABB Primer. Monitoring of vital signs at baseline, during and at the completion of the transfusion in addition to observation are used to assess the patient's condition for any changes.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of units/doses (bags) with documentation for all of the following:

- patient identification and transfusion order (Blood ID Number) confirmed prior to the initiation of transfusion
- transfusion start date and time
- blood pressure, pulse and temperature recorded pre, during and post transfusion

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Blood ID Number*
- *Patient ID Verification*
- *Plasma ID*

- *Platelet ID*
- *RBC ID*
- *Transfusion Order*
- *Transfusion Start Date*
- *Transfusion Start Time*
- *Vital Sign Monitoring*

Denominator Statement: Number of transfused red blood cells, plasma or platelet units/doses (bags) evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.3-9.6 or a transfusion documented from Blood Bank Records

Excluded Populations:

- Units used in massive transfusion protocols
- Uncrossmatched units
- Units used to prime equipment

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*
- *RBC Unit Exclusions*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: The data from this measure may be used to evaluate the adherence to organizational policies and procedures for blood administration for each of the blood products. Data could be evaluated by unit or service in order to identify areas for staff education. The data could also be used during accreditation surveys to document the hospital's efforts to improve the accuracy of patient identification when administering blood related to the Joint Commission National Patient Safety Goal #1.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

- Whitsett CF, Robichaux MG. Assessment of blood administration procedures: problems identified by direct observation and administrative incident reporting. Transfusion. 2001;41:581-86.
- Saxena S, Ramer L, Shulman IA. A comprehensive assessment program to improve blood-administering practices using the FOCUS-PDCA model. Transfusion. 2004; 44:1350-56.
- Novis DA, Miller KA, Howanitz PJ, Renner SW, Walsh MK; College of American Pathologists. Audit of transfusion procedures in 660 hospitals. A College of American Pathologists Q–Probes study of patient identification and vital sign monitoring frequencies in 16494 transfusions. Arch Pathol Lab Med. 2003;127:541-8.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009.
- The Joint Commission, “National Patient Safety Goals (NPSG)”, IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.
- AABB Primer of Blood Administration. Revised August 2008. Bethseda, Maryland. [Available at http://www.aabb.org/Content/Professional_Development/Education_and_Training_Material/edtr (accessed November 2009).]

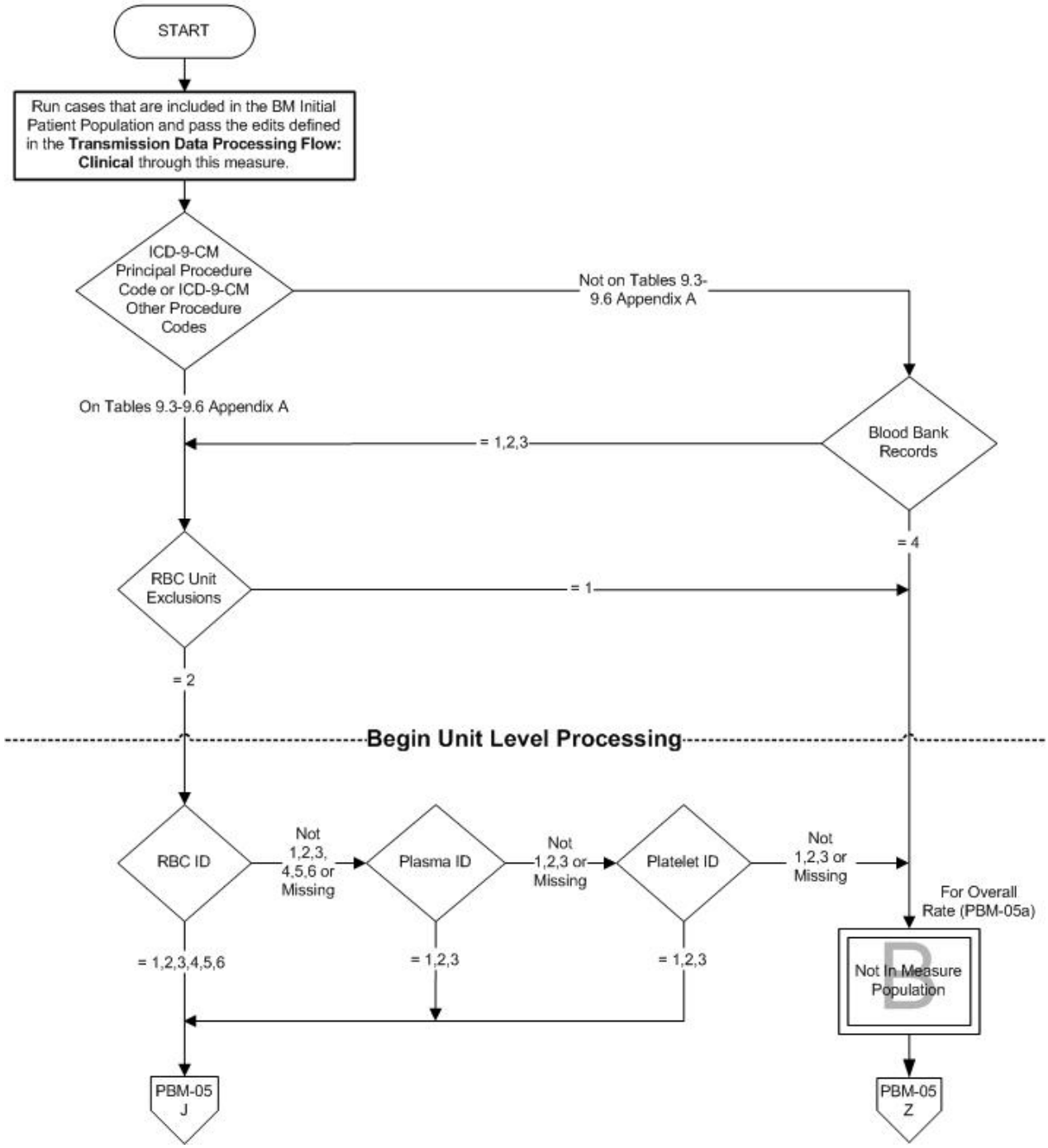
Measure Algorithm:

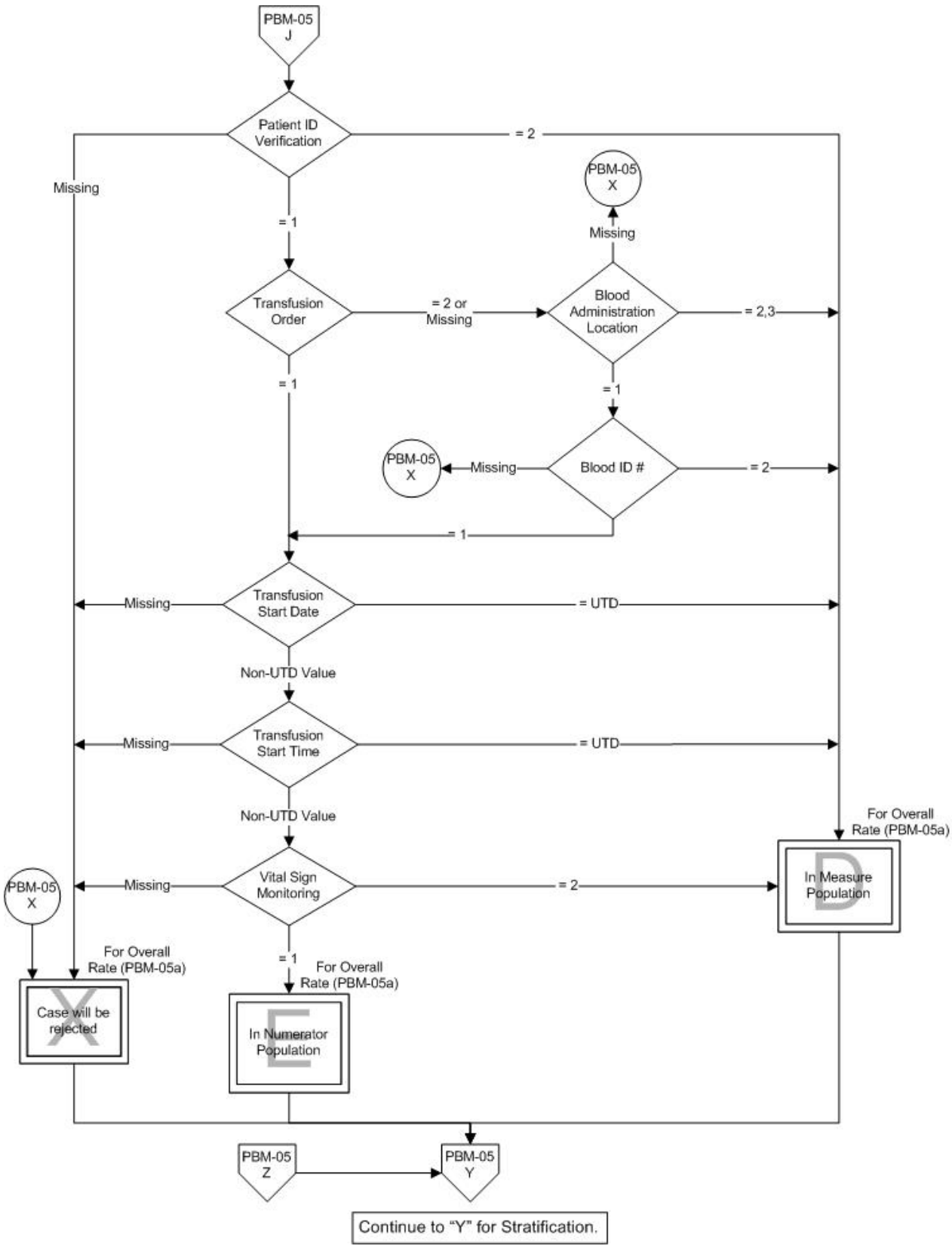
PBM–05: Blood Administration Documentation

Numerator: Number of blood transfusion units (bags) or doses with documentation for all of the following:

- patient identification (ID) and transfusion order (blood ID number) confirmed prior to the initiation of blood
- date and time of transfusion
- blood pressure, pulse and temperature recorded pre, during and post transfusion

Denominator: Number of transfused red blood cells, plasma and platelet units (bags) or doses evaluated




PBM-05 J
Patient ID Verification
= 2
Missing
PBM-05 X
= 1
Missing
Transfusion Order
= 2 or Missing
Blood Administration Location
= 2,3
= 1
= 1
PBM-05 X
Missing
Blood ID #
= 2
= 1
Transfusion Start Date
Missing
= UTD
Non-UTD Value
Transfusion Start Time
Missing
= UTD
Non-UTD Value
For Overall Rate (PBM-05a)
PBM-05 X
Vital Sign Monitoring
Missing
= 2
In Measure Population
D
For Overall Rate (PBM-05a)
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For Overall Rate (PBM-05a)
Case will be rejected
X
In Numerator Population
E
PBM-05 Z
PBM-05 Y
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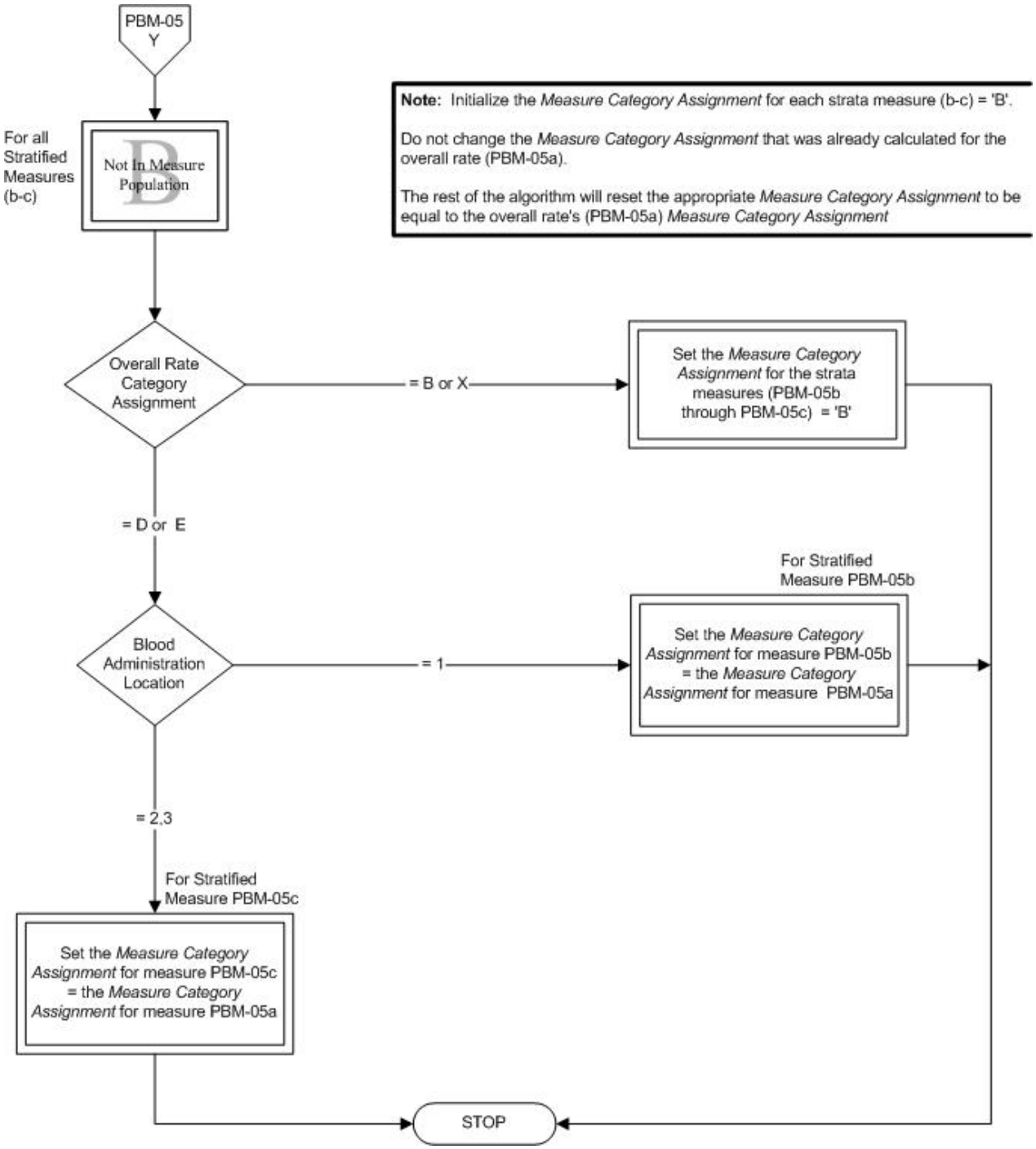


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-06

Performance Measure Name: Preoperative Anemia Screening

Description: Selected elective orthopedic, cardiac and hysterectomy surgical patients with documentation of preoperative anemia screening date 14 – 45 days before surgery start date for procedures scheduled 14 or more days before surgery.

Rationale: Development of formal protocols for preoperative testing of hemoglobin (hgb) for potential high-blood loss elective surgeries could be used to identify and intervene for optimal management of blood resources. Preoperative anemia often goes unrecognized and untreated unless tests are ordered in advance of a planned surgery. Early recognition of anemia offers patients an opportunity to receive the most appropriate transfusion-sparing strategy, and avoid the risk of a potential transfusion. Researchers have shown that preoperative hgb and hematocrit can be used as predictors of outcome for specific types of patients such as cardiac artery bypass graft or orthopedic surgery. In a study by Salido, orthopedic patients with a preoperative hemoglobin <13 g/dL had four times the risk of transfusion than those with a hemoglobin level between 13 g/dL and 15 g/dL.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with preoperative anemia screening 14 - 45 days before Anesthesia Start Date

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Preoperative Anemia Screening Date*

Denominator Statement: Selected elective surgical patients

Included Populations:

- Discharges with an ICD-9-CM Principal Procedure Codes of selected surgeries as defined in Appendix A, Tables 2.2, 5.01, 5.02, 5.08, 5.11, 5.22, 5.23, 9.1 or 9.2.

Excluded Populations:

- Patients less than 18 years of age
- Patients with surgery scheduled less than 14 days before Anesthesia Start Date
- Patients not admitted from home

Data Elements:

- *Admission Date*
- *Admission From Home*
- *Birthdate*
- *Discharge Date*
- *ICD-9-CM Principal Procedure Code*
- *ICD-9-CM Principal Procedure Date*
- *Surgery Scheduled Timeframe*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: These data may be used to evaluate specific patient groups at high risk for a blood transfusion that did not have their pre-operative hemoglobin and/or transfusion testing completed and/or documented prior to surgery. The data could be further analyzed based on physician or type of procedure. Patients who are not included in the numerator could be tracked to see if there were any adverse outcomes due to the lack of preoperative anemia screening.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References: * Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.

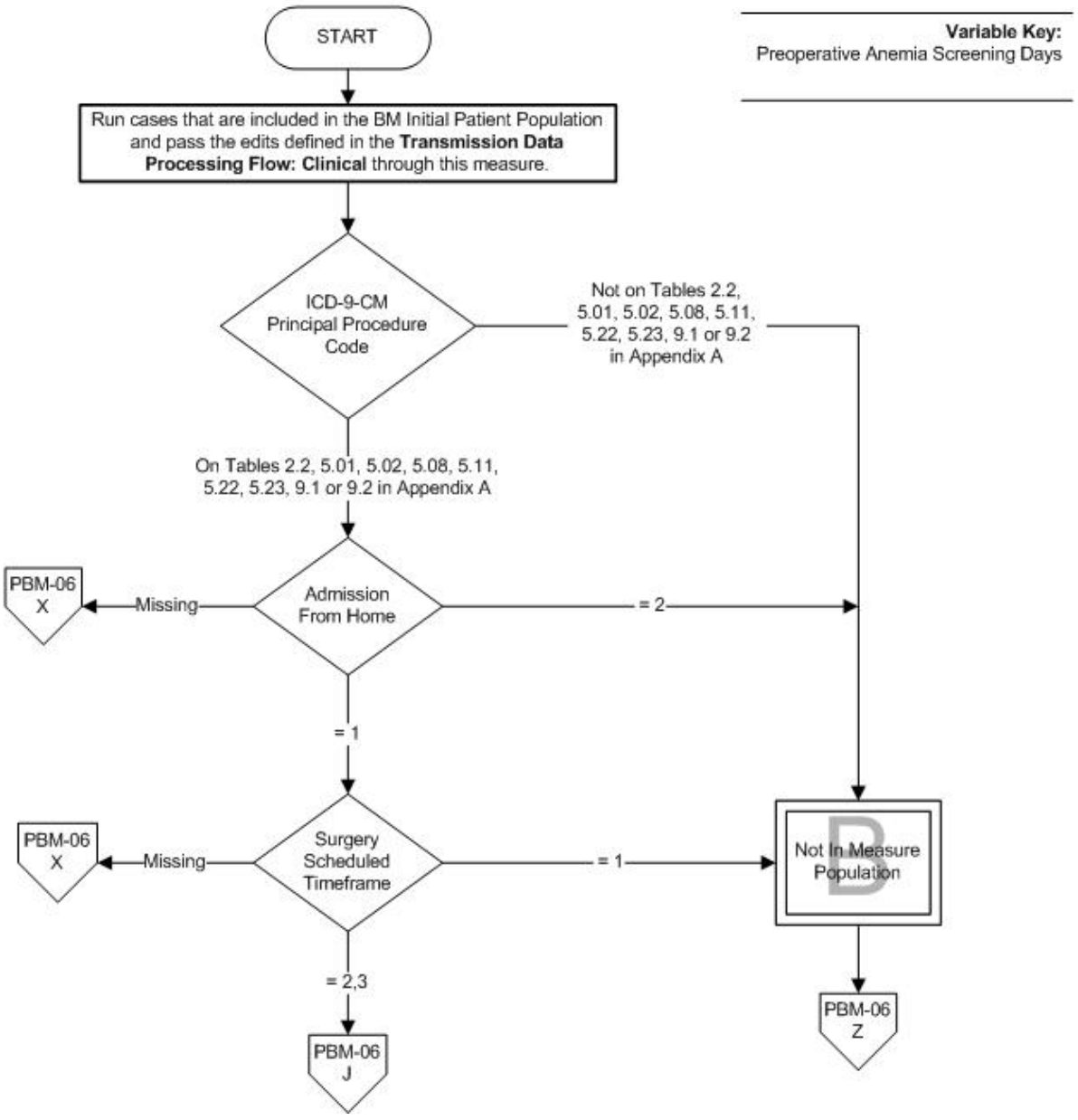
- Salido JA, Martin LA, Gomez LA, et al. Preoperative hemoglobin levels and the need for transfusion after prosthetic hip and knee surgery; analysis of predictive factors. J Bone Joint Surg. 2002;84: 216-20.
- Rady MY, Ryan T, Starr NJ. Perioperative determinants of morbidity and mortality in elderly patients undergoing cardiac surgery. Crit Care Med. 1998;26: 225-235.
- Magovern JA, Sakert T, Magovern GJ et al. A model that predicts morbidity and mortality after coronary artery bypass graft surgery. J Am Coll Cardiol. 1996;28: 1147-1153.
- Campbell DA, Henderson WG, Englesbe, MJ, Hall BL, O'Reilly M, Bratzler D et al. Surgical site infection prevention: the importance of operative duration and blood transfusion-results of the first american college of surgeons –national surgical quality improvement program best practices initiative. J AM Coll Surg 2008;207:810-820.

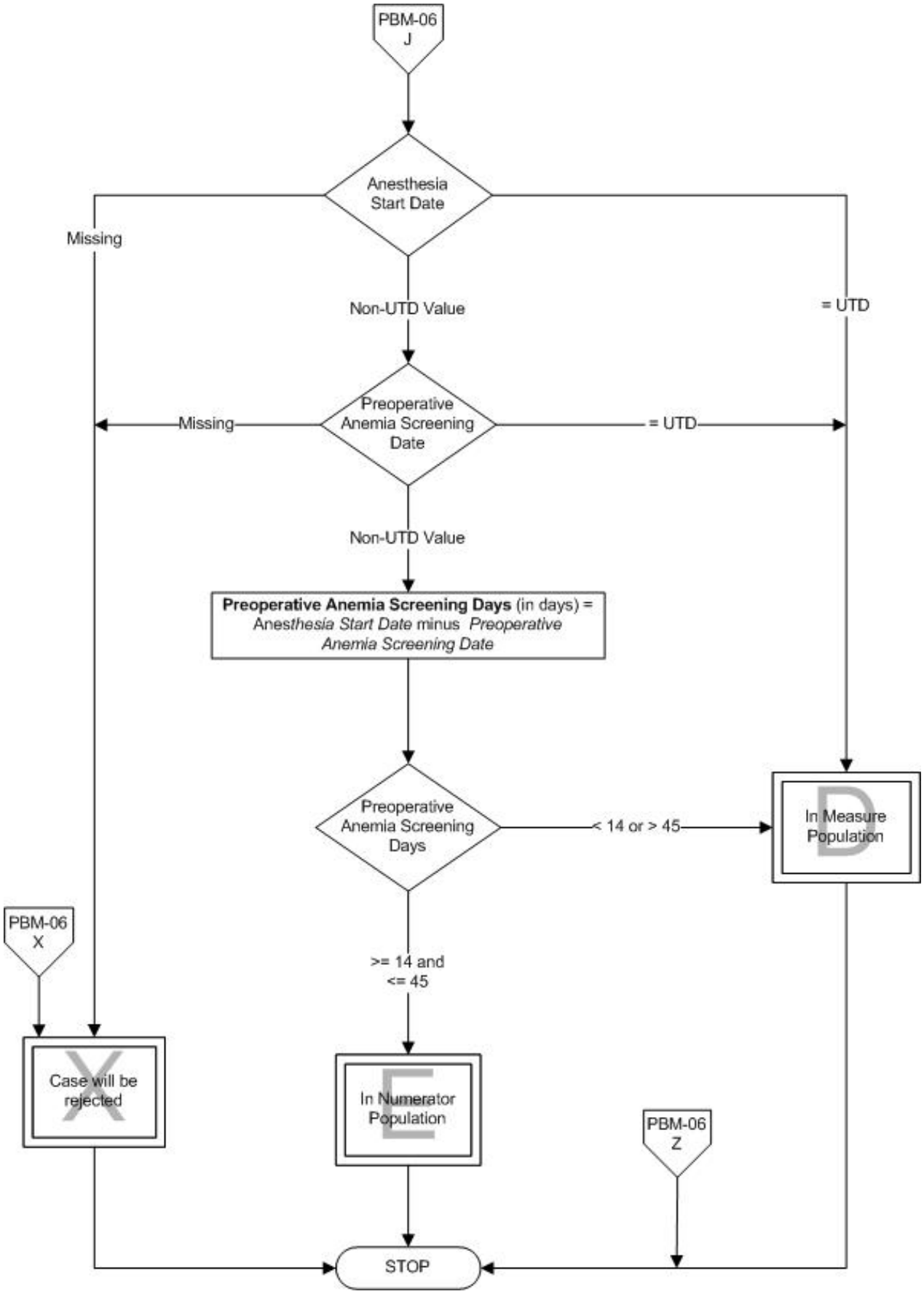
Measure Algorithm:

PBM–06: Preoperative Anemia Screening

Numerator: Patients with documentation of preoperative anemia screening 14 - 45 days before Anesthesia Start Date

Denominator: Selected elective surgical patients





Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-07

Performance Measure Name: Preoperative Blood Type Testing and Antibody Screening

Description: Selected elective orthopedic, cardiac and hysterectomy surgical patients who had preoperative blood type testing and antibody screening (type and screen or type and crossmatch) completed prior to surgery start time if ordered preoperatively.

Rationale: Hospitals need to ensure that sufficient compatible blood is available for each scheduled procedure. Since about 3% of specimens have a serologic finding that requires further investigation that may cause a delay in the availability of the blood, patient screening of ABO group and Rh type should be collected in sufficient time to complete all pretransfusion testing before surgery begins. According to the Joint Commission's Pre-publication National Patient Safety Goal UP.01.01.01 for 2010, a preprocedure verification process should be conducted to identify items that must be available for the procedure and use a standardized list to verify their availability. Documentation of any required blood products for the procedure is required. Development of formal protocols to ensure that patients have blood testing completed prior to surgery start time for potential high-blood loss elective surgeries may optimize management of blood resources and maximize patient safety.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with preoperative type and crossmatch or type and screen completed prior to surgery start time

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Preoperative Blood Type Testing*

Denominator Statement: Selected elective surgical patients

Included Populations:

- Discharges with an ICD-9-CM Principal Procedure Code of selected surgeries as defined in Appendix A, Tables 2.2, 5.01, 5.02, 5.08, 5.11, 5.22, 5.23, 9.1 or 9.2.

Excluded Populations:

- Patients less than 18 years of age
- Patients with type and screen or type and crossmatch ordered preoperatively

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Type Testing Ordered*
- *Discharge Date*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data collection sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: These data may be used to evaluate specific patient groups at high risk for a blood transfusion that did not have pre-operative transfusion testing completed and/or documented prior to surgery start time. The data could be further analyzed based on physician or type of procedure. Patients who are not included in the numerator could be tracked to see if there were any adverse outcomes due to the lack of preoperative testing.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References: * Saxena S, Nelson JM, Osby M, Shah M, Kempf R, Shulman IA. Ensuring timely completion of type and screen testing and the verification of ABO/Rh status for elective surgical patients. Arch Pathol Lab Med. 2007;131:576-81.

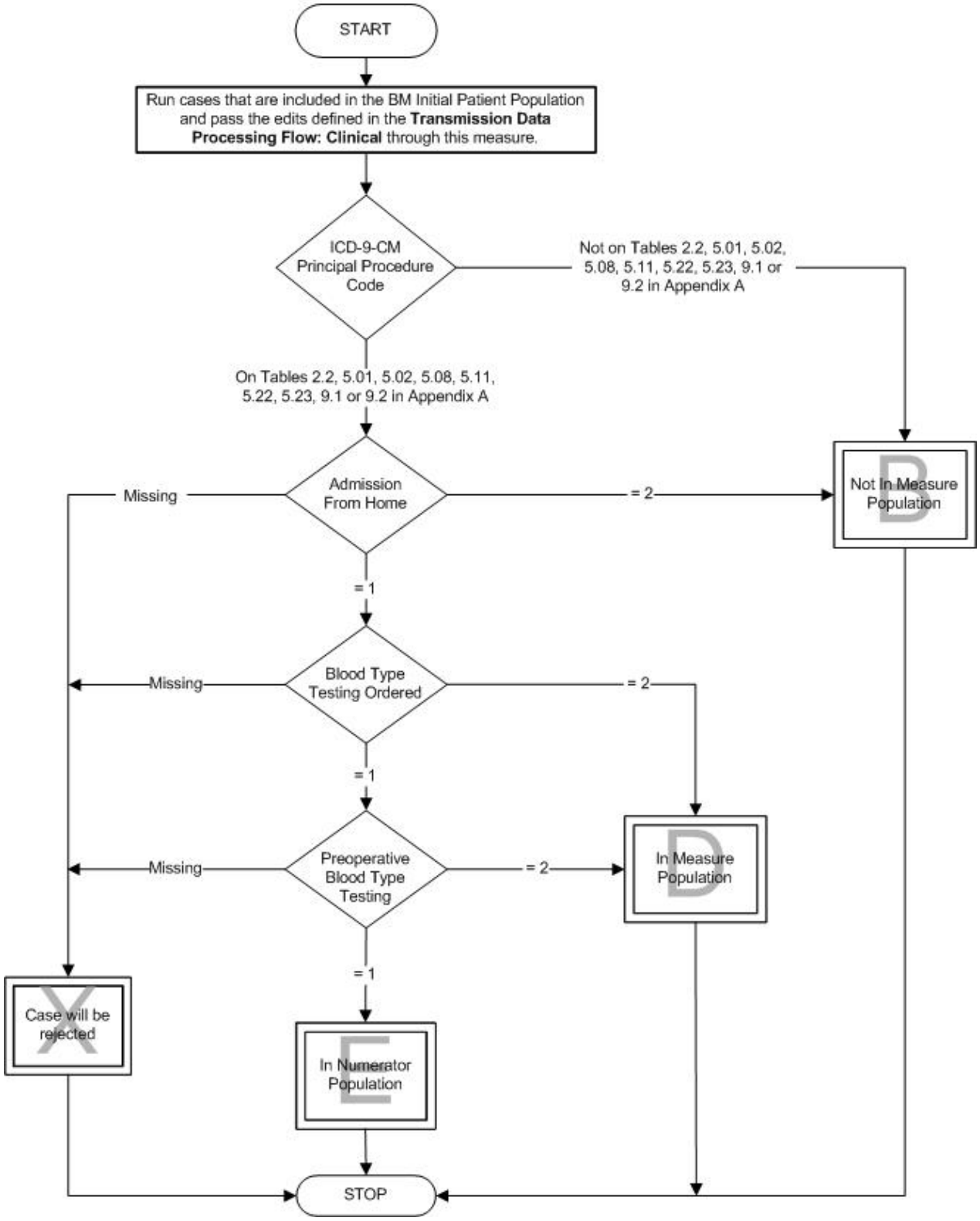
- Friedberg RC, Jones BA, Walsh MK. Type and screen completion for scheduled surgical procedures. A College of American Pathologists Q-Probes study of 8941 type and screen tests in 108 institutions. Arch Pathol Lab Med. 2003;127:533-40.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- Magovern JA, Sakert T, Magovern GJ et al. A model that predicts morbidity and mortality after coronary artery bypass graft surgery. J Am Coll Cardiol. 1996;28: 1147-1153.
- The Joint Commission 2010 National Patient Safety Goals, Oakbrook Terrace, IL [Available at http://www.jointcommission.org/NR/rdonlyres/868C9E07-037F-433D-8858-0D5FAA4322F2/0/RevisedChapter_HAP_NPSG_20090924.pdf (accessed January 27, 2010).]

Measure Algorithm:

PBM–07: Preoperative Blood Type Testing and Antibody Screening

Numerator: Patients with documentation of preoperative type and crossmatch or type and screen completed prior to Anesthesia Start Time

Denominator: Selected elective surgical patients



Related Topics

Data Element Name: *Admission From Home*

Collected For: PBM-06,

Definition: Patient was admitted for the pre-scheduled elective surgery procedure from home.

Suggested Data Collection Question: Was the patient admitted from home?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 Patient was admitted from home.

2 Patient was not admitted from home or unable to determine from medical record documentation.

Notes for Abstraction:

- Patients who have to stay overnight at a location other than their primary residence due to long distance travel for procedure are considered admitted from home.

Suggested Data Sources:

- Face sheet
- Nursing admission assessment
- Physician's notes
- Preop checklist

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Anesthesia Start Date*
Collected For:	PBM-06,
Definition:	The date the anesthesia for the procedure started.
Suggested Data Collection Question:	On what date did the anesthesia for the procedure start?
Format:	**Length:** 10 – MM-DD-YYYY (includes dashes) **Type:** Date **Occurs:** 1
Allowable Values:	MM-DD-YYYY MM = Month (01-12) DD = Day (01-31) YYYY = Year (2001-Current Year) Leave Blank if Unable to Determine
Notes for Abstraction:	If the Anesthesia Start Date cannot be determined from medical record documentation, enter UTD. When the date documented is obviously invalid (not a valid format/range [12-39-20xx] or after the Discharge Date or Anesthesia End Date) and no other documentation can be found that provides the correct information, the abstractor should select "UTD." Example: Patient expires on 02-12-20xx and documentation indicates the Anesthesia Start Date was 03-12-20xx. Other documentation in the medical record supports the date of death as being accurate, but no other documentation of the Anesthesia Start Date can be found. Since the Anesthesia Start Date is outside of the parameter for care (after the Discharge Date [death]) and no other documentation is found, the abstractor should leave blank. If the Anesthesia Start Date is incorrect (in error) but it is a valid date and the correct date can be supported with other documentation in the medical record, the correct date may be entered. If supporting documentation of the correct date cannot be found, the medical record must be abstracted as documented or at "face value." Examples: The anesthesia form is dated 12-10-2007, but other documentation in the medical record supports that the correct date was 12-10-2009. Enter the correct date of 12-10-2009 as the Anesthesia Start Date. An Anesthesia End Date of 11-20-20xx is documented but the Anesthesia Start Date is documented as 11-10-20xx. If no other documentation can be found to support another Anesthesia Start Date, then it must be abstracted as 11-10-20xx because the date is not considered invalid or outside the parameter of care.

Suggested Data Sources:

Other Suggested Sources:

- Intraoperative record
- Circulator record
- Post-anesthesia evaluation record
- Operating room notes

Additional Notes:

Suggested Data Sources:

Note: The anesthesia record is the priority data source for this data element, if a valid Anesthesia Start Date is found on the anesthesia record, use that date. If a valid date is not on the anesthesia record, other suggested data sources may be used in no particular order to determine the Anesthesia Start Date.

Priority Source:

- Anesthesia record

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Blood Administration Location*
Collected For:	PBM-02, PBM-03, PBM-04, PBM-05,
Definition:	The hospital setting (intraoperative or non-intraoperative) where the blood product began infusing.
Suggested Data Collection Question:	In what setting did the blood product begin infusing?
Format:	**Length:** 1 **Type:** Alphanumeric **Occurs:** 1-12

Allowable Values:

1 Intraoperative setting

2 Non-introperative setting

3 Unable to determine

Notes for Abstraction:

- Select setting for each unit transfused based on the physical location of the patient.
- Intraoperative setting is anytime during the operation.
- Non-intraoperative setting is any area outside of the operating room. For example, setting such as the intensive care unit, surgical floor or emergency room.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Nursing notes
- Nursing flow sheet
- Nursing admission assessment
- Progress notes
- Physician's notes
- Operative notes
- Operating room notes
- Operative report
- Procedure notes
- ICU notes
- PACU/recovery room record

Blood Administration Documentation Sheet

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Blood Bank Records*

Collected For: PBM-01, PBM-02, PBM-03, PBM-04, PBM-05,

Definition: Documentation that the patient received red blood cells (RBCs), plasma or platelets after hospital arrival.

Suggested Data Collection Question: Was there documentation that the patient received RBCs, plasma or platelets after hospital arrival?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1-12

Allowable Values:

Select all that apply: 1 RBCs

2 Plasma

3 Platelets

4 None of the above or unable to determine from medical record documentation

Notes for Abstraction:

- Include transfusions given in the emergency room or observation area.

Suggested Data Sources: Blood Bank Records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name: *Blood ID Number*

Collected For: PBM-05,

Definition: Documentation of the actual blood bank identification number in the intraoperative record for the unit that was transfused.

Suggested Data Collection Question: Was there documentation of a blood bank identification number for the unit or dose of blood transfused during surgery?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 There is documentation of a blood bank identification number for the unit that was transfused.

2 There is no documentation of a blood bank identification number for the unit that was transfused or unable to determine from medical record documentation.

Notes for Abstraction:

Suggested Data Sources:

- Anesthesia record
- Operative report

Blood administration record

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Blood Type Testing Ordered*

Collected For: PBM-07,

Definition: A type and screen and/or type and crossmatch was ordered preoperatively for the elective surgery.

Suggested Data Collection Question: Was a type and screen and/or type and crossmatch ordered preoperatively?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 A type and screen and/or type and crossmatch was ordered preoperatively.

2 A type and screen and/or type and crossmatch was not ordered preoperatively or unable to determine

Notes for Abstraction:

Suggested Data Sources:

- Physician orders
- Preop checklist

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for Plasma*

Collected For: PBM-03,

Definition: Documentation by the physician/advance practice nurse/physician assistant or (physician/APN/PA) of the clinical indication for the plasma transfusion unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused plasma unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused plasma unit.

2 There was no documentation of a clinical indication for the transfusion or unable to determine from the medical record.

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first four plasma transfusion units closest to hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING BLOOD:

- Anesthesia record
- Consultation notes
- Emergency department record
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for Platelets*

Collected For: PBM-04,

Definition: Documentation by the physician/advance practice nurse/physician assistant (physician/APN/PA) of the clinical indication for the transfused platelet unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused platelet unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused platelet unit.

2 There was no documentation of clinical indication for the platelet transfusion or unable to determine from the medical record

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first three units transfused after hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING PLASMA:

- Anesthesia record
- Consultation notes
- Emergency department record
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for RBCs*

Collected For: PBM-02,

Definition: Documentation by the physician/advance practice nurse/physician assistant (physician/APN/PA) of the clinical indication for the tranfused red blood cell (RBCs) unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused RBC unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 6

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused RBC unit.

2 There was no clinical indication documented by the physician/APN/PA for the transfused RBC unit or unable to determine from medical record documentation.

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first six RBC transfusion units after hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING RBCs:

- Anesthesia record
- Consultation notes
- Emergency department record
- Operative notes
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Education Addressed Risks, Benefits and Alternatives to Transfusion*
Collected For:	PBM-01,
Definition:	Documentation that information addressing risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion or the initial transfusion was deemed a medical emergency after hospital arrival.
Suggested Data Collection Question:	Was there documentation that information regarding risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion event or was the initial transfusion deemed a medical emergency after hospital arrival?
Format:	**Length:** 1 **Type:** Numeric **Occurs:** 1

Allowable Values:

1 Information addressing the risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion after hospital arrival.

2 Information addressing the risks, benefits and alternatives to transfusion was not given to the patient/caregiver prior to the initial transfusion after hospital arrival or unable to determine from medical record documentation.

Notes for Abstraction:

- Use only documentation provided in the medical record.
- If the patient refused information about risks, benefits and alternatives to transfusion, select “1.”
- The caregiver is defined as the patient’s family or any other person (e.g., guardian) who will be responsible for care of the patient.

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Nursing notes
- Progress notes
- Operative notes
- Admission forms
- Consent form
- Emergency department record
- Progress notes
- Nursing notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Patient ID Verification*

Collected For: PBM-05,

Definition: Documentation that two unique patient identifiers were checked during a two-person verification process (or the use of automated identification technology may be used in place of one of the individuals) prior to the administration of the transfusion unit/dose (bag).

Suggested Data Collection Question: Was there documentation that two unique patient identifiers were checked or automated identification was used in place of one person during the verification process prior to the administration of the blood transfusion unit/dose (bag)?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 12

Allowable Values:

1 There was documentation that two unique patient identifiers were checked during the two person verification process or an automated identification system was used in place of one of the individuals prior to the administration of the transfusion unit/dose (bag).

2 There was no documentation that two unique patient identifiers or automated identification were used during the two-person identification check prior to the administration of the transfusion unit/dose (bag) or unable to determine from medical record documentation.

Notes for Abstraction:

- *Patient ID Verification* must be associated with the blood product and RBC ID that was selected for abstraction.
- *Patient ID Verification* can be documented by the signature of two persons that attest that two unique patient identifiers were checked to verify the identification of the patient prior to the transfusion or the signature of one person and an automated identification device.
- Patient identifiers that could be used include; name, date of birth, patient identification number or unique identifier given at the time the crossmatch was drawn.
- The patient room number should not be used to identify the patient.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Nursing notes
- Progress notes
- Physician's notes
- Operative notes
- Operative report
- Procedure notes
- PACU/recovery room record

- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Plasma ID*

Collected For: PBM-03, PBM-05,

Definition: The number assigned to designate whether the plasma unit was the first, second or third unit transfused after hospital arrival.

Suggested Data Collection Question: What number was assigned to the plasma unit selected for abstraction?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 First Plasma Unit

2 Second Plasma Unit

3 Third Plasma Unit

Notes for Abstraction:

- The abstractor assigns a plasma identification (ID) number for each unit evaluated.
- Each allowable value is only used one time and is determined by the order in which it was administered.
- Abstract up to three plasma transfusion units per patient.
- Include plasma transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Platelet ID*

Collected For: PBM-04, PBM-05,

Definition: The number assigned to designate whether the platelet unit was the first, second or third unit that was transfused after hospital arrival.

Suggested Data Collection Question: What number was assigned to the platelet unit selected for abstraction?

Format:

Length: 2
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 First Platelet Unit

2 Second Platelet Unit

3 Third Platelet Unit

Notes for Abstraction:

- The abstractor assigns a platelet identification (ID) number for each unit evaluated.
- Each allowable value is only used one time and is determined by the order in which it was administered.
- Abstract up to three platelet units per patient
- Include platelet transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Hematocrit*

Collected For: PBM-02,

Definition: Documentation of the closest hematocrit (hct) completed prior to the RBC transfusion.

Suggested Data Collection Question: What was documented as the closest pre-transfusion hct prior to the RBC transfusion?

Format:

Length: 4
Type: Alphanumeric
Occurs: 1 - 6

Allowable Values:

Enter the patient's closest hematocrit result (number only, reported in percent) performed prior to each RBC transfusion.

UTD = Unable to Determine

- For abstraction, select either the pre-transfusion hematocrit or the hemoglobin result; both are not required.
- Select the result associated with the RBC ID selected for abstraction.
- When recording the allowable value for hematocrit, input 23.00 if the patient's hematocrit is 23%.

Notes for Abstraction:

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Hemoglobin*

Collected For: PBM-02,

Definition: Documentation of the closest hemoglobin (hgb) completed prior to the RBC transfusion.

Suggested Data Collection Question: What was documented as the closest pre-transfusion hgb prior to the RBC transfusion?

Format:

Length: 4
Type: Alphanumeric
Occurs: 1 - 6

Allowable Values:

Enter the patient's closest hemoglobin result reported in g/dL performed prior to transfusion.

UTD = Unable to Determine

- For abstraction, select either the pre-transfusion hematocrit or the hemoglobin result; both are not required.
- Select the hemoglobin result that is associated with the RBC ID selected for abstraction.
- If the hemoglobin result is 9.9 g/dL, enter 9.9.

Notes for Abstraction:

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion PT/INR Result*

Collected For: PBM-03,

Definition: Documentation of PT/INR result completed prior to the plasma transfusion.

Suggested Data Collection Question: What was the PT/INR result completed prior to the plasma transfusion.

Format:

Length: 1 - 5
Type: Alphanumeric
Occurs: 1 - 3

Allowable Values:

Enter the closest PT/INR result to the plasma transfusion.

UTD = Unable to determine

Notes for Abstraction:

- Enter the PT/INR result that is associated with the plasma ID selected for abstaction.
- An allowable value should be entered with one decimal. For example, a PT/INR of 1.5 should be entered as written. INR values over 10 should be entered as 10.00.

Suggested Data Sources:

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Platelet Count*

Collected For: PBM-04,

Definition: Documentation of the closest platelet count completed prior to the platelet transfusion.

Suggested Data Collection Question: What was the closest platelet count documented prior to the platelet transfusion?

Format:

Length: 1 - 5
Type: Alphanumeric
Occurs: 1 - 3

Allowable Values:

Enter the patient's closest platelet count result, in 10^9/µL performed prior to the platelet transfusion selected for abstraction.

UTD = Unable to Determine

Note:

- Select the platelet count result that is associated with the Platelet ID selected for abstraction.
- An allowable value for a platelet count result should be entered as '11.00' for a platelet count of 11,000.

Notes for Abstraction:

Suggested Data Sources:

- Anesthesia record
- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Preoperative Anemia Screening Date*

Collected For: PBM-06,

Definition: The date that preoperative anemia screening or a hemoglobin (hgb)or hematocrit (hct) result was completed.

Suggested Data Collection Question: What date was preoperative anemia screening or a hgb or hct result completed?

Format:

Length: 10 - MM-DD-YYYY (includes dashes)
Type: Date
Occurs: 1

Allowable Values:

MM-DD-YYYY

MM = Month (01-12)
DD = Day (01-31)
YYYY = Year (2001-Current Year)
UTD

Notes for Abstraction:

- Select the *Preoperative Anemia Screening Date* associated with the elective surgical procedure selected for abstraction.*Preoperative Transfusion Testing*.
- The medical record must be abstracted as documented (taken at "face value"). When the date documented is obviously in error (not a valid date/format) and no other documentation is found that provides this information, the abstractor should select UTD.
- Example: Documentation indicates the Preoperative Anemia Screening Date was 03-42-2008. No other documentation in the medical record provides a valid date. Since the Preoperative Anemia Screening Date is outside of the range listed in the Allowable Values for "Day," it is not a valid date, and the abstractor should select UTD.

Suggested Data Sources:

- Nursing notes
- Progress notes
- Preop checklist
- Pre-arrival laboratory reports

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Preoperative Blood Type Testing*

Collected For: PBM-07,

Definition: Documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time.

Suggested Data Collection Question: Was there documentation of a type and screen or type and crossmatch completed prior to anesthesia start time?

Format:

Length: 1
Type: Numeric
Occurs: 1

Allowable Values:

1 There is documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time.

2 There is no documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time or unable to determine from medical record documentation.

Notes for Abstraction:

- If type and screen and type and crossmatch were completed prior to the surgical procedure, select “1”.
- Anesthesia Start Time is the same as surgery start time.

Suggested Data Sources:

- Consultation notes
- History and physical
- Progress notes
- Preop checklist
- Pre-arrival laboratory reports

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *RBC ID*

Collected For: PBM-02, PBM-05,

Definition: The number assigned to designate whether the RBC transfusion was the first through the sixth RBC transfusion unit that was transfused after hospital arrival.

Suggested Data Collection Question: What RBC unit was selected for abstraction?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 6

Allowable Values:

1 First RBC Unit

2 Second RBC Unit

3 Third RBC Unit

4 Fourth RBC Unit

5 Fifth RBC Unit

6 Sixth RBC Unit

Notes for Abstraction:

- The abstractor assigns a RBC identification (ID) number for each unit evaluated.
- Each allowable value is used only one time and is determined by the order in which it was administered.
- Abstract up to six RBC transfusion units per patient.
- Include RBC transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Operative report
- Medication administration record (MAR)
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion

None	None

Data Element Name:	*RBC Unit Exclusions*
Collected For:	PBM-02, PBM-05,
Definition:	Red blood cell (RBC) units that are excluded from abstraction. The following RBC units excluded from abstraction are; units used for a massive transfusion protocol or documentation of hemorrhagic shock, uncrossmatched units given during an emergency situation and units used to prime equipment for treatment.
Suggested Data Collection Question:	Was this unit transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment?
Format:	**Length:** 1 **Type:** Alphanumeric **Occurs:** 1-6

Allowable Values:

1. There was documentation that this unit was transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment

1. There was no documentation that this unit was transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment or unable to determine from medical record documentation.

Notes for Abstraction:

- If the initial six units transfused are excluded due to the exclusion criteria, abstract the next six units that were tranfused. If the patient only received RBC units that are excluded, then no RBC units should be abstracted.

Suggested Data Sources:

- Anesthesia record
- Circulation record
- Emergency department record
- Laboratory report
- Nursing notes
- Nursing flow sheet
- Progress notes
- Physician orders
- Physician’s notes
- Operative notes
- Operating room notes
- Operative report
- Procedure notes
- ICU notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Surgery Scheduled Timeframe*

Collected For: PBM-06,

Definition: The elective surgery was scheduled in less than 14 days from the planned surgery start date.

Suggested Data Collection Question: Was the elective surgery scheduled in less than 14 days from the planned surgery?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 There was documentation that the elective surgery was scheduled in less than 14 days from the planned surgery.

2 There was no documentation that the elective surgery was scheduled in less than 14 days from the planned surgery or unable to determine from medical record documentation.

Notes for Abstraction:

Suggested Data Sources:

- Preop checklist

Preoperative paperwork

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Transfusion Consent*

Collected For: PBM-01,

Definition: Documentation of a signed consent **prior** to the first transfusion of RBCs, platelets or plasma.

Suggested Data Collection Question: Was there documentation of a signed consent **prior** to the first blood transfusion?

Format:

Length: 1
Type: Numeric
Occurs: 1

Allowable Values:

1 There was documentation of a signed consent prior to the first blood transfusion.

2 The first blood transfusion was deemed a medical emergency.

3 There was no documentation of a blood transfusion consent prior to the first blood transfusion or unable to determine from medical record documentation.

Notes for Abstraction:

- The consent may be signed by the patient or caregiver.
- If organizations require a consent prior to every transfusion, then review the record for the first transfusion to answer this data element.
- For hospitals that use a general consent for treatment that includes transfusions, select “Yes”.
- If a patient receives chronic transfusions and a previous consent is acceptable for a defined timeframe within the institution, select “1” if the consent is valid.

Suggested Data Sources:

- Emergency department record
- History and physical
- Nursing notes
- Progress notes
- Operative notes
- Consent form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Transfusion Order*

Collected For: PBM-05,

Definition: An order to transfuse was written by the physician/advance practice nurse/physician assistant (physician/APN/PA) **prior** to the initiation of the transfusion.

Suggested Data Collection Question: Was there documentation of an order to transfuse **prior** to the transfusion?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 12

Allowable Values:

1 There was documentation of an order to transfuse prior to transfusion.

2 There was no documentation of an order to transfuse prior to transfusion or unable to determine from medical record documentation.

Notes for Abstraction:

- A verbal or telephone order that was written prior to the transfusion is acceptable.
- The Transfusion Order must be associated with the blood product unit ID that was selected for abstraction.
- Note: Transfusion Order may apply to more than one unit/dose (bag). For example: An order written to "Transfuse two doses of platelets" would apply to both bags that were administered.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE ORDER TO TRANSFUSE:

- Anesthesia record
- Consultation notes
- Emergency department record
- Operative notes
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Transfusion Start Date*
Collected For:	PBM-05,
Definition:	The date that the blood transfusion unit/dose (bag) was administered.
Suggested Data Collection Question:	What is the date that the blood transfusion unit/dose (bag) was administered?
Format:	**Length:** 10 – MM-DD-YYYY (includes dashes) **Type:** Date **Occurs:** 1 - 12
Allowable Values:	MM-DD-YYYY MM = Month (01-12) DD = Day (01-31) YYYY = Year (2001-Current Year) UTD
Notes for Abstraction:	• Abstract the Transfusion Date associated with the Transfusion Start Time of the unit/dose (bag) from the blood product ID selected for abstraction. • Some of the dates of the transfusion units may be the same date. Record a transfusion date for each unit abstracted up to three units for plasma or platelets or up to six units for RBCs. • The medical record must be abstracted as documented (taken at "face value"). When the date documented is obviously in error (not a valid date/format) and no other documentation is found that provides this information, the abstractor should select UTD. Example: Documentation indicates the Transfusion Start Date was 03-42-2008. No other documentation in the medical record provides a valid date. Since the Transfusion Start Date is outside of the range listed in the Allowable Values for "Day," it is not a valid date and the abstractor should select UTD.
Suggested Data Sources:	• Anesthesia record • Emergency department record • Nursing notes • Progress notes • Operative notes • Blood administration record
Additional Notes:	

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Transfusion Start Time*
Collected For:	PBM-05,
Definition:	The start time (military time) of the unit/dose (bag) of RBCs, plasma or platelets that was administered.
Suggested Data Collection Question:	What was the start time of the blood unit/dose (bag) administration?
Format:	**Length:** 5 - HH:MM (with or without colon) or UTD **Type:** Time **Occurs:** 1 - 12

Allowable Values:

Select the Transfusion Start Time associated with the Transfusion Start Date of the unit/dose (bag) from the associated blood product ID being abstracted.

HH = Hour (00-23)
MM = Minutes (00-59)
UTD = Unable to Determine

Notes for Abstraction:

Time must be recorded in military time format. With the exception of Midnight and Noon:

- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour

Examples:
Midnight - 00:00 Noon - 12:00
5:31 am - 05:31 5:31pm - 17:31
11:59 am - 11:59 11:59pm - 23:59

- For times that include “seconds,” remove the seconds and record the time as is. Example: 15:00:35 would be recorded as 15:00
- If more than one Transfusion Start Time is documented, use the earliest time documented.
- The medical record must be abstracted as documented (taken at “face value”). When the time documented is obviously in error (not a valid format/range) and no other documentation is found that provides this information, the abstractor should select “UTD.”
- Example: Documentation indicates the Transfusion Start Time was 3300. Since the Transfusion Start Time is outside of the range in the Allowable Values for “Hour,” it is not a valid time and the abstractor should select “UTD.”

Suggested Data Sources:

- Anesthesia record

- Emergency department record
- Nursing notes
- Operative notes
- Operative report
- Blood administration form

Additional Notes:

Select the Transfusion Start Time associated with the Transfusion Start Date of the unit/dose (bag) from the blood product ID identified for abstraction.

Time must be recorded in military time format.
With the exception of Midnight and Noon:

- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour.

The medical record must be abstracted as documented (taken at "face value"). When the time documented is obviously in error (not a valid format/range) and no other documentation is found that provides this information, the abstractor should select "UTD."

Example:
Documentation indicates the Transfusion Start Time was 3300. Since the Transfusion Start Time is outside of the range in the Allowable Values for "Hour," it is not a valid time and the abstractor should select "UTD."

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Vital Sign Monitoring*
Collected For:	PBM-05,
Definition:	Documentation of blood pressure (BP), pulse and temperature monitored at specific intervals for the transfusion. The intervals are: • Pre-transfusion, within 15 minutes of the initiation of the transfusion and within one hour of transfusion completion
Suggested Data Collection Question:	Was there documentation of BP and temperature monitored for all of the specified intervals for the transfusion?
Format:	**Length:** 2 **Type:** Numeric **Occurs:** 1 -12
Allowable Values:	**1** There was documentation for all of the BP, pulse and temperature monitoring intervals for the transfusion. **2** There was no documentation for all of the blood pressure, pulse and temperature monitoring intervals for the transfusion or unable to determine from medical record documentation.
Notes for Abstraction:	• All vital signs must be recorded at the following times: pre-transfusion, within 15 minutes of the initiation of the transfusion and within one hour of transfusion completion. To select "1", all recordings must be documented. • The pre-transfusion BP, pulse and temperature must be within one hour of the Transfusion Start Time. Vitals documented at the start of the transfusion are considered “within one hour of transfusion initiation". • For blood that may be transfused within 15 minutes, select "1" if the pre-transfusion and the within one hour of transfusion completion vitals are documented. • Vitals documented at the completion of the transfusion are considered “within one hour of transfusion completion". • The "unit" or "dose" information for the Vital Sign Monitoring data element must be associated with the blood product ID that was selected for abstraction.
Suggested Data Sources:	• Anesthesia record • Consultation notes • Emergency department record • Nursing notes • Progress notes • Operative notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 2.2 Left Ventricular Assistive Device (LVAD) and Heart Transplant		
Code	ICD-9-CM Description	Shortened Description
33.6	Combined heart-lung transplantation	COMB HEART/LUNG TRANSPLA
37.51	Heart transplantation	HEART TRANSPLANTATION
37.52	Implantation of total replacement heart system	IMPLANT TOT REP HRT SYS
37.53	Replacement or repair of thoracic unit of total replacement heart system	REPL/REP THORAC UNIT HRT
37.54	Replacement or repair of other implantable component of total replacement heart system	REPL/REP OTH TOT HRT SYS
37.62	Insertion of non-implantable heart assist system	INS NON-IMPL HRT ASSIST
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of heart assist system	REMOVE HEART ASSIST SYS
37.65	Implant of external heart assist system	IMP EXT HRT ASSIST SYST
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.68	Insertion of percutaneous external heart assist device	PERCUTAN HRT ASSIST SYST

Table 5.01 Coronary Artery Bypass Graft (CABG)		
Code	ICD-9-CM Description	Shortened Description
36.10	Aortocoronary bypass for heart revascularization, not otherwise specified	AORTOCORONARY BYPASS NOS
36.11	(Aorto)coronary bypass of one coronary artery	(AORTO)COR BYPAS-1 COR ART
36.12	(Aorto)coronary bypass of two coronary arteries	(AORTO)COR BYPAS-2 COR ART
36.13	(Aorto)coronary bypass of three coronary arteries	(AORTO)COR BYPAS-3 COR ART
36.14	(Aorto)coronary bypass of four coronary arteries	(AORT)COR BYPAS-4+ COR ART
36.15	Single internal mammary-coronary artery bypass	1 INT MAM-COR ART BYPASS
36.16	Double internal mammary-coronary artery bypass	2 INT MAM-COR ART BYPASS
36.17	Abdominal-coronary artery bypass	ABD-CORON ARTERY BYPASS
36.19	Other bypass anastomosis for heart revascularization	HRT REVAS BYPS ANAS NEC

Table 5.02 Other Cardiac Surgery		
Code	ICD-9-CM Description	Shortened Description
35.10	Open heart valvuloplasty, without replacement, unspecified valve	OPEN VALVULOPLASTY NOS
35.11	Open heart valvuloplasty of aortic valve without replacement	OPN AORTIC VALVULOPLASTY
35.12	Open heart valvuloplasty of mitral valve without replacement	OPN MITRAL VALVULOPLASTY
35.13	Open heart valvuloplasty of pulmonary valve without replacement	OPN PULMON VALVULOPLASTY
35.14	Open heart valvuloplasty of tricuspid valve without	OPN TRICUS

	replacement	VALVULOPLASTY
35.20	Replacement of unspecified heart valve	REPLACE HEART VALVE NOS
35.21	Replacement of aortic valve with tissue graft	REPLACE AORT VALV-TISSUE
35.22	Other replacement of aortic valve	REPLACE AORTIC VALVE NEC
35.23	Replacement of mitral valve with tissue graft	REPLACE MITR VALV-TISSUE
35.24	Other replacement of mitral valve	REPLACE MITRAL VALVE NEC
35.25	Replacement of pulmonary valve with tissue graft	REPLACE PULM VALV-TISSUE
35.26	Other replacement of pulmonary valve	REPLACE PULMON VALVE NEC
35.27	Replacement of tricuspid valve with tissue graft	REPLACE TRIC VALV-TISSUE
35.28	Other replacement of tricuspid valve	REPLACE TRICUSP VALV NEC
35.31	Operations on papillary muscle	PAPILLARY MUSCLE OPS
35.32	Operations on chordae tendineae	CHORDAE TENDINEAE OPS
35.33	Annuloplasty	ANNULOPLASTY
35.34	Infundibulectomy	INFUNDIBULECTOMY
35.35	Operations on trabeculae carneae cordis	TRABECUL CARNEAE CORD OP
35.39	Operations on other structures adjacent to valves of heart	TISS ADJ TO VALV OPS NEC
35.42	Creation of septal defect in heart	CREATE SEPTAL DEFECT
35.50	Repair of unspecified septal defect of heart with prosthesis	PROSTH REP HRT SEPTA NOS
35.51	Repair of atrial septal defect with prosthesis, open technique	PROS REP ATRIAL DEF-OPN
35.53	Repair of ventricular septal defect with prosthesis, open technique	PROS REP VENTRIC DEF-OPN
35.54	Repair of endocardial defect with prosthesis	PROS REP ENDOCAR CUSHION
35.60	Repair of unspecified septal defect with tissue graft	GRFT REPAIR HRT SEPT NOS
35.61	Repair of atrial septal defect with tissue graft	GRAFT REPAIR ATRIAL DEF
35.62	Repair of ventricular septal defect with tissue graft	GRAFT REPAIR VENTRIC DEF
35.63	Repair of endocardial cushion defect with tissue graft	GRFT REP ENDOCAR CUSHION
35.70	Other and unspecified repair of unspecified septal defect of heart	HEART SEPTA REPAIR NOS
35.72	Other and unspecified repair of ventricular septal defect	VENTR SEPTA DEF REP NEC
35.73	Other and unspecified repair of endocardial cushion defect	ENDOCAR CUSHION REP NEC
35.81	Total repair of tetralogy of Fallot	TOT REPAIR TETRAL FALLOT
35.82	Total repair of total anomalous pulmonary venous connection	TOTAL REPAIR OF TAPVC
35.83	Total repair of truncus arteriosus	TOT REP TRUNCUS ARTERIOS
35.84	Total correction of transposition of great vessels, not elsewhere classified	TOT COR TRANSPOS GRT VES
35.91	Interatrial transposition of venous return	INTERAT VEN RETRN TRANSP

35.92	Creation of conduit between right ventricle and pulmonary artery	CONDUIT RT VENT-PUL ART
35.93	Creation of conduit between left ventricle and aorta	CONDUIT LEFT VENTR-AORTA
35.94	Creation of conduit between atrium and pulmonary artery	CONDUIT ARTIUM-PULM ART
35.98	Other operations on septa of heart	OTHER HEART SEPTA OPS
35.99	Other operations on valves of heart	OTHER HEART VALVE OPS

Table 5.08 Vascular Surgery

Code	ICD-9-CM Description	Shortened Description
38.14	Endarterectomy, aorta	ENDARTERECTOMY OF AORTA
38.16	Endarterectomy, abdominal arteries	ABDOMINAL ENDARTERECTOMY
38.18	Endarterectomy, lower limb arteries	LOWER LIMB ENDARTEREC T
38.34	Resection of vessel with anastomosis, aorta	AORTA RESECTION & ANAST
38.36	Resection of vessel with anastomosis, abdominal arteries	ABD VESSEL RESECT/ANAST
38.37	Resection of vessel with anastomosis, abdominal veins	ABD VEIN RESECT & ANAST
38.44	Resection of vessel with replacement, aorta, abdominal	RESECT ABDM
38.48	Resection of vessel with replacement, lower limb arteries	LEG ARTERY RESEC W REPLA
38.49	Resection of vessel with replacement, lower limb veins	LEG VEIN RESECT W REPLAC
38.64	Other excision of vessels, aorta, abdominal	EXCISION OF AORTA
39.25	Aorta-iliac-femoral bypass	AORTA-ILIAC-FEMOR BYPASS
39.26	Other intra-abdominal vascular shunt or bypass	INTRA-ABDOMIN SHUNT NEC
39.29	Other (peripheral) vascular shunt or bypass	VASC SHUNT & BYPASS NEC

Table 5.11 Cardiac Surgery

Code	ICD-9-CM Description	Shortened Description
35.10	Open heart valvuloplasty without replacement, unspecified valve	OPEN VALVULOPLASTY NOS
35.11	Open heart valvuloplasty of aortic valve without replacement	OPN AORTIC VALVULOPLASTY
35.12	Open heart valvuloplasty of mitral valve without replacement	OPNMITRAL VALVULOPLASTY
35.13	Open heart valvuloplasty of pulmonary valve without replacement	OPN PULMON VALVULOPLASTY
35.14	Open heart valvuloplasty of tricuspid valve without replacement	OPN TRICUS VALVULOPLASTY
35.20	Replacement of unspecified heart valve	REPLACE HEART VALVE NOS
35.21	Replacement of aortic valve with tissue graft	REPLACE AORT VALVE-TISSUE
35.22	Other replacement of aortic valve	REPLACE AORT VALVE NEC

35.23	Replacement of mitral valve with tissue graft	REPLACE MITR VALVE-TISSUE
35.24	Other replacement of mitral valve	REPLACE MITRAL VALVE NEC
35.25	Replacement of pulmonary valve with tissue graft	REPLACE PULM VALV-TISSUE
35.26	Other replacement of pulmonary valve	REPLACE PULMON VALVE NEC
35.27	Replacement of tricuspid valve with tissue graft	REPLACE TRICUSP VALV NEC
35.28	Other replacement of tricuspid valve	REPLACE TRICUSP VALV NEC
35.31	Operations on papillary muscle	PAPILLARY MUSCLE OPS
35.32	Operations on chordae tendineae	CHORDAE TENDINEAE OPS
35.33	Annuloplasty	ANNULOPLASTY
35.34	Infundibulectomy	INFUNDIBULECTOMY
35.35	Operations of trabeculae carneae cordis	TRABECUL CARNEAE CORD OP
35.39	Operations on other structures adjacent to valves of heart	TISS ADJ TO VALV OPS NEC
35.42	Creation of septal defect in heart	CREATE SEPTAL DEFECT
35.50	Repair of unspecified septal defect of heart with prosthesis	PROSTH REP HRT SEPTA NOS
35.51	Repair of atrial septal defect with prosthesis, open technique	PROS REP ATRIAL DEF-OPN
35.53	Repair of ventricular septal defect with prosthesis, open technique	PROS REP VENTRIC DEF-OPN
35.54	Repair of endocardial cushion defect with prosthesis	PROS REP ENDOCAR CUSHION
35.60	Repair of unspecified septal defect of heart with tissue graft	GRFT REPAIR HRT SEPT NOS
35.61	Repair of atrial septal defect with tissue graft	GRAFT REPAIR ATRIAL DEF
35.62	Repair of ventricular septal defect with tissue graft	GRAFT REPAIR VENTRIC DEF
35.63	Repair of endocardial cushion defect with tissue graft	GRFT REP ENDOCAR CUSHION
35.70	Other and unspecified repair of unspecified septal defect of heart	HEART SEPTA REPAIR NOS
35.71	Other and unspecified repair of atrial septal defect	ATRIA SEPTA DEF REP NEC
35.72	Other and unspecified repair of ventricular septal defect	VENTR SEPTA DEF REP NEC
35.73	Other and unspecified repair of endocardial cushion defect	ENDOCAR CUSHION REP NEC
35.81	Total repair of tetralogy of Fallot	TOT REPAIR TETRAL FALLOT
35.82	Total repair of total anomalous pulmonary venous connection	TOTAL REPAIR OF TAPVC
35.83	Total repair of truncus arteriosus	TOT REP TRUNCUS ARTERIOS

Table 5.11 Cardiac Surgery (cont.)		
Code	ICD-9-CM Description	Shortened Description

35.84	Total connection of transposition of great vessels, not elsewhere classified	TOT COR TRANSPOS GRT VES
35.91	Interatrial transposition of venous return	INTERAT VEN RETRN TRANSP
35.92	Creation of conduit between right ventricle and pulmonary artery	CONDUIT RT VENT-PUL ART
35.93	Creation of conduit between left ventricle and aorta	CONDUIT LEFT VENTR-AORTA
35.94	Creation of conduit between atrium and pulmonary artery	CONDUIT ARTIUM-PULM ART
35.98	Other operations on septa of heart	OTHER HEART SEPTA OPS
35.99	Other operations on valves of heart	OTHER HEART VALVE OPS
36.03	Open chest coronary artery angioplasty	OPEN CORONRY ANGIOPLASTY
36.10	Aortocoronary bypass for heart revascularization, not otherwise specified	AORTOCORONARY BYPASS NOS
36.11	Aortocoronary bypass of one coronary artery	AORTOCOR BYPASS-1 COR ART
36.12	Aortocoronary bypass of two coronary arteries	AORTOCOR BYPASS-2 COR ART
36.13	Aortocoronary bypass of three coronary arteries	AORTOCOR BYPASS-3 COR ART
36.14	Aortocoronary bypass of four or more coronary arteries	AORTOCOR BYPASS-4+ COR ART
36.15	Single internal mammary-coronary artery bypass	1 INT MAM-COR ART BYPASS
36.16	Double internal mammary-coronary artery bypass	2 INT MAM-COR ART BYPASS
36.17	Abdominal-coronary artery bypass	ABD-CORON ARTERY BYPASS
36.19	Other bypass anastomosis for heart revascularization	HRT REVAS BYPS ANAS NEC
36.31	Open chest transmyocardial revascularization	OPEN CHEST TRANS REVASC
36.32	Other transmyocardial revascularization	OTH TRANSMYO REVASCULAR
36.39	Other heart revascularization	OTH REVASCULAR
36.91	Repair of aneurysm of coronary vessel	CORON VESS ANEURYSM REP
36.99	Other operations on vessels of heart	HEART VESSEL OP NEC
37.10	Incision of heart, not otherwise specified	INCISION OF HEART NOS
37.11	Cardiotomy	CARDIOTOMY
37.31	Pericardiectomy	PERICARDIECTOMY
37.32	Excision of aneurysm of heart	HEART ANEURYSM EXCISION
37.33	Excision or destruction of other lesion or tissue of heart, open approach	EXC/DEST HRT LESION OPEN
37.35	Partial ventriculectomy	PARTIAL VENTRICULECTOMY
37.41	Implantation of prosthetic cardiac support device around the heart	IMPL CARDIAC SUPPORT DEV
37.49	Other repair of heart and pericardium	HEART/PERICARD REPR NEC
37.51	Heart transplantation	HEART TRANSPLANTATION

37.52	Implantation of total replacement heart system	IMPLANT TOT REP HRT SYS
37.53	Replacement or repair of thoracic unit of total replacement heart system	REPL/REP THORAC UNIT HRT
37.54	Replacement or repair of other implants component of total replacement heart system	REPL/REP OTH TOT HRT SYS
37.62	Insertion of non-implantable heart assist system	INS NON-IMPL HRT ASSIST
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of heart assist system	REMOVE HEART ASSIST SYS
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.67	Implantation of cardiomyostimulation system	IMP CARDIOMYOSTIMUL SYS

Table 5.22 Elective Hip Replacement

Code	ICD-9-CM Description	Shortened Description
00.70	Revision of hip replacement, both acetabular and femoral components	REV HIP REPL-ACETAB/FEM
00.71	Revision of hip replacement, acetabular component	REV HIP REPL-ACETAB COMP
00.72	Revision of hip replacement, femoral component	REV HIP REPL-FEM COMP
00.73	Revision of hip replacement, acetabular liner and/or femoral head only	REV HIP REPL-LINER/HEAD
00.77	Hip bearing surface, ceramic-on-polyethylene	HIP SURFACE, CERMC/POLY
00.85	Resurfacing hip, total, acetabulum and femoral head	RESRF HIP,TOTAL-ACET/FEM
00.86	Resurfacing hip, partial, femoral head	RESRF HIP,PART-FEM HEAD
00.87	Resurfacing hip, partial, acetabulum	RESRF HIP,PART-ACETABLUM
81.51	Total hip replacement	TOTAL HIP REPLACEMENT
81.52	Partial hip replacement	PARTIAL HIP REPLACEMENT
81.53	Revision of hip replacement	REVISE HIP REPLACEMENT

Table 5.23 Elective Total Knee Replacement

Code	ICD-9-CM Description	Shortened Description
00.80	Revision of knee replacement, total (all components)	REV KNEE REPLACEMT-TOTAL
00.81	Revision of knee replacement, tibial component	REV KNEE REPL-TIBIA COMP
00.82	Revision of knee replacement, femoral component	REV KNEE REPL-FEMUR COMP
00.83	Revision of knee replacement, patellar component	REV KNEE REPLACE-PATELLA
00.84	Revision of total knee replacement, tibial insert (liner)	REV KNEE REPL-TIBIA LIN
81.54	Total knee replacement	TOTAL KNEE REPLACEMENT
81.55	Revision of knee replacement	REVISE KNEE REPLACEMENT

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 9.1 Elective Cardiac Surgery (Selected Codes from Table 5.25)		
Code	ICD-9-CM Description	Shortened Description
35.71	Other and unspecified repair of atrial septal defect	ATRIA SEPTA DEF REP NEC
36.03	Open chest coronary artery angioplasty	OPEN CORONRY ANGIOPLASTY
36.31	Open chest transmyocardial revascularization	OPEN CHEST TRANS REVASC
36.32	Other transmyocardial revascularization	OTH TRANSMYO REVASCULAR
36.39	Other heart revascularization	OTH HEART REVASCULAR
36.91	Repair of aneurysm of coronary vessel	CORON VESS ANEURYSM REP
36.99	Other operations on vessels of heart	HEART VESSEL OP NEC
37.10	Incision of heart, not otherwise specified	INCISION OF HEART NOS
37.11	Cardiotomy	CARDIOTOMY
37.32	Excision of aneurysm of heart	HEART ANEURYSM EXCISION
37.33	Excision or destruction of other lesion or tissue of heart, open approach	EXC/DEST HRT LESION OPEN
37.35	Partial ventriculectomy	PARTIAL VENTRICULECTOMY
37.36	Excision or destruction of left atrial appendage (LAA)	EXC LEFT ATRIAL APPENDAG
37.41	Implantation of prosthetic cardiac support device around the heart	IMPL CARDIAC SUPPORT DEV
37.49	Other repair of heart and pericardium	HEART/PERICARD REPR NEC
37.51	Heart transplantation	HEART TRANSPLANTATION
37.52	Implantation of total internal biventricular heart replacement system	IMP TOT INT BI HT RP SYS
37.53	Replacement or repair of thoracic unit of (total) replacement heart system	REPL/REP THR UNT TOT HRT
37.54	Replacement or repair of other implantable component of (total) replacement heart system	REPL/REP OTH TOT HRT SYS
37.55	Removal of internal biventricular heart replacement system	REM INT BIVENT HRT SYS
37.60	Implantation or insertion of biventricular external heart assist system	IMP BIVN EXT HRT AST SYS
37.62	Insertion of temporary non-implantable extracorporeal circulatory assist device	INSRT NON-IMPL CIRC DEV
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of external heart assist system(s) or device(s)	REMVE EXT HRT ASSIST SYS
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.67	Implantation of cardiomyostimulation system	IMP CARDIOMYOSTIMUL SYS

Table 9.2 Elective Gynecological		
Code	ICD-9-CM Description	Shortened Description
68.31	Other incision and excision of uterus, subtotal abdominal hysterectomy, other incision and excision of uterus, laparoscopic supracervical hysterectomy [LSH]	Lap scervic hysterectomy
68.39	Other incision and excision of uterus, subtotal abdominal hysterectomy, other incision and excision of uterus, other and unspecified subtotal	Subtotl abd hyst NEC/NOS

	abdominal hysterectomy	
68.41	Other incision and excision of uterus, total abdominal hysterectomy, laparoscopic total abdominal hysterectomy	Lap total abdominal hyst
68.49	Other incision and excision of uterus, total abdominal hysterectomy, other and unspecified total abdominal hysterectomy	Total abd hyst NEC/NOS
68.51	Vaginal hysterectomy, laparoscopically assisted vaginal hysterectomy [LAVH]	Lap ast vag hysterectomy
68.59	Vaginal hysterectomy, other and unspecified vaginal hysterectomy	Vag hysterectomy NEC/NOS
68.61	Radical abdominal hysterectomy, laparoscopic radical abdominal hysterectomy	Lap radical abdomnl hyst
68.69	Radical abdominal hysterectomy, other and unspecified radical abdominal hysterectomy	Radical abd hyst NEC/NOS
68.71	Radical vaginal hysterectomy, laparoscopic radical vaginal hysterectomy [LRVH]	Lap radical vaginal hyst
68.79	Radical vaginal hysterectomy, other and unspecified radical vaginal hysterectomy	Radical vag hyst NEC/NOS
68.9	Other and unspecified hysterectomy	Hysterectomy NEC/NOS

Table 9.3 Previously Donated Autologous Transfusion

Code	ICD-9-CM Description	Shortened Description
99.02	Other nonoperative procedures, transfusion of blood and blood components, transfusion of previously collected autologous blood	TRANSFUS PREV AUTO BLOOD

Table 9.4 Packed Red Blood Cell Transfusion

Code	ICD-9-CM Description	Shortened Description
99.04	Other nonoperative procedures, transfusion of blood and blood components, transfusion of packed cells	PACKED CELL TRANSFUSION

Table 9.5 Platelet Transfusion

Code	ICD-9-CM Description	Shortened Description
99.05	Other nonoperative procedures, transfusion of blood and blood components, transfusion of platelets	PLATELET TRANSFUSION

Table 9.6 Plasma Transfusion

Code	ICD-9-CM Description	Shortened Description
99.07	Other nonoperative procedures, transfusion of blood and blood components, transfusion of other serum	SERUM TRANSFUSION NEC

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 9.7 Trauma		
Code	ICD-9-CM Description	Shortened Description
800	Fracture of vault of skull	CLOSED SKULL VAULT FX
801	Fracture of base of skull	CLOS SKULL BASE FRACTURE
802	Fracture of face bones	NASAL BONE FX-CLOSED
803	Other and unqualified skull fractures	CLOSE SKULL FRACTURE NEC
804	Multiple fractures involving skull or face with other bones	CL SKUL FX W OTH BONE FX
805	Fracture of vertebral column without mention of spinal cord injury	FX CERVICAL VERT NOS-CL
806	Fracture of vertebral column with spinal cord injury	C1-C4 FX-CL/CORD INJ NOS
807	Fracture of rib(s), sternum, larynx, and trachea	FRACTURE RIB NOS-CLOSED
808	Fracture of pelvis	FRACTURE ACETABULUM-CLOS
809	III-defined fractures of bones of trunk	FRACTURE TRUNK BONE-CLOS
810	Fracture of clavicle	FX CLAVICLE NOS-CLOSED
811	Fracture of scapula	FX SCAPULA NOS-CLOSED
812	Fracture of humerus	FX UP END HUMERUS NOS-CL
813	Fracture of radius and ulna	FX UPPER FOREARM NOS-CL
814	Fracture of carpal bones(s)	FX CARPAL BONE NOS-CLOSE
815	Fracture of metacarpal bones(s)	FX METACARPAL NOS-CLOSED
816	Fracture of one or more phalanges of hands	FX PHALANX, HAND NOS-CL
817	Multiple fractures of hand bones	MULTIPLE FX HAND-CLOSED
818	III-defined fractures of upper limb	FX ARM MULT/NOS-CLOSED
819	Multiple fractures involving both upper limbs, and upper limb with rib(s) and sternum	FX ARMS W RIB/STERNUM-CL
820	Fracture of neck of femur	FX FEMUR INTRCAPS NOS-CL
821	Fracture of other and unspecified parts of femur	FX FEMUR NOS-CLOSED
822	Fracture of patella	FRACTURE PATELLA-CLOSED
823	Fracture of tibia and fibula	FX UPPER END TIBIA-CLOSE
824	Fracture of ankle	FX MEDIAL MALLEOLUS-CLOS
825	Fracture of one or more tarsal and metatarsal bones	FRACTURE CALCANEUS-CLOSE
826	Fracture of one or more phalanges of foot	FX PHALANX, FOOT-CLOSED
827	Other, multiple, and ill-defined fractures of lower limb	FX LOWER LIMB NEC-CLOSED
828	Multiple fractures involving both lower limbs, lower with upper limb, and lower limb(s) with rib(s) and sternum	FX LEGS W ARM/RIB-CLOSED
829	Fracture of unspecified bones	FRACTURE NOS-CLOSED
830	Dislocation of jaw	DISLOCATION JAW-CLOSED
831	Dislocation of shoulder	DISLOC SHOULDER NOS-

		CLOS
832	Dislocation of elbow	DISLOCAT ELBOW NOS-CLOSE
833	Dislocation of wrist	DISLOC WRIST NOS-CLOSED
834	Dislocation of finger	DISL FINGER NOS-CLOSED
835	Dislocation of hip	DISLOCAT HIP NOS-CLOSED
836	Dislocation of knee	TEAR MED MENISC KNEE-CUR
837	Dislocation of ankle	DISLOCATION ANKLE-CLOSED
838	Dislocation of foot	DISLOCAT FOOT NOS-CLOSED
839	Other, multiple, and ill-defined dislocations	DISLOC CERV VERT NOS-CL
840	Sprains and strains of shoulder and upper arm	SPRAIN ACROMIOCLAVICULAR
841	Sprains and strains of elbow and forearm	SPRAIN RADIAL COLLAT LIG
842	Sprains and strains of wrist and hand	SPRAIN OF WRIST NOS
843	Sprains and strains of hip and thigh	SPRAIN ILIOFEMORAL
844	Sprains and strains of knee and leg	SPRAIN LATERAL COLL LIG
845	Sprains and strains of ankle and foot	SPRAIN OF ANKLE NOS
846	Sprains and strains of sacroiliac region	SPRAIN LUMBOSACRAL
847	Sprains and strains of other and unspecified parts of back	SPRAIN OF NECK
848	Other and ill-defined sprains and strains	SPRAIN OF NASAL SEPTUM
850	Concussion	CONCUSSION W/O COMA
851	Cerebral laceration and contusion	CEREBRAL CORTX CONTUSION
852	Subarachnoid, subdural, and extradural hemorrhage, following injury	TRAUM SUBARACHNOID HEM
853	Other and unspecified intracranial hemorrhage following injury	TRAUMATIC BRAIN HEM NEC
854	Intracranial injury of other and unspecified nature	BRAIN INJURY NEC
860	Traumatic pneumothorax and hemothorax	TRAUM PNEUMOTHORAX-CLOSE
861	Injury to heart and lung	HEART INJURY NOS-CLOSED
862	Injury to other and unspecified intrathoracic organs	DIAPHRAGM INJURY-CLOSED
863	Injury to gastrointestinal tract	STOMACH INJURY-CLOSED
864	Injury to liver	LIVER INJURY NOS-CLOSED
865	Injury to spleen	SPLEEN INJURY NOS-CLOSED
866	Injury to kidney	KIDNEY INJURY NOS-CLOSED
867	Injury to pelvic organs	BLADDER/URETHRA INJ-CLOS
868	Injury to other intra-abdominal organs	INTRA-ABDOM INJ NOS-CLOS
869	Internal injury to unspecified or ill-defined organs	INTERNAL INJ NOS-CLOSED
870	Open wound of ocular adnexa	LAC EYELID SKN/PERIOCULR
871	Open wound of eyeball	OCULAR LAC W/O PROLAPSE
872	Open wound of ear	OPN WOUND EXTERN EAR

		NOS
873	Other open wound of head	OPEN WOUND OF SCALP
874	Open wound of neck	OPN WND LARYNX W TRACHEA
875	Open wound of chest (wall)	OPEN WOUND OF CHEST
876	Open wound of back	OPEN WOUND OF BACK
877	Open wound of buttock	OPEN WOUND OF BUTTOCK
878	Open wound of genital organs (external), including traumatic amputation	OPEN WOUND OF PENIS
879	Open wound of other and unspecified sites, except limbs	OPEN WOUND OF BREAST
880	Open wound of shoulder and upper arm	OPEN WOUND OF SHOULDER
881	Open would of elbow, forearm, and wrist	OPEN WOUND OF FOREARM
882	Open wound of hand except finger(s) alone	OPEN WOUND OF HAND
883	Open wound of finger(s)	OPEN WOUND OF FINGER
884	Multiple and unspecified open wound of upper limb	OPEN WOUND ARM MULT/NOS
885	Traumatic amputation of thumb (complete) (partial)	AMPUTATION THUMB
886	Traumatic amputation of other finger(s) (complete) (partial)	AMPUTATION FINGER
887	Traumatic amputation of arm and hand (complete) (partial)	AMPUT BELOW ELB, UNILAT
890	Open wound of hip and thigh	OPEN WOUND OF HIP/THIGH
891	Open wound of knee, leg [except thigh], and ankle	OPEN WND KNEE/LEG/ANKLE
892	Open wound of foot except toe(s) alone	OPEN WOUND OF FOOT
893	Open wound of toe(s)	OPEN WOUND OF TOE
894	Multiple and unspecified open wound of lower limb	OPEN WOUND OF LEG NEC
895	Traumatic amputation of toe(s) (complete) (partial)	AMPUTATION TOE
896	Traumatic amputation of foot (complete) (partial)	AMPUTATION FOOT, UNILAT
897	Traumatic amputation of leg(s) (complete) (partial)	AMPUT BELOW KNEE, UNILAT
900	Injury to blood vessels of head and neck	INJUR CAROTID ARTERY NOS
901	Injury to blood vessels of thorax	INJURY THORACIC AORTA
902	Injury to blood vessels of abdomen and pelvis	INJURY ABDOMINAL AORTA
903	Injury to blood vessels of upper extremity	INJ AXILLARY VESSEL NOS
904	Injury to blood vessels of lower extremity and unspecified sites	INJ COMMON FEMORAL ARTER
905	Late effects of musculoskeletal and connective tissue injuries	LATE EFFEC SKULL/FACE FX
906	Late effects of injuries to skin and subcutaneous tissues	LT EFF OPN WND HEAD/TRNK
907	Late effects of injuries to the nervous system	LT EFF INTRACRANIAL INJ
908	Late effects of other and unspecified injuries	LATE EFF INT INJUR CHEST
909	Late effects of other and unspecified external causes	LATE EFF DRUG POISONING
910	Superficial injury of face, neck, and scalp except eye	ABRASION HEAD
911	Superficial injury of trunk	ABRASION TRUNK
912	Superficial injury of shoulder and upper arm	ABRASION SHOULDER/ARM

913	Superficial injury of elbow, forearm, and wrist	ABRASION FOREARM
914	Superficial injury of hand(s) except finger(s) alone	ABRASION HAND
915	Superficial injury of finger(s)	ABRASION FINGER
916	Superficial injury of hip, thigh, leg, and ankle	ABRASION HIP & LEG
917	Superficial injury of foot and toe(s)	ABRASION FOOT & TOE
918	Superficial injury of eye and adnexa	SUPERFIC INJ PERIOCULAR
919	Superficial injury of other, multiple, and unspecified sites	ABRASION NEC
920	Contusion of face, scalp, and neck except eye(s)	CONTUSION FACE/SCALP/NCK
921	Contusion of eye and adnexa	BLACK EYE NOS
922	Contusion of trunk	CONTUSION OF BREAST
923	Contusion of upper limb	CONTUSION SHOULDER REG
924	Contusion of lower limb and of other and unspecified sites	CONTUSION OF THIGH
925	Crushing injury of face, scalp, and neck	
926	Crushing injury of trunk	CRUSH INJ EXT GENITALIA
927	Crushing injury of upper limb	CRUSH INJ SHOULDER REG
928	Crushing injury of lower limb	CRUSHING INJURY THIGH
929	Crushing injury of multiple and unspecified sites	CRUSH INJ MULT SITE NEC
930	Foreign body on external eye	CORNEAL FOREIGN BODY
931	Foreign body in ear	FOREIGN BODY IN EAR
932	Foreign body in nose	FOREIGN BODY IN NOSE
933	Foreign body in pharynx and larynx	FOREIGN BODY IN PHARYNX
934	Foreign body in trachea, bronchus, and lung	FOREIGN BODY IN TRACHEA
935	Foreign body in mouth, esophagus, and stomach	FOREIGN BODY IN MOUTH
936	Foreign body in intestine and colon	FB IN INTESTINE & COLON
937	Foreign body in anus and rectum	FOREIGN BODY ANUS/RECTUM
938	Foreign body in digestive system, unspecified	FOREIGN BODY GI NOS
939	Foreign body in genitourinary tract	FB BLADDER & URETHRA
940	Burn confined to eye and adnexa	CHEMICAL BURN PERIOCULAR
941	Burn of face, head, and neck	BURN NOS HEAD-UNSPEC
942	Burn of trunk	BURN NOS TRUNK-UNSPEC
943	Burn of upper limb, except wrist and hand	BURN NOS ARM-UNSPEC
944	Burn of wrist(s) and hand(s)	BURN NOS HAND-UNSPEC
945	Burn of lower limb(s)	BURN NOS LEG-UNSPEC
946	Burns of multiple specified sites	BURN NOS MULTIPLE SITE
947	Burn of internal organs	BURN OF MOUTH & PHARYNX
948	Burns classified according to extent of body surface involved	BDY BRN < 10%/3D DEG NOS
949	Burn, unspecified	BURN NOS
950	Injury to optic nerve and pathways	OPTIC NERVE INJURY
951	Injury to other cranial nerve(s)	INJURY OCULOMOTOR NERVE
952	Spinal cord injury without evidence of spinal bone injury	C1-C4 SPIN CORD INJ NOS

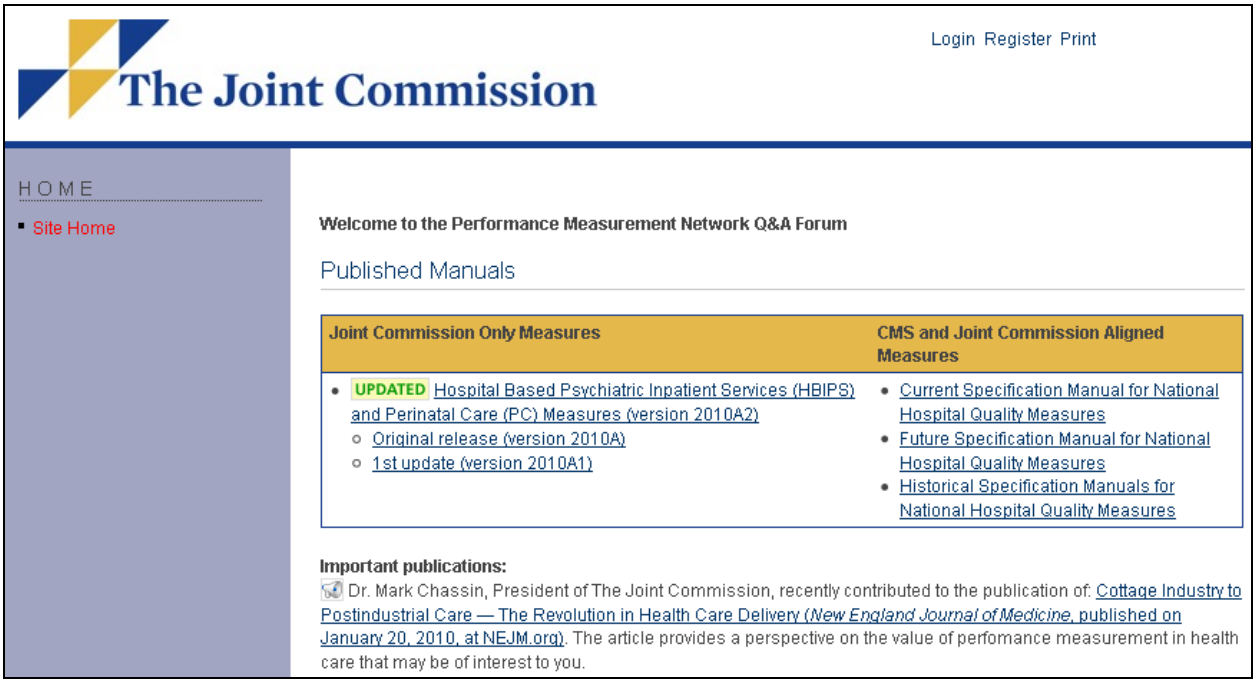
953	Injury to nerve roots and spinal plexus	CERVICAL ROOT INJURY
954	Injury to other nerve(s) of trunk, excluding shoulder and pelvic girdles	INJ CERV SYMPATH NERVE
955	Injury to peripheral nerve(s) of shoulder girdle and upper limb	INJURY AXILLARY NERVE
956	Injury to peripheral nerve(s), of pelvic girdle and lower limb	INJURY SCIATIC NERVE
957	Injury to other and unspecified nerves	INJ SUPERF NERV HEAD/NCK
958	Certain early complications of trauma	AIR EMBOLISM
959	Injury, other and unspecified	
960	Poisoning by antibiotics	POISONING-PENICILLINS
961	Poisoning by other anti-infectives	POISONING-SULFONAMIDES
962	Poisoning by hormones and synthetic substitutes	POIS-CORTICOSTEROIDS
963	Poisoning by primarily systemic agents	POIS-ANTIALLRG/ANTIEMET
964	Poisoning by agents primarily affecting blood constituents	POISONING-IRON/COMPOUNDS
965	Poisoning by analgesics, antipyretics, and antirheumatics	POISONING-OPIUM NOS
966	Poisoning by anticonvulsants and anti-Parkinsonism drugs	POISON-OXAZOLIDINE DERIV
967	Poisoning by sedatives and hypnotics	POISONING-BARBITURATES
968	Poisoning by other central nervous system depressants and anesthetics	POIS-CNS MUSCLE DEPRESS
969	Poisoning by psychotropic agents	POISON-ANTIDEPRESNT NOS
970	Poisoning by central nervous system stimulants	POISONING-ANALEPTICS
971	Poisoning by drugs primarily affecting the autonomic nervous system	POIS-PARASYMPATHOMIMETIC
972	Poisoning by agents primarily affecting the cardiovascular system	POIS-CARD RHYTHM REGULAT
973	Poisoning by agents primarily affecting the gastrointestinal system	POIS-ANTACID/ANTIGASTRIC
974	Poisoning by water, mineral, and uric acid metabolism drugs	POIS-MERCURIAL DIURETICS
975	Poisoning by agents primarily acting on the smooth and skeletal muscles and respiratory system	POISONING-OXYTOCIC AGENT
976	Poisoning by agents primarily affecting skin and mucous membrane, ophthalmological, otorhinolaryngological, and dental drugs	POIS-LOCAL ANTI-INFECT
977	Poisoning by other and unspecified drugs and medicinal substances	POISONING-DIETETICS
978	Poisoning by bacterial vaccines	POISONING-BCG VACCINE
979	Poisoning by other vaccines and biological substances	POISON-SMALLPOX VACCINE
980	Toxic effect of alcohol	TOXIC EFF ETHYL ALCOHOL
981	Toxic effect of petroleum products	TOXIC EFF PETROLEUM PROD
982	Toxic effect of solvents other than petroleum-based	TOXIC EFFECT BENZENE
983	Toxic effect of corrosive aromatics, acids, and caustic alkalis	TOX EFF CORROSIVE AROMAT

984	Toxic effect of lead and its compounds (including fumes)	TX EFF INORG LEAD COMPND
985	Toxic effect of other metals	TOXIC EFFECT MERCURY
986	Toxic effect of carbon monoxide	TOX EFF CARBON MONOXIDE
987	Toxic effect of other gases, fumes, or vapors	TOXIC EFF LIQ PETROL GAS
988	Toxic effect of noxious substances eaten as food	TOXIC EFF FISH/SHELLFISH
989	Toxic effect of other substances, chiefly nonmedicinal as to source	TOXIC EFFECT CYANIDES
990	Effects of radiation, unspecified	EFFECTS RADIATION NOS
991	Effects of reduced temperature	FROSTBITE OF FACE
992	Effects of heat and light	HEAT STROKE & SUNSTROKE
993	Effects of air pressure	BAROTRAUMA, OTITIC
994	Effects of other external causes	EFFECTS OF LIGHTNING
995	Certain adverse effects not elsewhere classified	ANAPHYLACTIC SHOCK
996	Complications peculiar to certain specified procedures	MALFUNC CARD DEV/GRF NOS
997	Complications affecting specified body systems, not elsewhere classified	NERVOUS SYST COMPLC NOS
998	Other complications of procedures, not elsewhere classified	POSTOPERATIVE SHOCK
999	Complications of medical care, not elsewhere classified	GENERALIZED VACCINIA

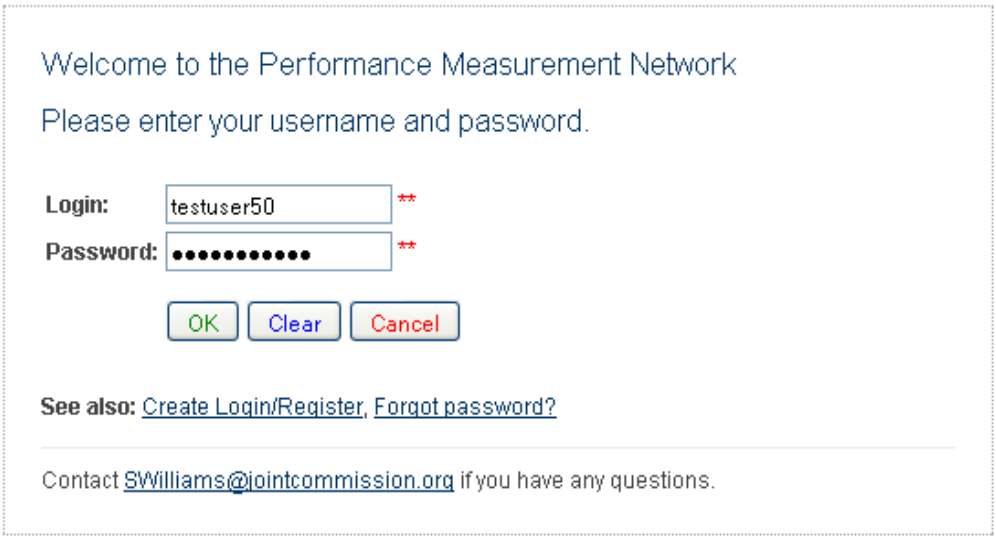
Navigating the Blood Management Project
Data Collection Tool

How to Log In and Get Started

1) Once you have registered and received your confirmation to submit data for the Blood Management Project, you may access the project website at: http://manual.jointcommission.org
2) Click on "Login" in the upper right hand corner.



3) Enter your Login and Password and click "ok".



Navigating the Blood Management Project
Data Collection Tool

4) Welcome to the Performance Measurement Network. Select the "Blood Mgmt Project" link from the left hand navigation bar.

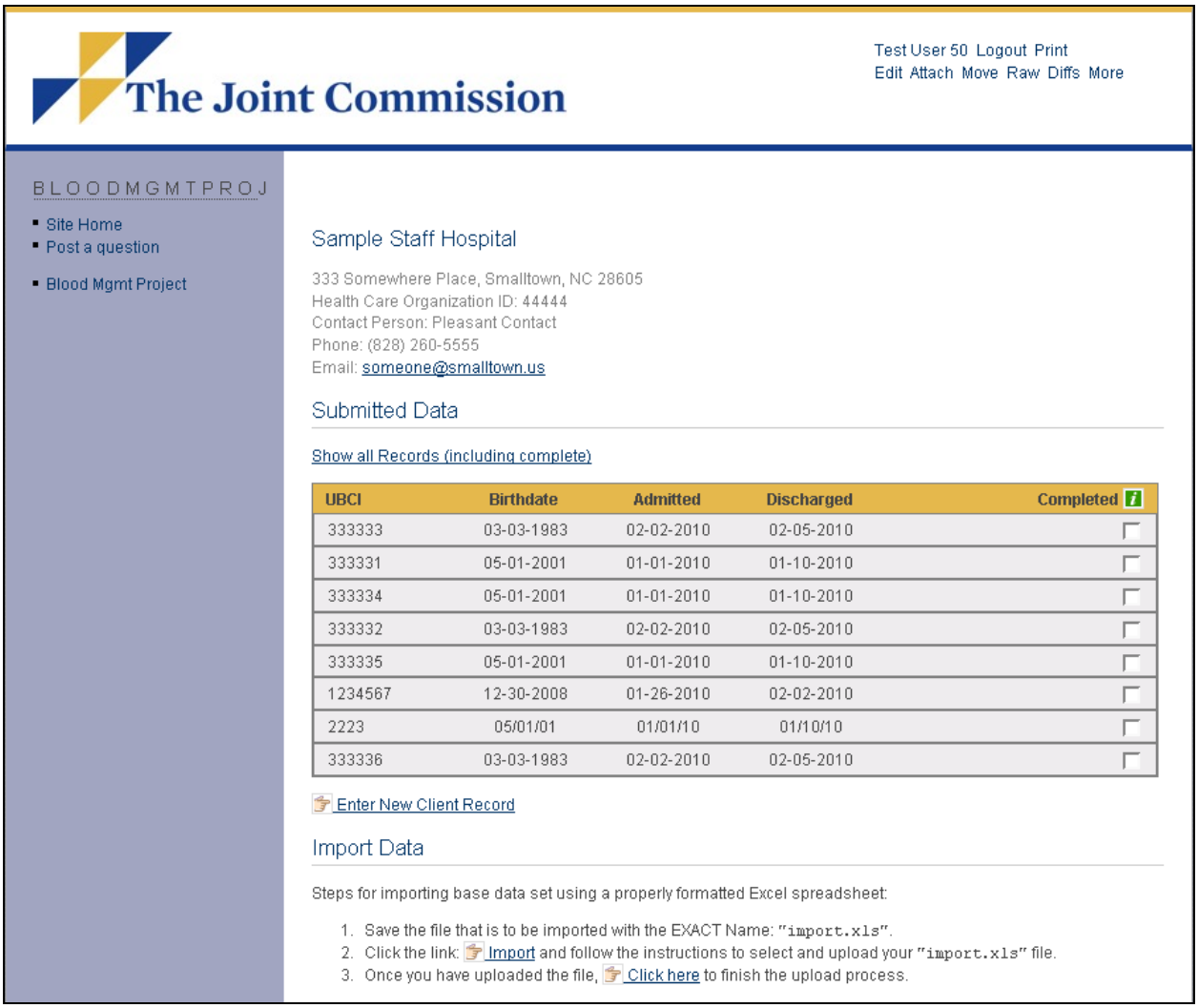
5) You are now on the Blood Management Project Page. You will see your hospitals(s) listed here. In the Project Help section, you will find a link to the measure specifications, an example of the import file template, and other material intended to assist you with your participation in this project. Please click on the hospital name to enter blood management data.

Navigating the Blood Management Project
Data Collection Tool

6) You are now on your hospital page. From this page, you can:

- update your hospital demographic information
- enter new records
- import new records
- view and update existing records
- add RBC, Plasma and Platelet events
- mark records as "complete"
- review records that have been completed
- view import attachments

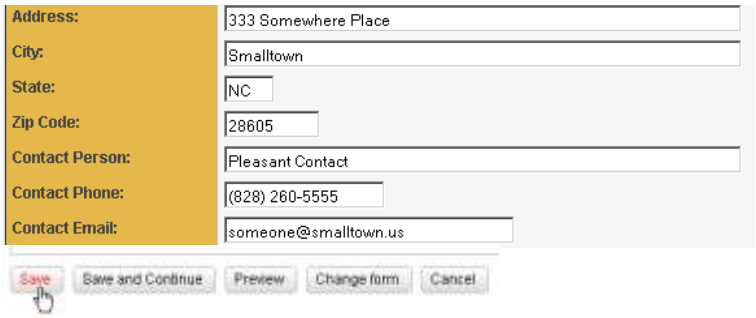
Each function will be discussed in detail below.



Navigating the Blood Management Project
Data Collection Tool
Updating your Hospital Demographic Information

a) To update your hospital's demographic information, click the "Edit" link, Fill out the form that appears, and click the "Save" button at the bottom of the form.

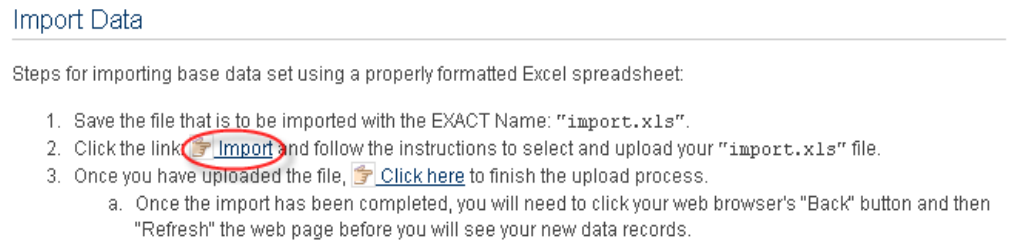
You will be directed to the Edit form, and you can change your hospital's contact details here. Click "Save" to save your changes, or "Cancel" to exit without saving.



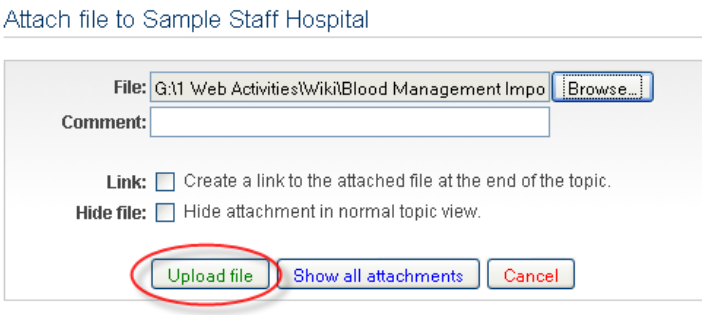
Navigating the Blood Management Project
Data Collection Tool

Importing Records

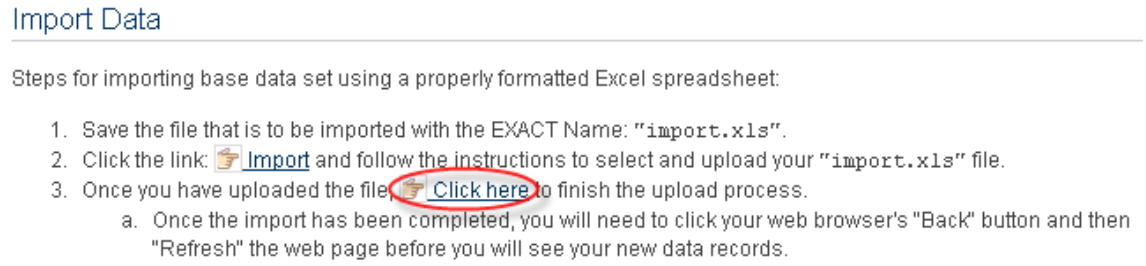
a) To import data, click on the "Import" link on your hospital home page. The template for this import file can be found on the project home page.



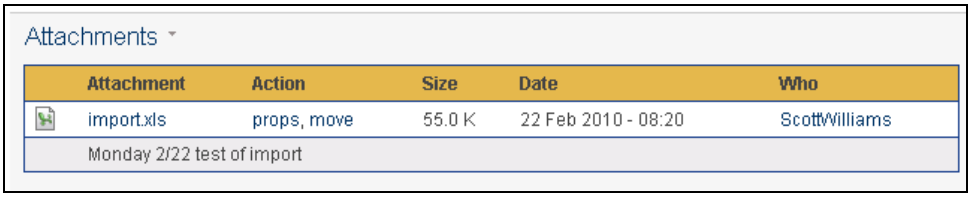
b) Click on "browse" to find and select your import file (which must be named "import.xls"), and click on "Upload File". You do not need to check the checkboxes, but <u>you may want to add a comment to keep track of your imports (e.g., April 2010 discharges; 51 records)</u>



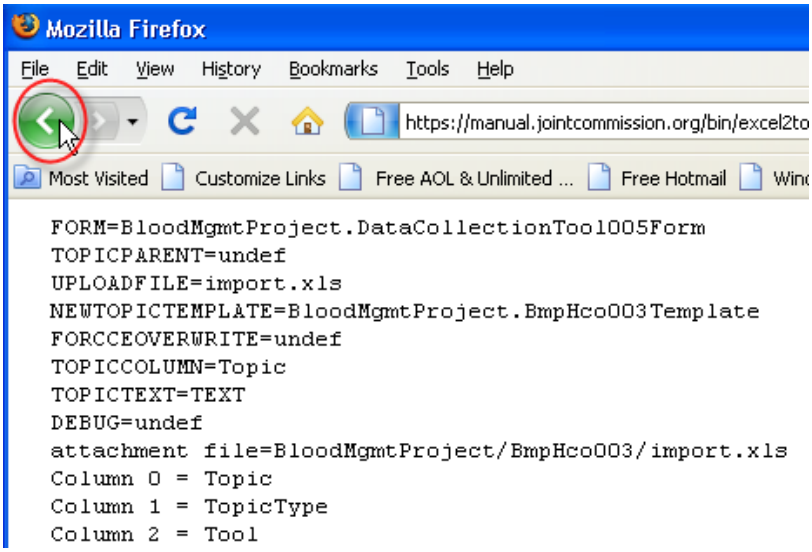
c) Once you have uploaded your file, you will need to click on the "Click here" link to finish the upload process. You'll then need to click your browser's "Back" button and "Refresh" your hospital page.



d) You may notice a form at the bottom of your hospital page. It displays the most recently imported file. This area will only be used to verify that your import was successful (note the date, time and comments to ensure that it represents the file you imported.



e) Your uploaded records are shown here (in a rather unappealing format!) and you will need to click on your browser's "Back" button to return to your hospital home page.



f) You are now back on your hospital's home page. Please click on your browser's "Refresh" button to view the records you just imported. Your records have been imported, but you will not be able to see them until the page is refreshed (or you navigate away from it and then back to it).

g) Your uploaded files should now viewable in the "Submitted Data" section of your hospital home page.

Navigating the Blood Management Project
Data Collection Tool

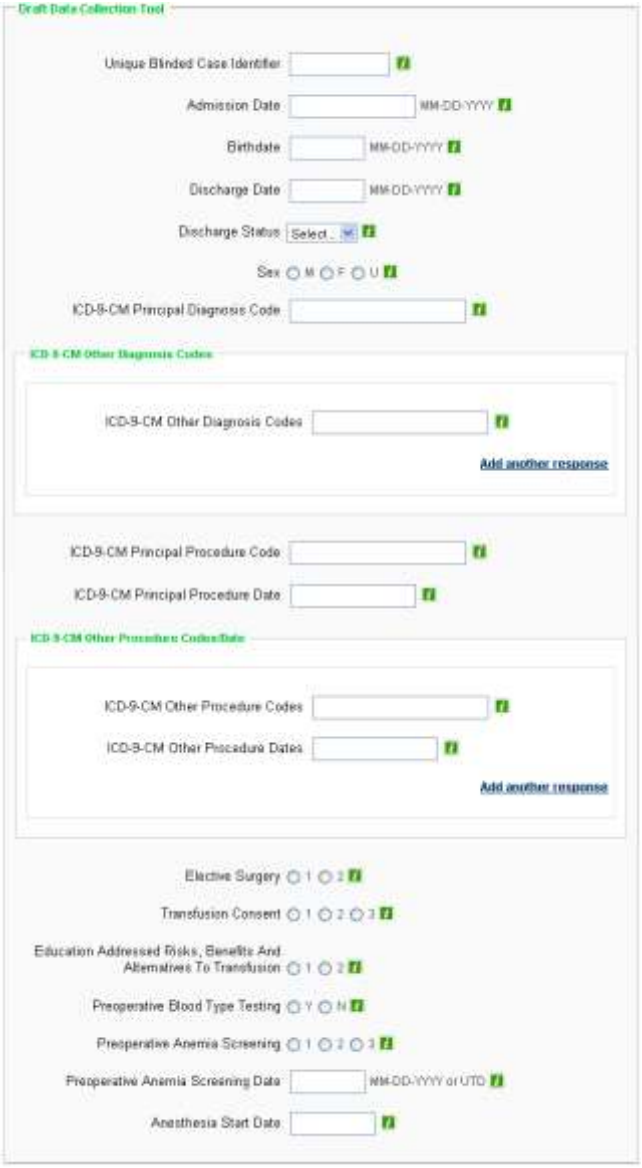
Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

Navigating the Blood Management Project
Data Collection Tool
Enter New Records (without using the file import

a) To enter a new record, click on the "Enter New Client Record" link (right below the data record table).

b) You are now viewing the data collection tool for Blood Management. Enter data for the client record. Note: hovering over the green "i" next to a data element will show you the question and allowable values associated with that data element as well as a link to the data element page.



c) Once you have completed data entry for this record, click on "Save Data Record".

Navigating the Blood Management Project
Data Collection Tool
To View and Update Existing Records

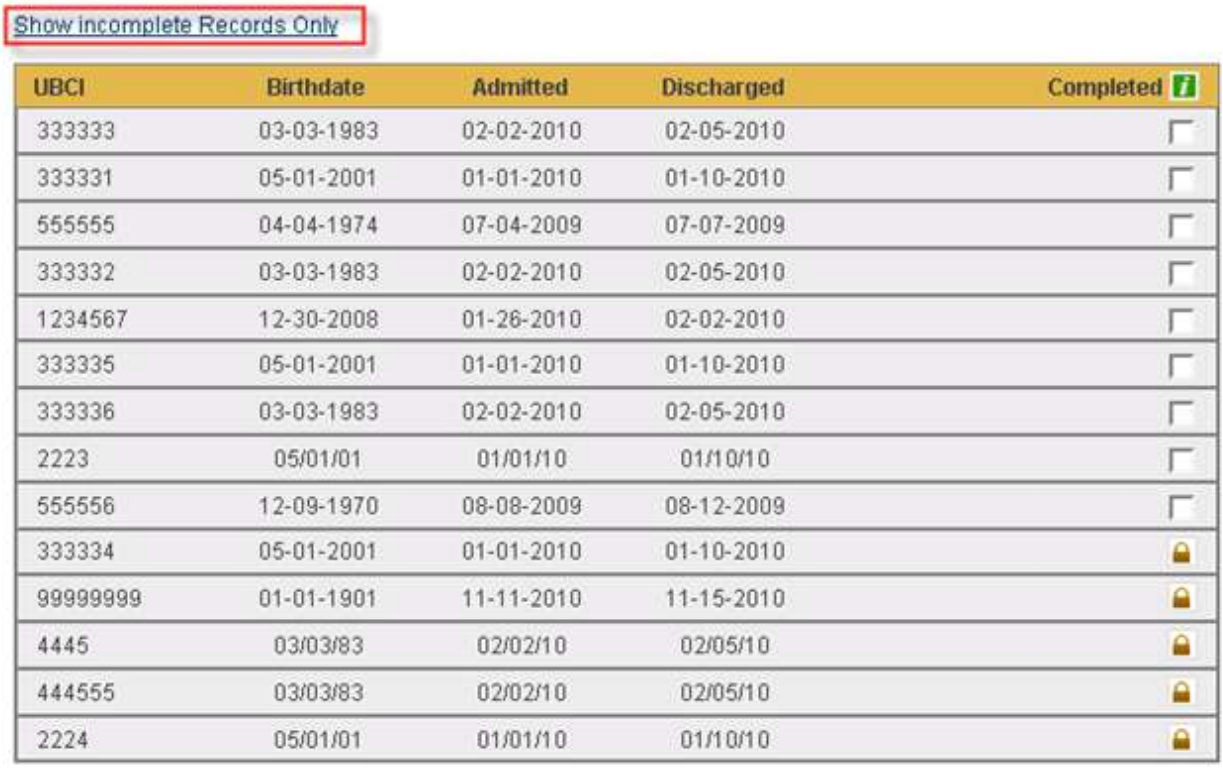
a) There are two ways to view the list of submitted records. The default view is of all incomplete records. If you would like to view all records, including completed (locked) records, click the link "Show all Records (including complete)".

View of the default setting showing a list of only incomplete records:

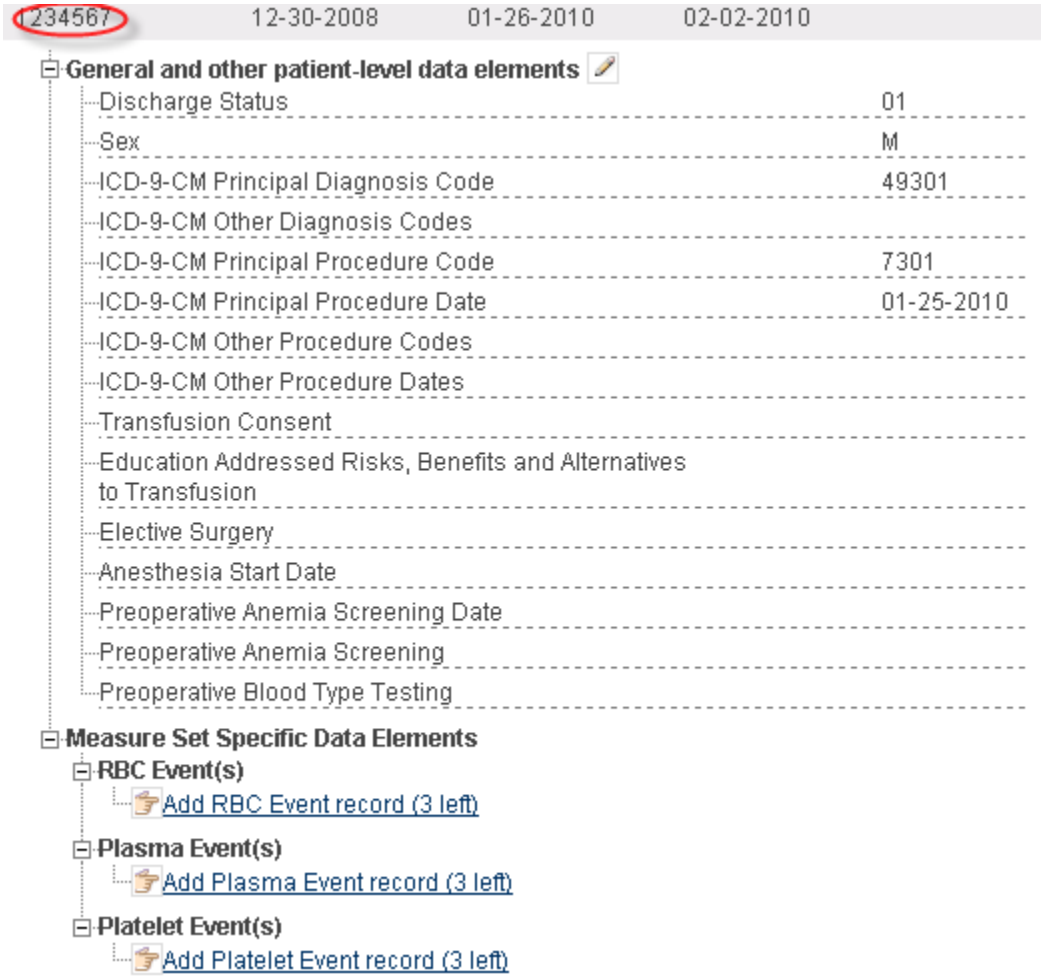
Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

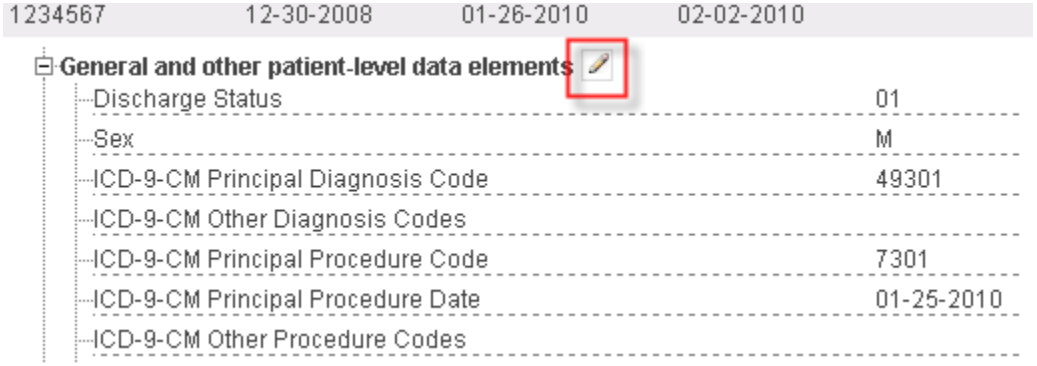
View of alternate setting showing list of all records (both incomplete and complete). To return the default setting, click the link "Show Incomplete Records Only"



b) To view or update data in an existing record, click on the UBCI number. This will create a drop down that includes all of the information for that client record. You can contract the drop down by clicking on the "-"or expand by clicking on the "+" before the different sections.

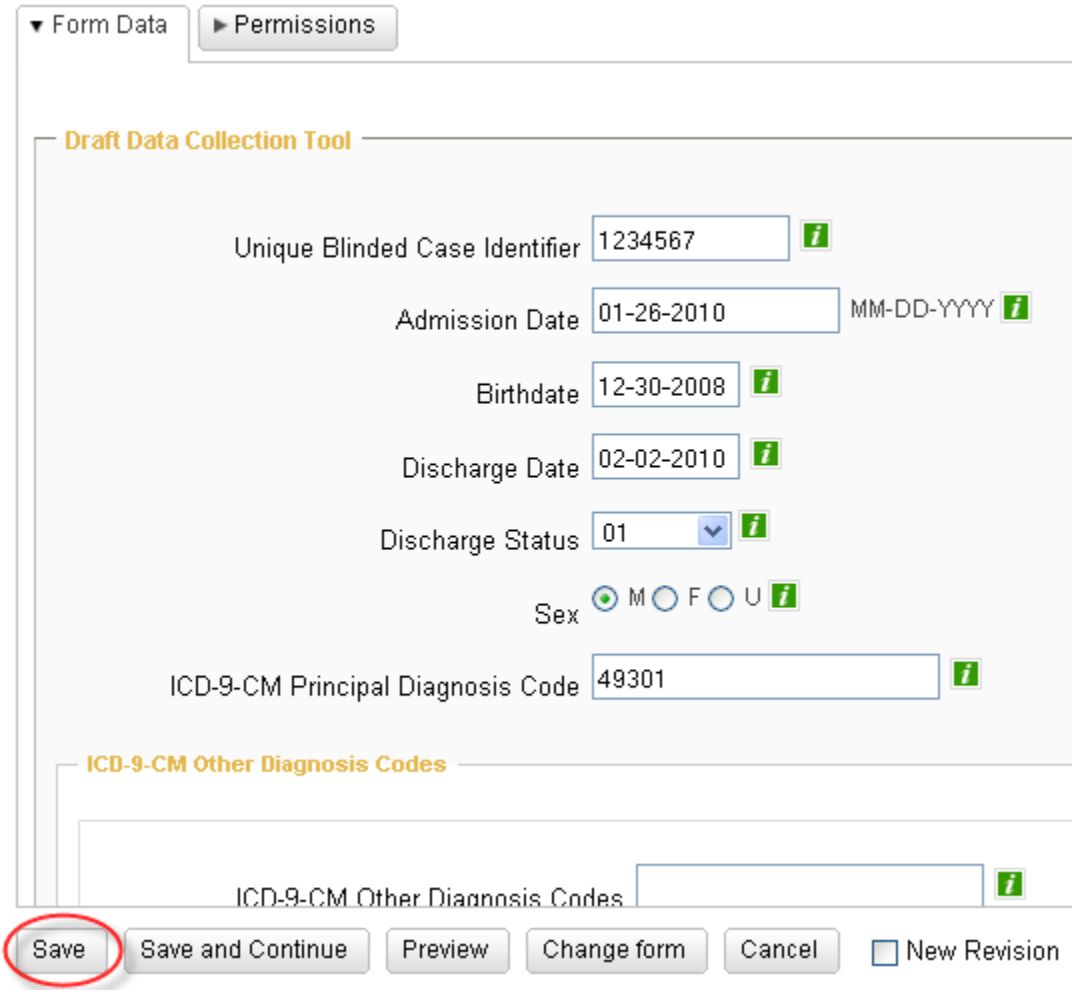


c) To edit the "General and other patient-level data elements", click on the pencil icon.



d) Make changes to the "General and other patient-level data elements" and click "Save" when you are done.

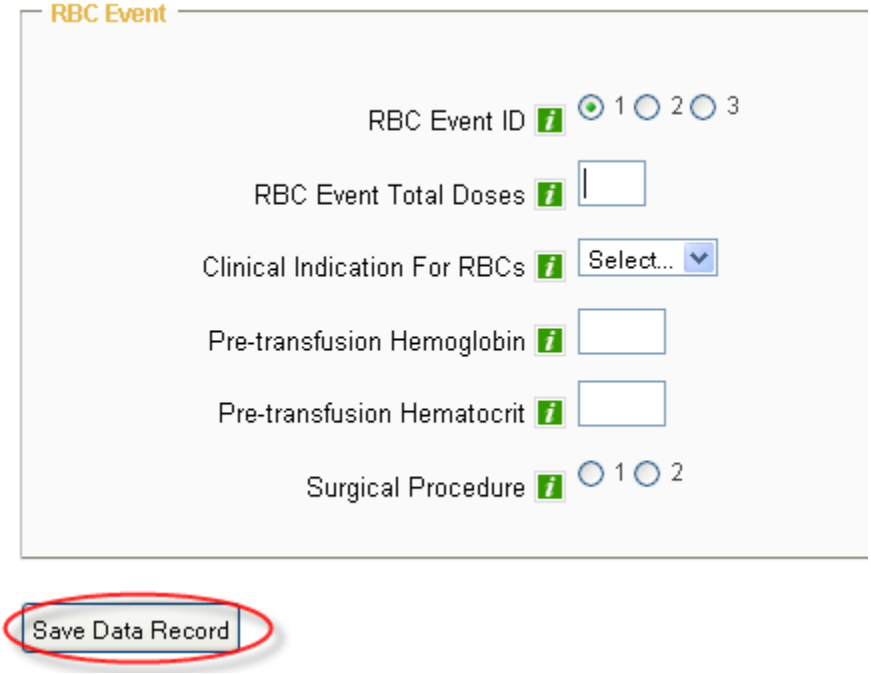
Navigating the Blood Management Project
Data Collection Tool



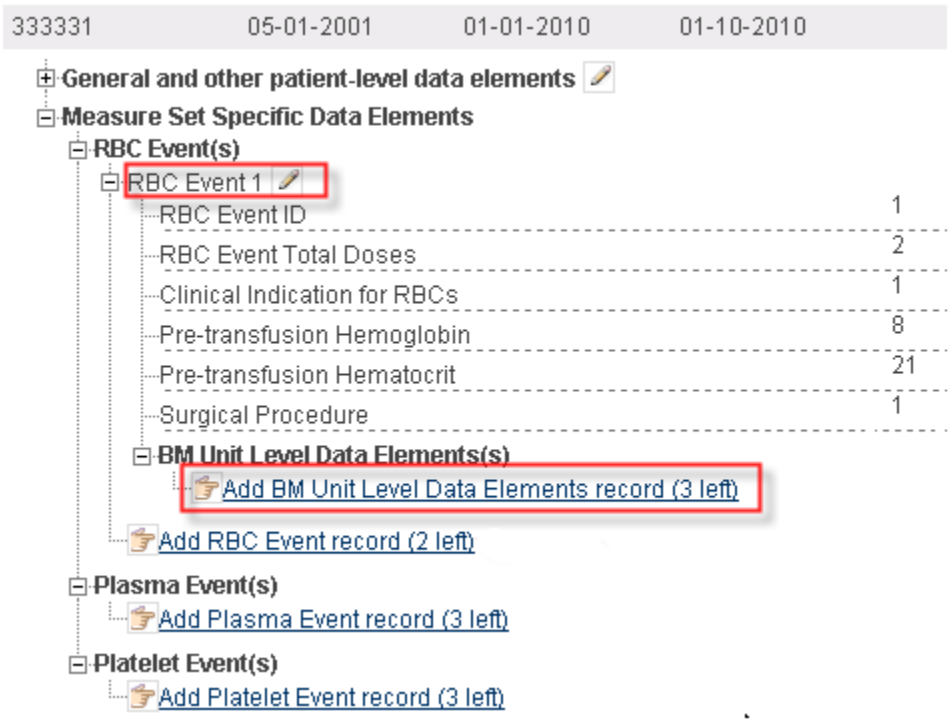
Navigating the Blood Management Project
Data Collection Tool
Add RBC Events and BM Unit Level Data Elements

a) To add a RBC event (NOTE: you can add up to three RBC events), click on the "Add RBC Event Record" Link.

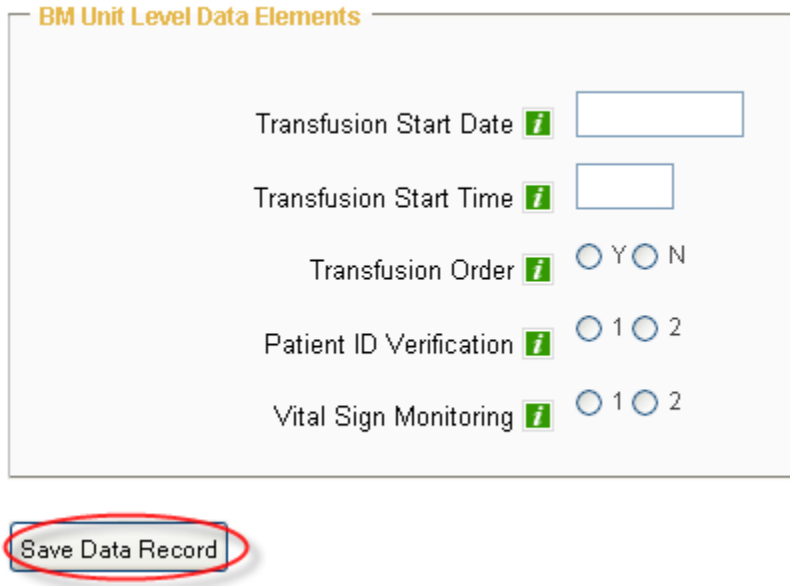
b) Enter data for RBC Event 1 and click "Save Data Record"



c) Data for "RBC Event 1" is now included with this client record. To edit the RBC Event data that you just entered, click on the pencil icon next to the event. To add unit level data for RBC Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)

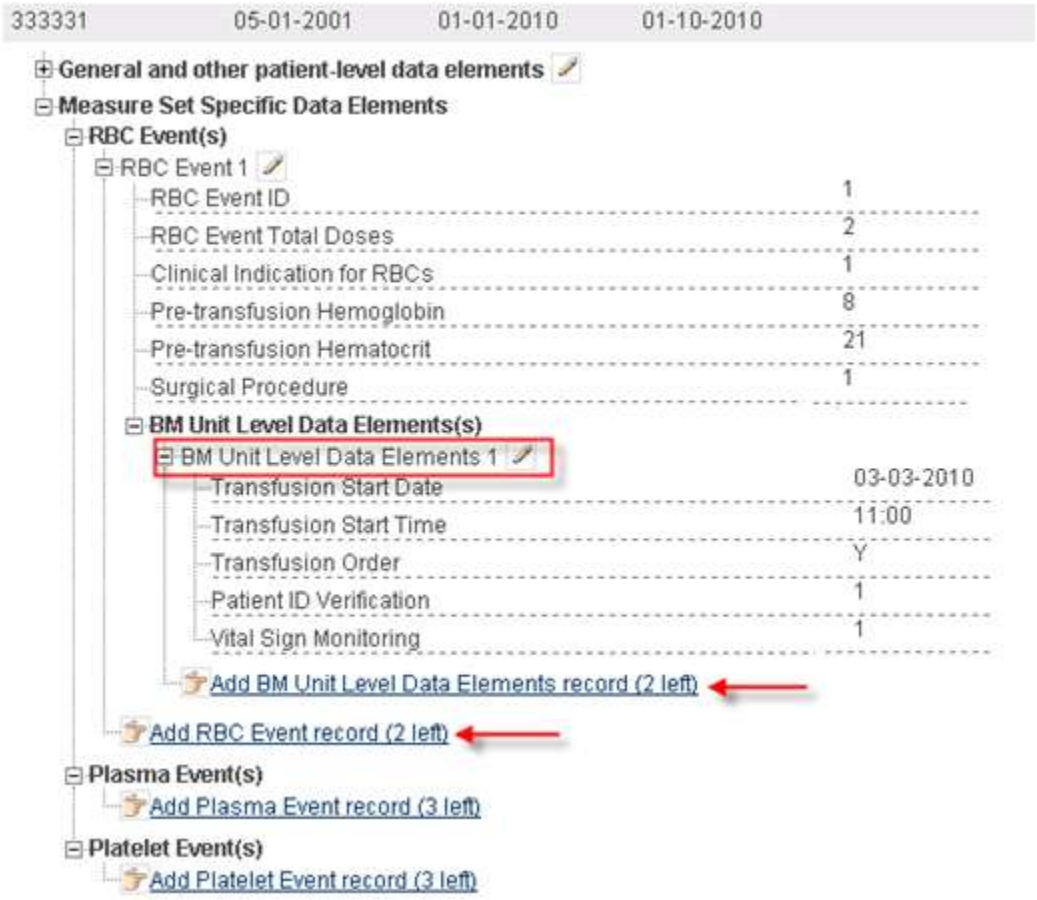


d) Enter data for the BM Unit Level Record for RBC Event 1 and click "Save Data Record"



e) Data for "BM Unit 1" for "RBC Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for RBC Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another RBC Event, click on "Add RBC Event Record".

Navigating the Blood Management Project Data Collection Tool

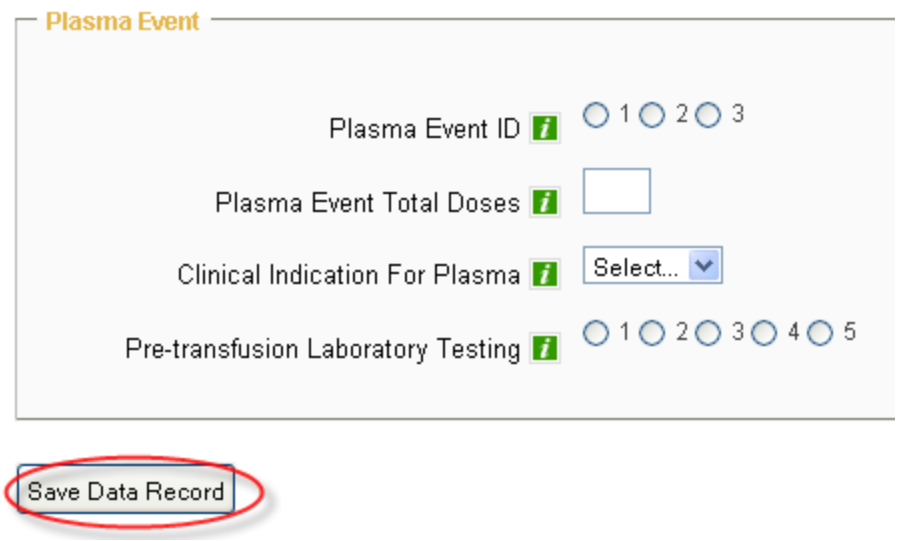


Navigating the Blood Management Project Data Collection Tool

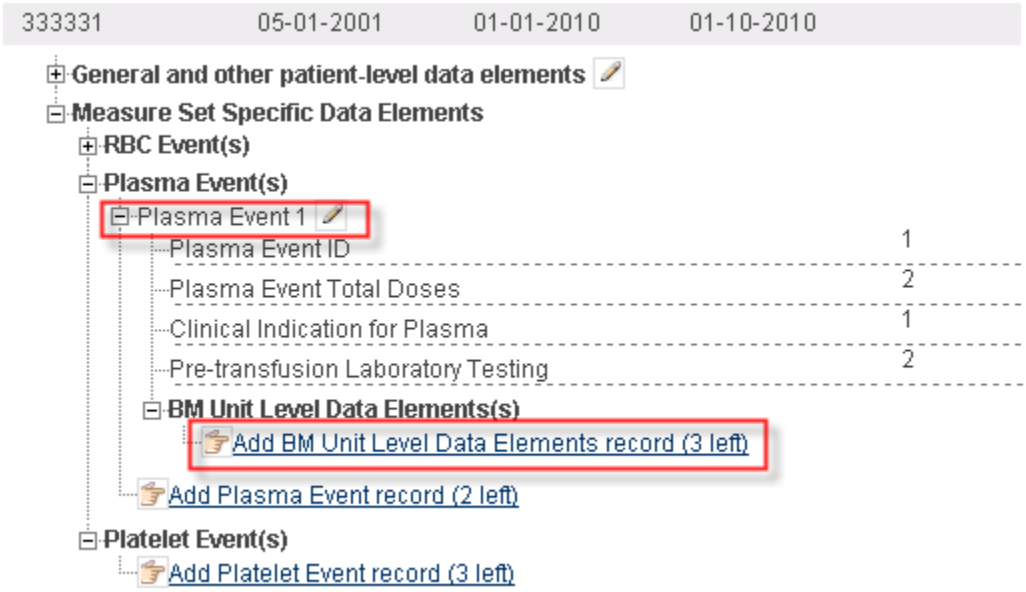
Add Plasma Events and BM Unit Level Data Elements

a) To add a Plasma event, click on the "Add Plasma Event Record" Link

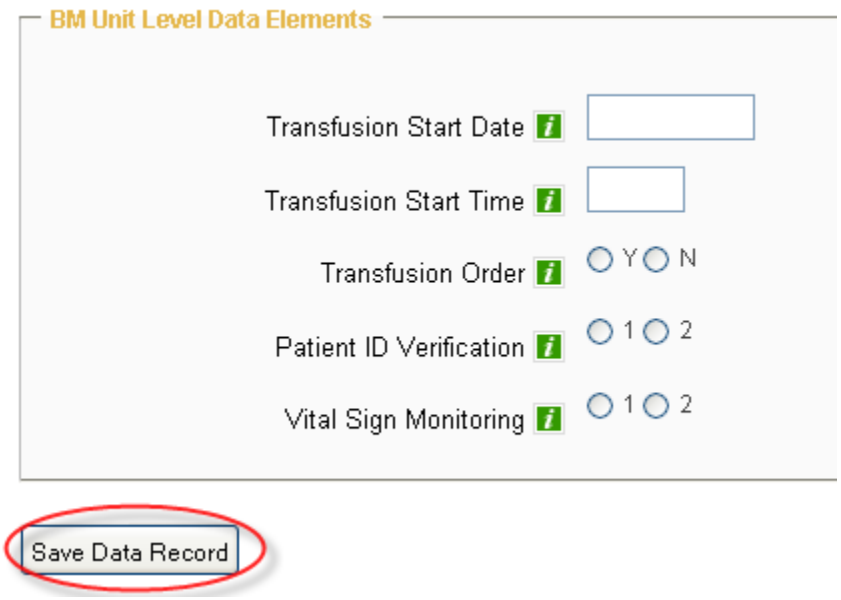
b) Enter data for Plasma Event 1 and click "Save Data Record"



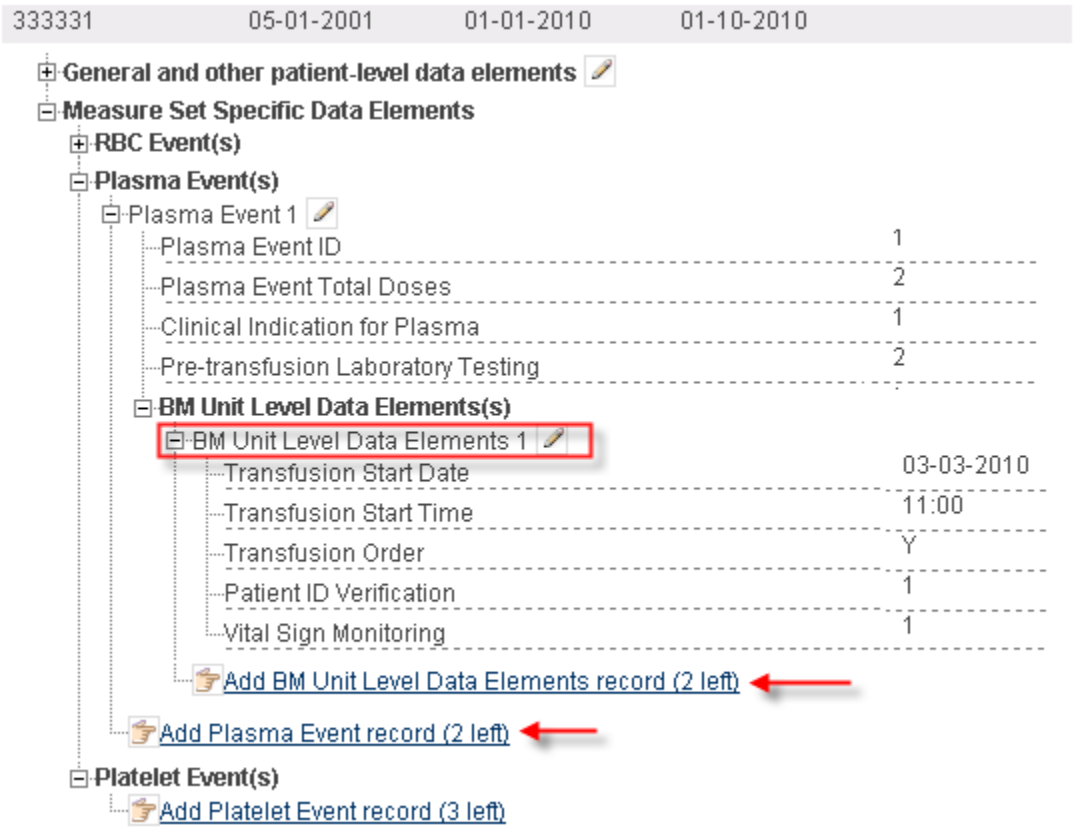
c) Data for "Plasma Event 1" is now included with this client record. To edit the Plasma Event data that you just entered, click on the pencil icon next to the event. To add unit level data for Plasma Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)



d) Enter data for the BM Unit Level Record for Plasma Event 1 and click "Save Data Record"



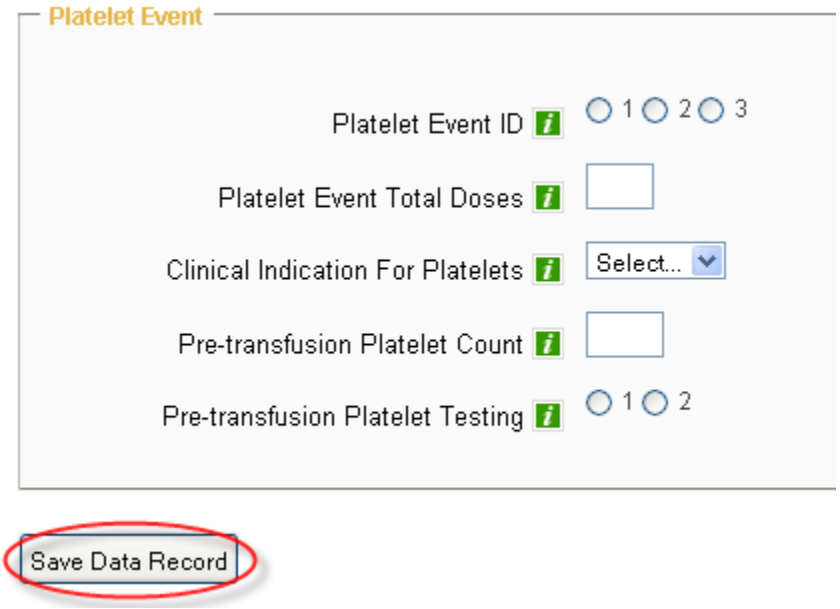
e) Data for "BM Unit Level 1" for "Plasma Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for Plasma Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another Plasma Event, click on "Add Plasma Event Record".



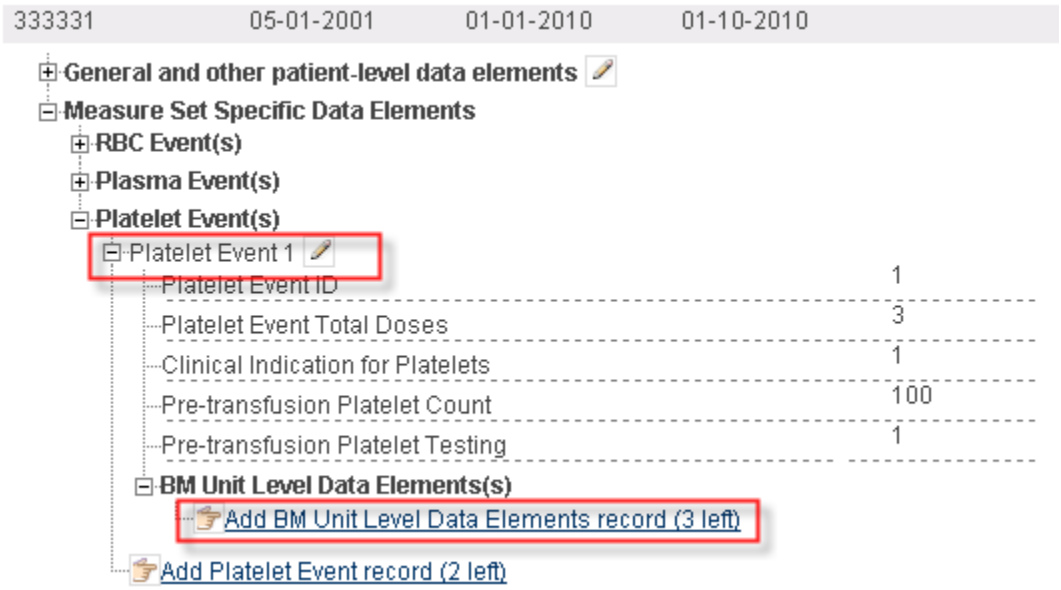
Navigating the Blood Management Project
Data Collection Tool
Add Platelet Events and BM Unit Level Data Elements

a) To add a Platelet event, click on the "Add Platelet Event Record" Link

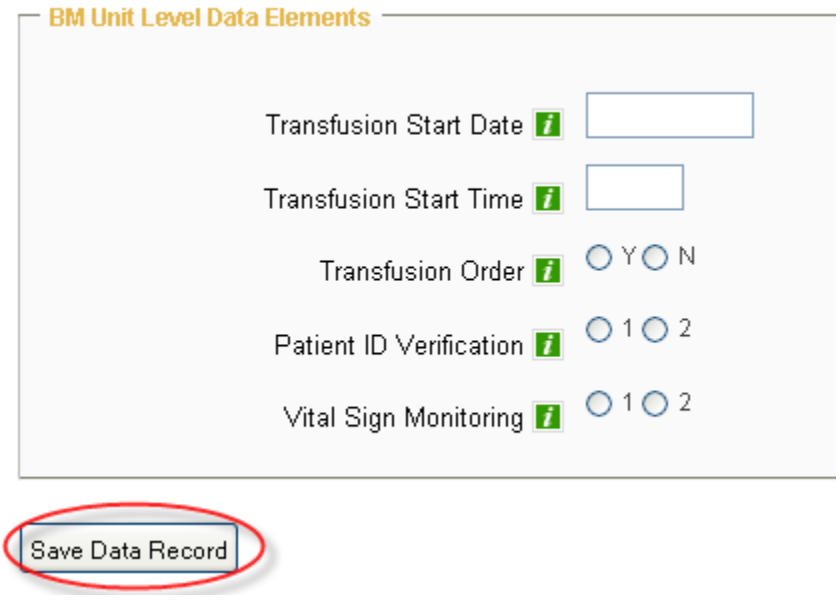
b) Enter data for Platelet Event 1 and click "Save Data Record"



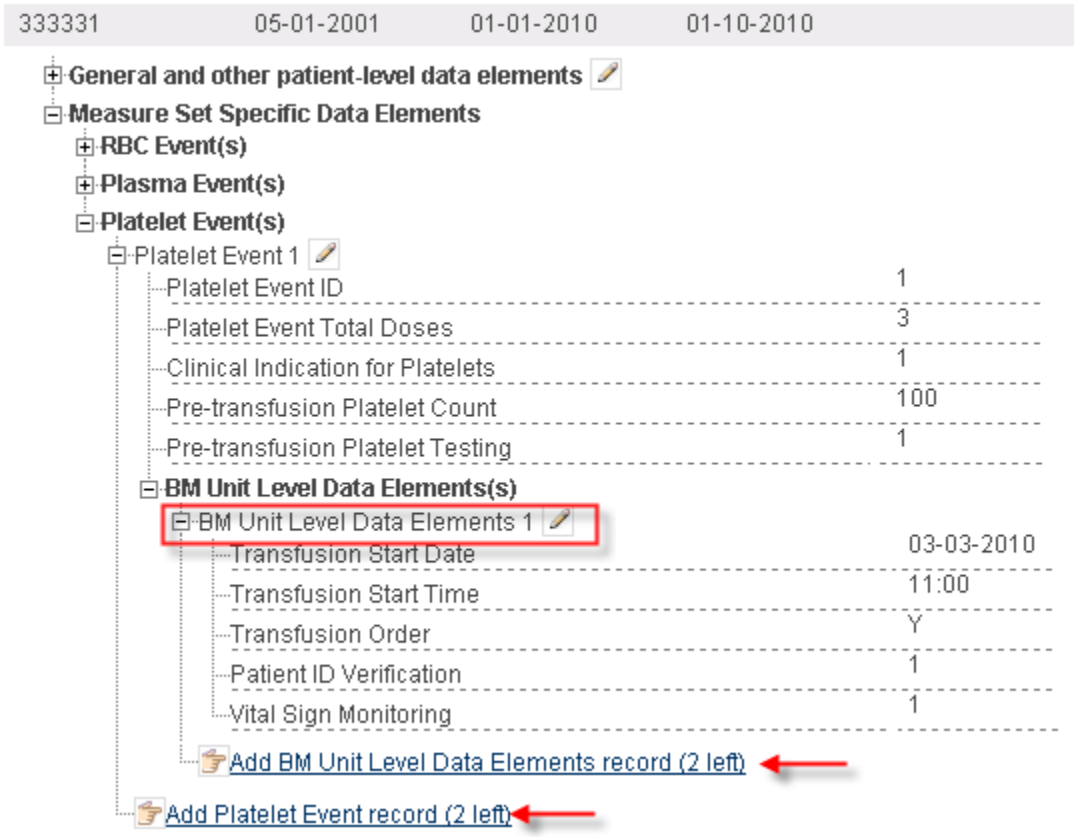
c) Data for "Platelet Event 1" is now included with this client record. To edit the Platelet Event data that you just entered, click on the pencil icon next to the event. To add unit level data for Platelet Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)



d) Enter data for the BM Unit Level Record for Platelet Event 1 and click "Save Data Record"



e) Data for "BM Unit Level 1" for "Platelet Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for Platelet Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another Platelet Event, click on "Add Platelet Event Record".



Marking Records As "Complete"

a) Once you are done entering and editing data for a record, you will need to mark the record as complete. **Please note: Once you check the box for a record under "Complete" you are BOTH marking the record as complete AND locking that record for any further editing**. When you click on the checkbox, the record will "disappear" from view. Do not be alarmed. The default view of the table is to only show incomplete records. To view the record you just completed, click on the link to "Show all Records (including complete)"

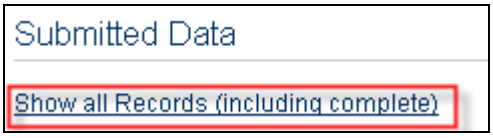

Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

Navigating the Blood Management Project
Data Collection Tool

Reviewing Records That Have Been Completed

a) To review a record that has been marked complete, switch the view on your hospital home page by clicking on the "Show all Records (including complete)" link.

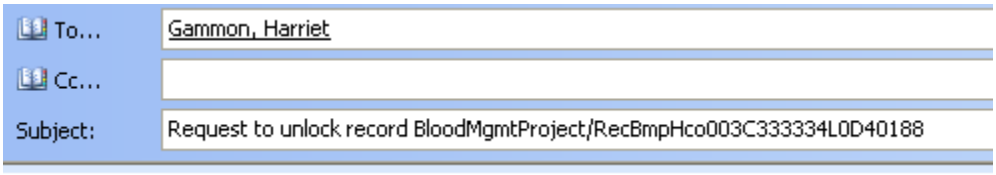


b) In this view you can see all records both complete and incomplete. Completed records are now LOCKED and can not be edited.

Show incomplete Records Only

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐
333334	05-01-2001	01-01-2010	01-10-2010	🔒
99999999	01-01-1901	11-11-2010	11-15-2010	🔒
4445	03/03/83	02/02/10	02/05/10	🔒
444555	03/03/83	02/02/10	02/05/10	🔒
2224	05/01/01	01/01/10	01/10/10	🔒

b) If, for any reason, you need to unlock a record, you will need to send an e-mail to the project leader, Harriet Gammon. To send your e-mail request, click on the "lock" icon, and an e-mail form should appear. It will be addressed to Harriet, and the subject line will contain a reference to the specific record.



c) In your e-mail, please briefly explain why the record needs to be unlocked (e.g., Accidentally clicked the "Complete" checkbox).

PATIENT BLOOD MANAGEMENT PERFORMANCE MEASURES PROJECT - Technical Advisory Panel

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Jeffrey Wagner, BSN, RN
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Rosalyn Yomtovian, MD
Department of Veterans Affairs, Louis Stokes Medical Center
Case Western Reserve University School of Medicine
Cleveland, OH

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 1541 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Blood Administration Documentation
De.2 **Brief description of measure***:* Percentage of transfused units/doses (bags) of RBCs, plasma or platelets with documentation for all of the following: 1. Patient identification (ID) and transfusion order (Blood ID Number) confirmed prior to the initiation of blood 2. Date and time of transfusion 3. Blood pressure, pulse and temperature recorded pre, during and post transfusion
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** PBM-05 is a part of the Patient Blood Management (PBM) measure set: PBM-01 (Transfusion Consent), PBM-02 (RBC Transfusion Indication), PBM-03 (Plasma Transfusion Indication), PBM-04 (Platelet Transfusion Indication), PBM-06 (Preoperative Anemia Screening), PBM-07(Preoperative Blood Type Testing and Antibody Screening)
De.4 **National Priority Partners Priority Area:** Patient and family engagement, Care coordination, Safety De.5 **IOM Quality Domain**: Effectiveness, Patient-centered, Safety De.6 **Consumer Care Need:** Getting better, Living with illness

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	NQF Staff
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:**	**A** Y☐ N☐

A.3 **Measure Steward Agreement:** Agreement will be signed and submitted prior to or at the time of measure submission A.4 **Measure Steward Agreement attached:**	
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	**B** Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement Accreditation	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers, Frequently performed procedure, Leading cause of morbidity/mortality, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** Since the majority of blood is transfused in hospitals, each patient who receives blood should expect that the correct type will be transfused only when required based on an evidence-based clinical indication. Accurate identification of the patient and monitoring during the transfusion is also vital to ensure patient safety. Transfusion processes need to be monitored and reported because the most serious risk of transfusion could be potentially avoidable human errors due to the complexity of the transfusion process of blood administration within the healthcare organization. 1a.4 **Citations for Evidence of High Impact:** Whitsett CF, Robichaux MG. Assessment of blood administration procedures: problems identified by direct observation and administrative incident reporting. Transfusion. 2001;41:581-86. Saxena S, Ramer L, Shulman IA. A comprehensive assessment program to improve blood-administering practices using the FOCUS-PDCA model. Transfusion. 2004; 44:1350-56.	**1a** C☐ P☐ M☐ N☐

Novis DA, Miller KA, Howanitz PJ, Renner SW, Walsh MK; College of American Pathologists. Audit of transfusion procedures in 660 hospitals. A College of American Pathologists Q-Probes study of patient identification and vital sign monitoring frequencies in 16494 transfusions. Arch Pathol Lab Med. 2003;127:541-8.
Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009.
The Joint Commission, "National Patient Safety Goals (NPSG)", IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.
AABB Primer of Blood Administration. Revised August 2008. Bethseda, Maryland. [Available at http://www.aabb.org/Content/Professional_Development/Education_and_Training_Material/edtrain.htm#2 (accessed November 2009).]

1b. Opportunity for Improvement

1b.1 Benefits (improvements in quality) envisioned by use of this measure: Variation in the practice of administration of blood is becoming increasingly evident from both local and international reports. Studies have shown that there are opportunities for error at number of crucial points in the transfusion process starting with the decision to transfuse, prescribe and request, patient sampling, pre-transfusion testing and the process of actually administering the blood to the patient. Many errors go unnoticed or are underreported so the actual rate of mistransfusion is unknown, but recent reports from hemovigilance systems indicate that errors from the initial recipient identification to final blood administration occur with a frequency of 1 in 1000 events. About two-thirds of errors are associated with incorrect patient identification at the bedside. This measure is needed to standardize and document the processes of blood administration so the information can be used to audit aspects of the transfusion, and the cause of serious adverse events can be adequately investigated.

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
The World Health Organization noted that throughout the health-care industry, the failure to identify patients correctly continues to result in transfusion errors. Patient misidentification was cited in more than 100 individual root case analysis report by the United States Department of Veterans Affairs (VA) National Center for Patient Safety from January 2000 to March 2003. Patient misidentification has also been identified as a root cause for many errors by the Joint Commission and has been recognized as an issue that has been addressed as a National Patient Safety Goal since 2003.
Administering the wrong type of blood (ABO incompatibility) is the most serious error resulting from a transfusion. Many of the incidents are due to failure of the final identity check carried out between the patient and the blood to be transfused. A national Japanese study found that 20% of 115 surveyed hospitals experienced ABO mismatched transfusions. The main causes of errors were misidentification of blood bags (42.8%), incorrect blood typing (15.1%) and failure to identify the patient (42.1%). A 2003 College of American Pathologists (CAP) Q-probe surveyed documentation practices for transfusion that included patient/unit verification and vital sign recording. Patient/unit identification was completed in only 25.4% of the transfusion events. Vital signs were documented 88.3% at all three required times.

1b.3 Citations for data on performance gap:
Transfusion Today (2006) 60:4-7.
Murakami J. Rinsho Byori (2003) Jan;51 (1):43-9.
Novis DA, Miller KA, Howanitz PJ, et al. Audit of transfusion procedures in 660 hospitals: A college of American Pathologists Q-probe study of patient identification and vital sign monitoring frequencies in 16,494 transfusions Arch Pathol Lab Med 2003;127:541-8.
Mannos D. NCPS patient misidentification study: a summary of root cause analyses. VA NCPS Topics in Patient Safety. Washington, DC, United States Department of Veteran Affairs, June- July 2003 Available at http://www.va.gov/ncps/TIPS/Docs/_TIPS_Jul03.doc
Stainsby D, Russell J, Cohen H, et al. Reducing adverse events in blood transfusions. Br J Haematol 2008;131(1):8-12.
SHOT group analyzed 226 cases if ABO-incompatible transfusions and found that the most frequent error was failure of the pretransfusion verification at the bedside.

ABO-incompatible red blood cell transfusion occurs in 1:27,000 to 1:135,207 transfusions with a fatality rate

1b
C☐
P☐
M☐
N☐

of about 2.11 - 7.06%. This means that the risk of dying from a mistransfusion is higher than the risk of transmission of a viral infection during transfusion.
Linden JV, Wagner K. Voytovich AE, Sheehan J. Transfusion errors in New York State: An analysis of 10 years' experience. Transfusion 2000;40:1207-13.
Ibojie J, Urbaniak SJ. Comparing near misses with actual mistransfusion events: A more accurate reflection of transfusion errors. Br J Haematol 2000;108:458-60.
Andreu , Morel P, Forsettier F, Debeir J, Rebibi D, et al. Hemogvigilence network in France: Organization and analysis of immediate transfusion incident reports form 1994 – 1998. Transfusion 2002;42:1356-64.
Goodnough LT. Risks of blood transfusion. Crit Care Med 2003;31:S678-86.
Chiaroni J, Legrand D, Dettori I, Ferrera V. Analysis of ABO discrepancies occurring in 35 French hospitals. Transfusion 2004;44:860-4.
Williamson LM, Lowe S, Love EM, Cohen H, Soldan K, et al. Serious hazards of transfusion (SHOT) initiative: Analysis of the first two annual reports. Bmj1999;319-16-9.
Caspari G, Alpen U, Greinacher A. The risk of transfusion to the wrong patient in Germany. Transfusion 2002;42:1238-39.
Osby MA, Saxena S, Nelson J, Shulman I. Safe handling and administration of blood components: Review of practical concepts. Arch Pathol Lab Med May 2007;131:690-694.

1b.4 Summary of Data on disparities by population group:
None noted

1b.5 Citations for data on Disparities:
NA

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Blood transfusions can lead to a significant risk of harm to patients. Misidentification of patients for blood transfusions has been directly linked with transfusion of incompatible blood which can result in patient morbidity and mortality. Measures that evaluate the monitoring of patients may decrease adverse events and facilitate tracking of patients if problems occur as a result of the transfusion.

1c.2-3. Type of Evidence: Observational study, Evidence-based guideline, Expert opinion, Systematic synthesis of research

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
In the US during 2006, seventy-three deaths were reported and 72,000 transfusion related adverse reactions. One study that monitored processes related to the blood transfusion based on 982 assessments of direct observation and concurrent review of data from July 1999 to September 2003 had no mistransfusions for the entire 2003 calendar year as a result of closely monitoring the transfusion process. The Serious Hazards of Transfusion Study (SHOT) reported that between 1996 and 2003, the risk of an error occurring during a transfusion of blood or blood products was 1:16,500; an ABO incompatible transfusion error was 1:100,000 and the risk of death from an incorrect blood transfusion was 1:15,000.

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):**
NA

1c.6 Method for rating evidence: NA

1c.7 Summary of Controversy/Contradictory Evidence: NA

1c.8 Citations for Evidence (*other than guidelines***):** Saxena S, Ramer L, Shulman IA. A comprehensive assessment program to improve blood-administering practices using the FOCUS-PDCA model. Transfusion 2004;44:1350-1356.
Pagliaro P, Rebulla P. Transfusion recipient identification. Vox Sang 2006;91;97-101.
Serious Hazards of Transfusion: Annual Report 2003. Available at:www.shotuk.org/

1c
C☐
P☐
M☐
N☐

Dzik WH, Murphy MF, Andreu G, et al. Biomedical Excellence for Safer Transfusion (BEST) Working Party of the international Society for Blood Transfusion. An international study of the performance of patient sample collection. Vox Sang 2003;85:40-47. Sazama K: Reports of 355 transfusion-associated deaths: 1976 through 1985. Transfusion 1990;30:583-590. Whitaker BI, Green J, King MR, et al. The 2007 national blood collection and utilization survey report. Washington, DC: U.S. Department of Health & Human Services: 2008. **1c.9 Quote the Specific guideline recommendation (***including guideline number and/or page number***):** Note: Recommendations are not numbered or graded in the on-line guideline. 1. Verify the identity of the patient (p.2) 2. Before starting a transfusion check the patient´s vital signs (i.e., blood pressure, pulse and temperature (p.3) 3. Record the start and end time of the blood product transfusion (p.4) **1c.10 Clinical Practice Guideline Citation:** Guideline below- Finnish Medical Society Duodecim. Blood transfusion: indications and administration. In: EBM Guidelines. Evidence-Based Medicine [Internet]. Helsinki, Finland: Wiley Interscience. John Wiley & sons; 2008 Jan 10 [Various} There are no formal US guidelines on which to base the blood administration measure, but Infusion Nurses Society has written the Infusion Nursing Standards of Practice that were revised in 2006 that include the criteria using standards and practice criteria located in Standards 70.1-70.11. Infusion Nurses Society. Infusion nursing standards of practice. J Infus Nurs 2006. Jan-Feb;29(1 Supp):S1-92. **1c.11 National Guideline Clearinghouse or other URL:** http://www.guideline.gov/content.aspx?id=12787&search=transfusions **1c.12 Rating of strength of recommendation (***also provide narrative description of the rating and by whom***):** GRADE (Grading of Recommendations, Assessment, Development and Evaluation) Working Group 2007 (modified by the evidence-based medicine guidelines Editorial Team). **1c.13 Method for rating strength of recommendation** (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*: Concise summaries of scientific evidence attached to the individual guidelines are the unique feature of the Evidence-Based Medicine Guidelines. The evidence summaries allow the clinician to judge how well-founded the treatment recommendations are. Grade A= High quality of evidence. Defined as - Further research is very likely to change our confidence in the estimate of effect. Grade B= Moderate quality of evidence. Defined as - Further research is likely to have an important impact on confidence in the estimate of effect and may change the estimate. Grade C= Low quality of evidence. Defined as - Further research is very likely to have an important impact on confidence in the estimate of effect and is likely to change the estimate. Grade D= Very low quality of evidence. Defined as - Any estimate of effect is very uncertain. **1c.14 Rationale for using this guideline over others:** This guideline captures the majority of the criteria evaluated in this measure and the recommendations are based on the GRADE methodology.	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**

2a. MEASURE SPECIFICATIONS

S.1 Do you have a web page where current detailed measure specifications can be obtained?
S.2 If yes, provide web page URL:

2a. Precisely Specified

2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome***):**
Number of transfusion units or doses with documentation for all of the following:
1. Patient identification (ID) and transfusion order (Blood Identification (ID) Number) confirmed prior to the initiation of blood
2. Date and time of transfusion
3. Blood pressure, pulse and temperature recorded pre, during and post transfusion

2a.2 Numerator Time Window (*The time period in which cases are eligible for inclusion in the numerator***):**
Episode of care

2a.3 Numerator Details (*All information required to collect/calculate the numerator, including all codes, logic, and definitions***):**
The units in the numerator are a subset of the denominator units. The following data elements are collected for the numerator; Blood ID Number, Patient ID Verification, Plasma ID, Platelet ID, RBC ID, Transfusion Order, Transfusion Start Date, Transfusion Start Time and Vital Sign Monitoring. Detailed descriptions are provided in attachment for Section 2a.30.

2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured***):**
Number of transfused red blood cells, plasma and platelet units/doses evaluated

2a.5 Target population gender: Female, Male
2a.6 Target population age range: All ages

2a.7 Denominator Time Window (*The time period in which cases are eligible for inclusion in the denominator***):**
Episode of care

2a.8 Denominator Details (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions***):**
Admission Date
Birthdate
ICD-9-CM Principal and Other Procedures
RBC Transfusion Exclusions
Detailed descriptions are provided in the attachment for Section 2a.30.

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population***):** Units associated with documentation of massive transfusion protocol (MTP) or hemorrhagic shock
Uncrossmatched units of RBCs
RBC units used to prime pumps

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
The data element, RBC Transfusion Exclusions, is used to exclude units that are administered in an ´emergency´ situation when blood is transfused using different processes (more than one unit is being transfused or administered very rapidly), for the transfusion of any uncrossmatched units administered for an emergency situation or for RBC units used to prime a pump for surgery and not administered directly to the patient via an intravenous line. The data element definition is; Documentation that the transfused red blood cell (RBC) unit was administered for a massive transfusion protocol (MTP), was an uncrossmatched unit administered for an ´emergency´ situation or was used to prime a pump.

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the*

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stratification variables, all codes, logic, and definitions):
This measure could be stratified using the data element Blood Administration Location. The definition is the location where the blood transfusion started. Allowable values are: Intraoperative Surgery or Non-intraoperative Setting.

2a.12-13 **Risk Adjustment Type:** No risk adjustment necessary

2a.14 **Risk Adjustment Methodology/Variables (***List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method*):

2a.15-17 **Detailed risk model available Web page URL or attachment:**

2a.18-19 **Type of Score:** Rate/proportion
2a.20 **Interpretation of Score:** Better quality = Higher score
2a.21 **Calculation Algorithm (***Describe the calculation of the measure as a flowchart or series of steps*):
Algorithms are provided in attachment for Section 2a.30.

2a.22 **Describe the method for discriminating performance** *(e.g., significance testing)*:
During the six-month pilot, the distribution of the hospital rates was reviewed over time.

2a.23 **Sampling (Survey) Methodology** *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
For pilot testing, hospitals were requested to submit 10 cases for each of the three blood products that were discharged from the designated six months. The units submitted for measures PBM-02 - PBM-04 were used for this measure. Post pilot, the sample size will be based on the number of units submitted per discharge month or quarter from the same measures.
Hospitals that choose to sample have the option of sampling quarterly or monthly. A hospital may choose to use a larger sample size than required. Hospitals with an initial population size less than the minimum number of units/doses transfused per quarter/month for the measure, cannot apply sampling to the measure.

2a.24 **Data Source (***Check the source(s) for which the measure is specified and tested)*
Paper medical record/flow-sheet, Electronic administrative data/claims, Lab data

2a.25 **Data source/data collection instrument (***Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.*):
The Joint Commission developed a web-based data collection tool that was used by hospitals and for reliability testing during the pilot test. When the measures become part of The Joint Commission's ORYX data collection and reporting program, the data would be collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy of the data collection tool with the specifications.

2a.26-28 **Data source/data collection instrument reference web page URL or attachment:** Attachment The_Patient Blood_Management_Tool [1]-634279148888089574.pdf

2a.29-31 **Data dictionary/code table web page URL or attachment:** Attachment PBMSpecifications.pdf

2a.32-35 **Level of Measurement/Analysis** (*Check the level(s) for which the measure is specified and tested)*
Facility/Agency, Can be measured at all levels

2a.36-37 **Care Settings (***Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 **Clinical Services** (*Healthcare services being measured, check all that apply*)
Clinicians: Nurses, Clinicians: PA/NP/Advanced Practice Nurse, Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)*: A sample of 194 medical records were reabstracted at 12 randomly selected pilot hospitals July through September 2010.

2b.2 Analytic Method *(type of reliability & rationale, method for testing)*:
Hospitals for reliability testing were randomly selected based on multiple characteristics, including region (west, south, north central, northeast), hospital type (teaching/non-teaching, rural/urban), and bed size (0-99, 100-199, 200-299, 300+). The objectives of the reliability site visits included: evaluation of the reliability of the individual measures and associated data elements, assessment of data collection effort including abstraction time and estimated cost, assessment of measure specifications including definitions, abstraction guidelines, etc. and assessment of sampling strategies. To prepare for the reliability site visits, the data collection tool that was used by the pilot hospitals was enhanced and tested. During the reliability site visit, Joint Commission staff re-abstracted a sub-set of records that had been previously submitted by the hospital into the enhanced data collection tool without knowing the measure specific data values that the hospital had submitted. When reabstraction was completed for each record, the results from the hospital and Joint Commission staff were compared and differences adjudicated in the program. Focus group interviews were conducted at each hospital and findings were discussed with each hospital to understand what aspects could be improved. A comparison of calculated indicator rates using data originally abstracted by hospitals and the data that were reabstracted by The Joint Commission staff was adjudicated on each measure and the individual data elements. Statistical analysis utilized Kappa scores and p values.

2b.3 Testing Results *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
The number of originally abstracted denominator units was 274 with a computed original measure rate of 89.4%. The number of re-abstracted denominator units was 433 with a re-abstracted measure rate of 67.7%. The absolute difference was 21.7% with a Kappa score of 0.291. The percent of hospital identified population verified as 65%. The match rate for 369 units for the individual data elements was: Patient ID Verification 98.8%, Transfusion Order 92%, Transfusion Start Date 95%, Transfusion Start Time 85% and Vital Sign Monitoring 89%. Measure specifications have been revised to strengthen and provide additional clarity to the data element definitions and abstraction guidelines.

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2c. Validity testing

2c.1 Data/sample *(description of data/sample and size)*: Face validity was tested by a total of 63 hospitals of various sizes and geographic locations across the country that represented over 300 individuals during August and May 2009. Measure specifications were sent to the test hospitals for review. In addition, on-site focus interviews were conducted at five hospitals. Criterion validity was evaluated during the reliability site visits mentioned above as well as through an online survey that the participating hospitals completed.

2c.2 Analytic Method *(type of validity & rationale, method for testing)*:
The measure information form and the data dictionary were evaluated for face validity. The following parts of the measure information form were evaluated: numerator statement, numerator inclusions, numerator exclusions, denominator statement, denominator inclusions, denominator exclusions and an overall understanding of the measure information form. Each area was scored utilizing a five-point Likert scale. For each data element, the hospitals were asked to comment on the clarity and understanding of the abstraction guidelines and data definitions. In addition, the data dictionary was reviewed for overall understanding, usefulness and clarity utilizing a five-point Likert scale. Qualitative analysis was performed on measure feedback received during the focus group interviews and from the online surveys.

2c.3 Testing Results *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
A total of 58 hospitals completed the face validity evaluation and rated the overall understanding of the numerator and denominator statements an average 4.4 % that ranked the measure 1st out of the 10 measures. Modifications to improve the understanding and clarity of the measure specifications were made prior to pilot testing based on feedback received from the hospitals during the face validity evaluation. Analysis of the online survey revealed 98% (57/58) of the alpha hospitals recommended moving the measure forward to the pilot test with suggested modifications.

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2d. Exclusions Justified

2d.1 Summary of Evidence supporting exclusion(s):

2d.2 Citations for Evidence:

2d.3 Data/sample *(description of data/sample and size)*:

2d.4 Analytic Method *(type analysis & rationale)*:

2d.5 Testing Results *(e.g., frequency, variability, sensitivity analyses)*:

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2e. Risk Adjustment for Outcomes/ Resource Use Measures

2e.1 Data/sample *(description of data/sample and size)*:

2e.2 Analytic Method *(type of risk adjustment, analysis, & rationale)*:

2e.3 Testing Results *(risk model performance metrics)*:

2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:

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2f. Identification of Meaningful Differences in Performance

2f.1 Data/sample from Testing or Current Use *(description of data/sample and size)*: All patients > 4 months of age that had been selected for measures PBM-02 –PBM-04 from the eligible measure population of inpatient discharges from 7/1/09 – 12/31/09 were abstracted. For each patient, all units or doses of blood from each of the three types of blood products were used for measurement purposes.

2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance *(type of analysis & rationale)*:
Z-scores were used to determine hospital measure rates that were significantly different from the overall average.

2f.3 Provide Measure Scores from Testing or Current Use *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*:
Mean Rate for All Hospitals = 76.1%
Overall Rate for All Hospitals = 77.2%
Standard Deviation = 20.7%
Median Rate for All Hospitals = 81.2%
Min. = 9.0%
Max. = 100%
Lower Quartile = 66%
Upper Quartile = 95%
Z< -2* = 2
Z< 2** = 0

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2g. Comparability of Multiple Data Sources/Methods

2g.1 Data/sample *(description of data/sample and size)*:

2g.2 Analytic Method *(type of analysis & rationale)*:

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2g.3 Testing Results *(e.g., correlation statistics, comparison of rankings)*:	
2h. Disparities in Care **2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**	**2h** **C☐** **P☐** **M☐** **N☐** **NA☐**
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	***2*** **C☐** **P☐** **M☐** **N☐**
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information **3a.1 Current Use:** Not in use but testing completed **3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*): We intend to incorporate these Patient Blood Management measures into our ORYX initiative with associated public reporting on Quality Check when there is a national call for these measures. **3a.3 If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** The specifications will be posted on the Joint Commission website for public use in 2011. **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) **3a.4 Data/sample** *(description of data/sample and size)*: **3a.5 Methods** *(e.g., focus group, survey, QI project)*: **3a.6 Results** *(qualitative and/or quantitative results and conclusions)*:	**3a** **C☐** **P☐** **M☐** **N☐**
3b/3c. Relation to other NQF-endorsed measures **3b.1 NQF # and Title of similar or related measures:**	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): **3b.2 Are the measure specifications harmonized? If not, why?**	**3b** **C☐** **P☐** **M☐** **N☐** **NA☐**

3c. Distinctive or Additive Value **3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** **5.1 If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:**	**3c** C☐ P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** C☐ P☐ M☐ N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes **4a.1-2 How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	**4a** C☐ P☐ M☐ N☐
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) No **4b.2 If not, specify the near-term path to achieve electronic capture by most providers.** The project will begin Phase III in January 2011 to retool the specifications for retrieval from an electronic health record.	**4b** C☐ P☐ M☐ N☐
4c. Exclusions **4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No **4c.2 If yes, provide justification.**	**4c** C☐ P☐ M☐ N☐ NA☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** None noted during testing	**4d** C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** Abstraction time for PBM-05 varied based on the number of units transfused and the location of the	**4e** C☐ P☐ M☐ N☐

transfusion. While not difficult to abstract the information in a non-surgical setting, it was almost impossible to abstract the information intraoperatively with any reliability due to the lack of documentation or illegibility of the paper record. For example, abstracting the data element Transfusion Order was a challenge for the intraoperative setting because many hospitals stated that transfusion orders are not routinely documented in the anesthesia/surgical record. According to many hospital staff, "the doctor that orders the blood does not need to write an order to transfuse the blood during the operation". To address this issue, documentation of a transfusion order or the blood unit identification (ID) number would be acceptable for units transfused intraoperatively. Requiring the blood ID number would provide a way to document the amount of blood a patient received during surgery as many times it was not clear when and how many units/doses of blood were transfused which is essential to track blood use and link to adverse events for national hemovigilence rates. These differences in processes that were noted between the intraoperative and non-intraoperative settings have been addressed by adding the option to stratify the units by intraoperative and non-intraoperative settings so hospitals can determine where to invest their improvement efforts.

This measure, even though it was developed for abstraction at the unit level, was indirectly affected by the difficulty in determining the associated 'event'. Eliminating the abstraction level of an 'event' will also improve the reliability of this measure.

Documentation of pulse, in addition to temperature and blood pressure was added to the vital sign monitoring data element since most hospitals routinely document it during transfusion.

Pilot hospitals were requested to estimate the time to abstract one unit of blood red blood cells (RBCs), platelets or plasma for the six-month pilot which includes the abstraction time for PBM-05. Twenty hospitals estimated an average time of 30 minutes to abstract a unit of blood with an average cost of $21-25 per hour. However, these costs do not include the time or cost involved in identifying the patient population, staff training or data collection tool instruction. It should also be noted that the learning curve varied widely due to the staff experience and expertise that were utilized for a 'time-limited' project.
Due to the amount of time needed to manually abstract the volume of blood transfusions, we believe that these measures are most suitable for abstraction from an electronic medical record (EHR). Retrieval from an EHR could capture 100% of all units that were transfused and would decrease or eliminate the associated abstraction burden. This method would also improve the identification of patients who received blood since procedure codes to document blood use are not standardized across the country. In the meantime, patients can be identified using blood bank records or procedure codes.
During the 12 reliability site visits, two Joint Commission staff also found that the abstraction time varied widely based on the method of record retrieval (e.g., paper record, scanned record or electronic information) at each hospital and the amount of blood transfused per case. Based on hospital feedback, measure specifications have been revised to strengthen and provide additional clarity to data element definitions and abstraction guidelines. The timing and frequency of data collection will remain monthly or quarterly as it does for the other Joint Commission measure sets. Maintaining patient confidentially was not an issue during the pilot test, since blinded hospital and patient identifiers are used on all data received by The Joint Commission staff for data quality reviews.

4e.2 Costs to implement the measure (*costs of data collection, fees associated with proprietary measures*)**:**
The majority of hospitals already have processes in place to abstract measures if the patients are identified using procedure codes. However, some hospitals document total hospital blood use using blood bank records that would have to be cross-referenced by the patient medical record number to determine how much and the type of blood product each patient received which adds to the abstraction burden. After identifying the patients, the time to collect the data elements for this measure from the operative section of the record would be increased, if available, using manual abstraction.
There are no Joint Commission fees to abstract the measures, but the abstraction cost in addition to the issues mentioned above would depend on the amount of blood products transfused at each hospital since administration documentation is reviewed for all units included in the transfusion measures PBM-02 – PBM-04. Hospitals with Blood Management or conservation programs may have fewer units to review and those with efficient or electronic processes to document blood may have lower abstraction costs.

4e.3 Evidence for costs:

4e.4 **Business case documentation:** Even though many hospital staff thought that all of the Patient Blood Measures were important, the Blood Administration Documentation measure has been one of the highest ranked measures in all of the testing phases. The lack of clearly written blood transfusion documentation noted in patients who received blood intraoperatively raises the question of how overuse can be determined and addressed if the number of units transfused is not even mentioned in the post-procedure note. Documenting blood use during surgery is essential to tracking transfusion-related adverse events. Improving patient identification during transfusion has been a Joint Commission National Patient Safety Goal #1 for many years, and this measure would be an excellent vehicle to determine if the goal to improve the accuracy of patient identification to eliminate transfusion errors related to misidentification is being achieved. This measure is needed to monitor and evaluate Patient Safety practices, although manual abstraction is very time-consuming and only abstracts a set number of blood products transfused.	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** **C☐** **P☐** **M☐** **N☐**
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited ☐**
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y☐** **N☐** **A☐**

CONTACT INFORMATION

Co.1 **Measure Steward (Intellectual Property Owner)**
Co.1 **Organization**
The Joint Commission, One Renaissance Boulevard, Oakbrook Terrace, Illinois, 60181

Co.2 **Point of Contact**
Jerod M., Loeb, PhD, jloeb@jointcommission.org, 630-792-5920-

Measure Developer If different from Measure Steward
Co.3 **Organization**
The Joint Commission, One Renaissance Boulevard, Oakbrook Terrace, Illinois, 60181

Co.4 **Point of Contact**
Harriet, Gammon, MSN, RN, CPHQ, hgammon@jointcommission.org, 630-792-5926-

Co.5 **Submitter If different from Measure Steward POC**
Harriet, Gammon, MSN, RN, CPHQ, hgammon@jointcommission.org, 630-792-5926-, The Joint Commission

Co.6 **Additional organizations that sponsored/participated in measure development**

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 **Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.**
The technical advisory panel determined priority areas in blood management for measure development. They reviewed public comments and were actively involved in all phases of the project to identify and develop the specifications. Measure recommendations for National Quality Forum endorsement were made after careful review of the pilot results and site feedback.

Ad.2 If adapted, provide name of original measure: **Ad.3-5 If adapted, provide original specifications URL or attachment**
Measure Developer/Steward Updates and Ongoing Maintenance **Ad.6 Year the measure was first released:** **Ad.7 Month and Year of most recent revision:** 12, 2010 **Ad.8 What is your frequency for review/update of this measure?** Biannually **Ad.9 When is the next scheduled review/update for this measure?** 06, 2011
Ad.10 Copyright statement/disclaimers: No royalty or use fee is required for copying or reprinting this manual, but the following are required as a condition of usage: 1) disclosure that the Specifications Manual is periodically updated, and that the version being copied or reprinted may not be up-to-date when used unless the copier or printer has verified the version to be up-to-date and affirms that, and 2) users participating in Joint Commission accreditation, including performance measures systems, are required to update their software and associated documentation based on the published manual production timelines. Example Acknowledgement: The Specifications Manual for National Hospital Inpatient Quality Measures Patient Blood Management Performance Measure Set is periodically updated by The Joint Commission. Users of the Specifications Manual for National Hospital Inpatient Quality Measures Patient Blood Management Performance Measure Set must update their software and associated documentation based on the published manual production timelines.
Ad.11 -13 Additional Information web page URL or attachment: Attachment TAPLISTWEBc-634276558279803714.doc
Date of Submission (*MM/DD/YY*)**:** 12/29/2010

Patient Blood Management (PBM)

Set Measures

Set Measure ID	Measure Short Name
PBM-01	Transfusion Consent
PBM-02	RBC Transfusion Indication
PBM-03	Plasma Transfusion Indication
PBM-04	Platelet Transfusion Indication
PBM-05	Blood Administration Documentation
PBM-06	Preoperative Anemia Screening
PBM-07	Preoperative Blood Type Testing and Antibody Screening

Measure Set Specific Data Elements

Element Name	Collected For
Admission From Home	PBM-06,
Anesthesia Start Date	PBM-06,
Blood Administration Location	PBM-02, PBM-03, PBM-04, PBM-05,
Blood Bank Records	PBM-01, PBM-02, PBM-03, PBM-04, PBM-05,
Blood ID Number	PBM-05,
Blood Type Testing Ordered	PBM-07,
Clinical Indication for Plasma	PBM-03,
Clinical Indication for Platelets	PBM-04,
Clinical Indication for RBCs	PBM-02,
Education Addressed Risks, Benefits and Alternatives to Transfusion	PBM-01,
Patient ID Verification	PBM-05,
Plasma ID	PBM-03, PBM-05,
Platelet ID	PBM-04, PBM-05,
Pre-transfusion Hematocrit	PBM-02,
Pre-transfusion Hemoglobin	PBM-02,
Pre-transfusion PT/INR Result	PBM-03,
Pre-transfusion Platelet Count	PBM-04,
Preoperative Anemia Screening Date	PBM-06,
Preoperative Blood Type Testing	PBM-07,
RBC ID	PBM-02, PBM-05,
RBC Unit Exclusions	PBM-02, PBM-05,
Surgery Scheduled Timeframe	PBM-06,
Transfusion Consent	PBM-01,
Transfusion Order	PBM-05,
Transfusion Start Date	PBM-05,
Transfusion Start Time	PBM-05,
Vital Sign Monitoring	PBM-05,

Related Materials

Document Name
z. Appendix E - Miscellaneous Tables

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-01

Performance Measure Name: Transfusion Consent

Description: Patients with a signed consent who received information about the risks, benefits and alternatives of transfusion prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency.

Rationale: Planning a discussion with a licensed practitioner regarding the risks, benefits and alternatives of transfusion is an opportunity for the patient to participate in decisions about his or her care. It is a process that takes into consideration, each patient's preferences, clinical needs and provides information in compliance with the regulations and policies of the state and facility. Even though policies related to informed consent may vary among hospitals, all hospitals require some type of consent prior to treatment unless emergency care is needed. The elements of performance for the Joint Commission Standard RI.01.03.01 related to the informed consent process include a discussion about the risks, benefits and alternatives, and a discussion about the risk, if care is not received. This measure is also supported by the Joint Commission's National Patient Safety Goal (NPSG) 13 that encourages patients' active involvement in their own care as a patient safety strategy.

For many years, the American Association of Blood Banks (AABB) organization has supported the consent process for transfusion and has developed several standards such as AABB Standard 5.19.1. AABB requires that at a minimum, a recipient consent for transfusion and that should include; a description of the risks, benefits and treatment alternatives, the opportunity to ask questions and the right to accept or refuse transfusion.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with a signed consent who received information about the risks, benefits and alternatives prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Education Addressed Risks, Benefits and Alternatives to Transfusion*
- *Transfusion Consent*

Denominator Statement: Patients who received red blood cell, plasma or platelet transfusions

Included Populations: Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.3-9.6 or a transfusion documented from Blood Bank Records.

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data collection sources for required data elements include administrative data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document tranfusions may use blood bank records to identify the population.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Hospitals may want to evaluate the cases according to medical or surgical designation that were not included in the numerator in order to determine if the consent was signed and/or if all or only part of the educational components were given or if documentation was insufficient. Based on this information, hospitals may assess the barriers impacting this measure that could be improved.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

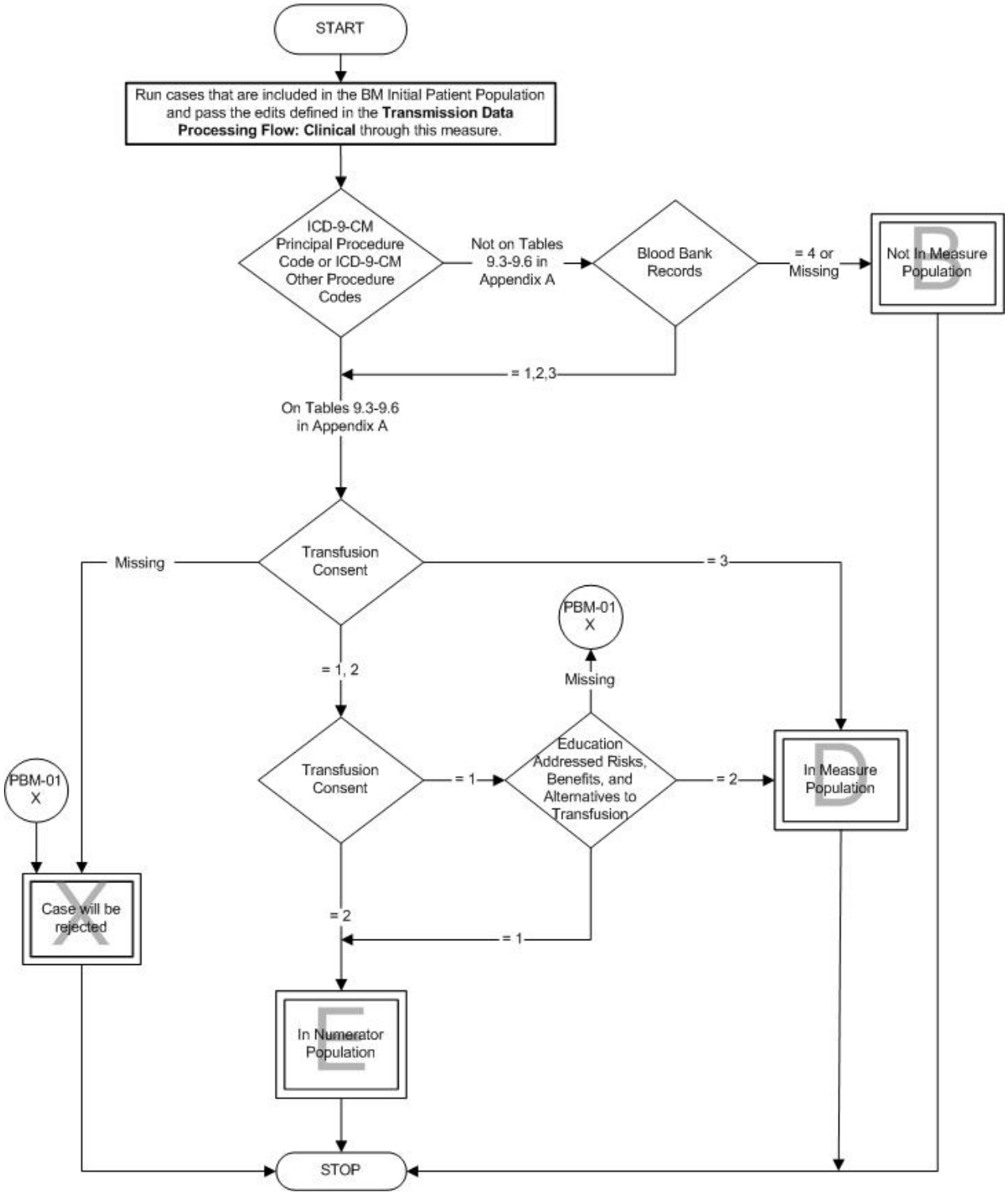
- Speiss BD, Counts RB, Gould SA. Perioperative Transfusion Medicine, Williams and Wilkins; 1998; 201-204.
- Stowell C, Sazama K. Informed Consent in Blood Transfusion and Cellular Therapies: Patients, Donors and Research Subjects. AABB Press; 2007; ISBN #978-1-56395-254-8.
- Burch JW, Uhl L. Guidelines for Informed Consent in Transfusion Medicine. AABB Press; 2006; ISBN #1-56395-146-0.2008.
- Standards for Blood Banks and Transfusion Services, 25th ed. Bethseda, MD: AABB 2008.
- The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL. Joint Commission Resources, Inc, 2009.
- The Joint Commission, “National Patient Safety Goals (NPSG)”, IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.

Measure Algorithm:

PBM–01: Transfusion Consent

Numerator: Patients with a signed consent who received information about the risks, benefits and alternatives prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency

Denominator: Patients who received red blood cells, platelets or plasma



Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-02

Performance Measure Name: RBC Transfusion Indication

Description: The number of transfused red blood cell (RBC) units with a pre-transfusion hemoglobin (hgb) or hematocrit (hct) result and clinical indication documented from patients of all ages who received RBCs.

Rationale: Improvement of the safety and quality of care that a hospital provides includes the review of the use of blood and blood products. Despite current evidence and best practice guidelines, clinical practice regarding when to transfuse varies among physicians and institutions even though most would agree that blood products should only be given when the benefits outweigh the harm. Many advocate that transfusion decisions should be based on a clinical assessment and not on laboratory values alone to avoid inappropriate over-or-under transfusion. Measuring whether an "indication for transfusion" and a pre-transfusion laboratory value was documented may improve the utilization of blood components. In addition, implementing such a process may simplify the hospital's review for appropriateness of the transfusion when auditing records for accreditation and regulatory agencies. In a study by Friedman and Ebrahim, there was a significant correlation between red blood cell transfusions that lacked documentation of the clinical necessity for transfusion and justification of the transfusion.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of RBC units with pre-transfusion hemoglobin or hematocrit result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for RBCs*
- *Pre-transfusion Hematocrit*
- *Pre-transfusion Hemoglobin*
- *RBC ID*

Denominator Statement: Number of transfused red blood cell units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Tables 9.3 or 9.4 or a RBC transfusion documented from Blood Bank Records.
- The first six RBCs units transfused after hospital arrival

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*
- *RBC Unit Exclusions*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received RBCs.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Hospitals may want to use the data to further evaluate the process for determining the need for blood products based on the clinical indications and correlating it with the pre-transfusion value that was documented. This information may assist hospitals to determine if the patients were transfused appropriately or if efforts should be directed toward additional documentation efforts for monitoring blood product usage. Data may be grouped by service designation or by blood products to identify specific areas for staff review.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

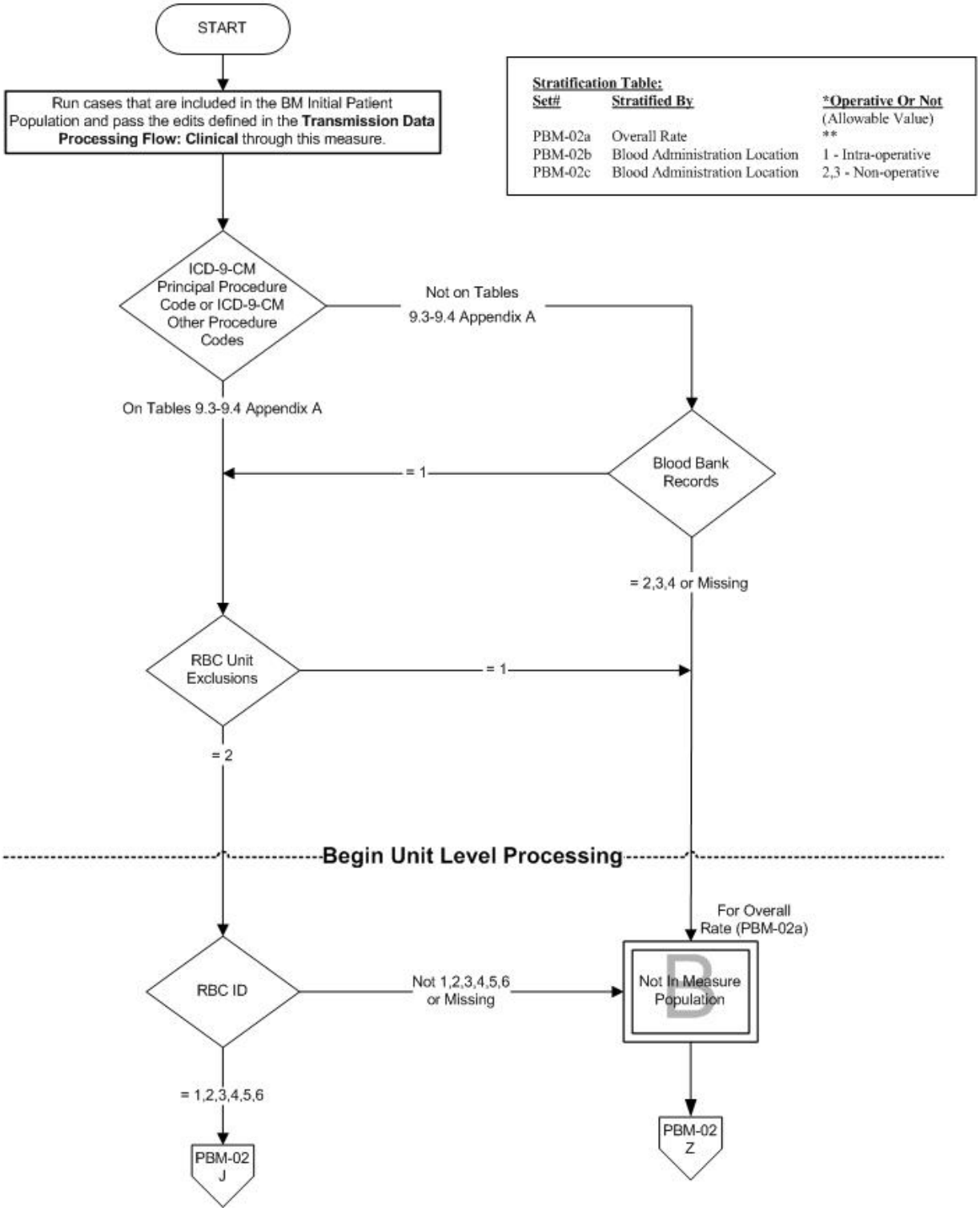
- Friedman MT, Ebrahim A. Adequacy of physician documentation of red blood cell transfusion and correlation with assessment of transfusion appropriateness. Arch Pathol Lab Med. 2006;130: 474-79.
- Corwin HL, Parsonnet KC, Gettinger A. RBC transfusion in the ICU: is there a reason? Chest. 1995;108: 767-771.
- Tobin SN, Campbell DA, Boyce NW. Durability of response to a targeted intervention to modify clinician transfusion practices in a major teaching hospital. MJA. 2001;174:445-448.
- Clinical practice guideline: Red blood cell transfusion in adult trauma and critical care. Crit Care Med 2009 Vol.37, No.12.

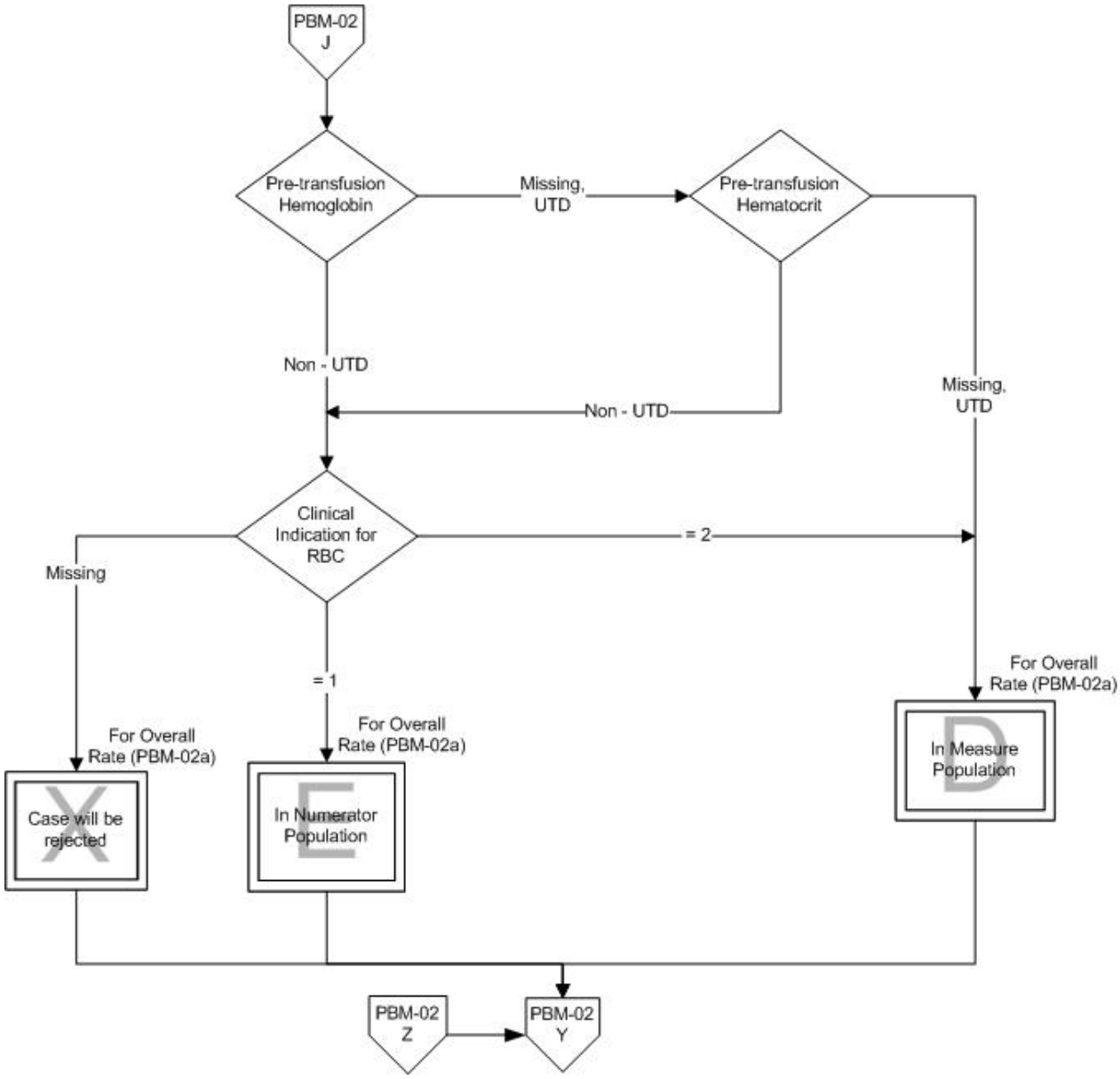
Measure Algorithm:

PBM–02: RBC Transfusion Indication

Numerator: Number of RBC units (bags) with pre-transfusion hemoglobin or hematocrit result and clinical indication documented

Denominator: Number of transfused red blood cell units evaluated





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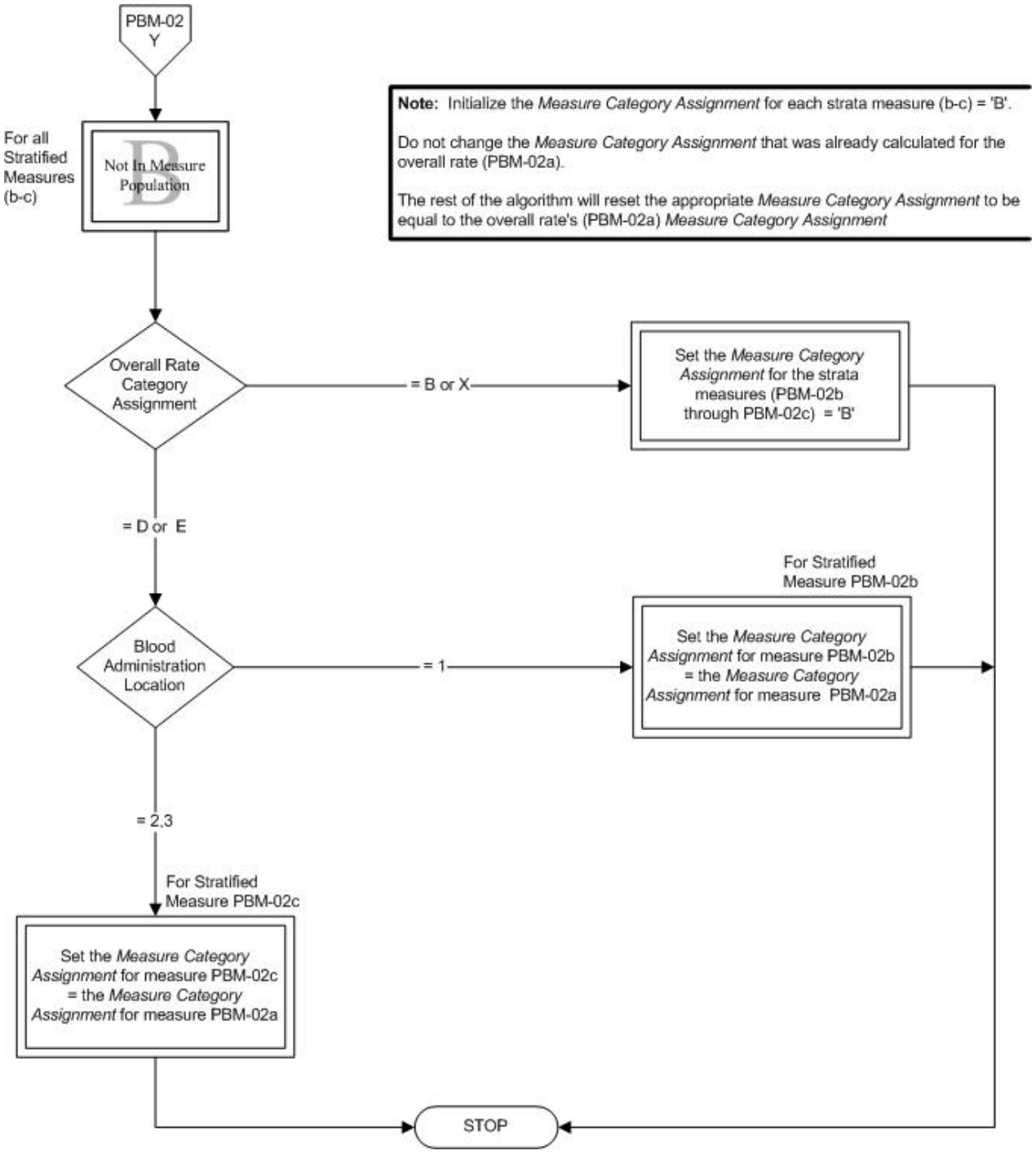


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-03

Performance Measure Name: Plasma Transfusion Indication

Description: The number of transfused plasma units with a pre-transfusion PT/INR result and clinical indication documented from patients of all ages who received plasma.

Rationale: The use of plasma has increased and is disproportionally high compared to other countries with similar levels of health care. Indications for transfusing plasma are very limited, and as a result, published studies often show unjustifiable use of plasma. According to the National Heart Lung and Blood Institute, plasma should be administered only to increase the level of clotting factors in patients with a demonstrated deficiency. If the prothrombin time (PT) and partial thromboplastin time (PTT) are < 1.5 times normal, a plasma transfusion is rarely needed. However, plasma is frequently transfused to patients with mild-to moderate elevations in PT despite numerous studies that have not shown a correlation between the risk of bleeding and mild-to moderate test results. In a study by Wahab et al, transfusion of plasma for mild abnormalities of coagulation values resulted in a partial normalization in a minority of patients, and failed to correct the PT in 99% of the patients. In a 2004 study by Hui, the need to correct prolonged international normalized ratios (INRs) for patients on warfarin emerged as the primary indication for plasma followed by massive transfusions.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of plasma units with pre-transfusion PT/INR result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for Plasma*
- *Plasma ID*
- *Pre-transfusion PT/INR Result*

Denominator Statement: Number of transfused plasma units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.6 or a plasma transfusion documented from Blood Bank Records
- The first three plasma units transfused from hospital arrival

Excluded Populations:

- Discharges with an ICD-9-CM Principal Diagnosis Code of trauma as defined in Appendix A, Table 9.7.

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Diagnosis Code*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received plasma.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Data from this measure may be used to review the type of invasive procedures or surgeries that use plasma in order to further evaluate appropriateness of use.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

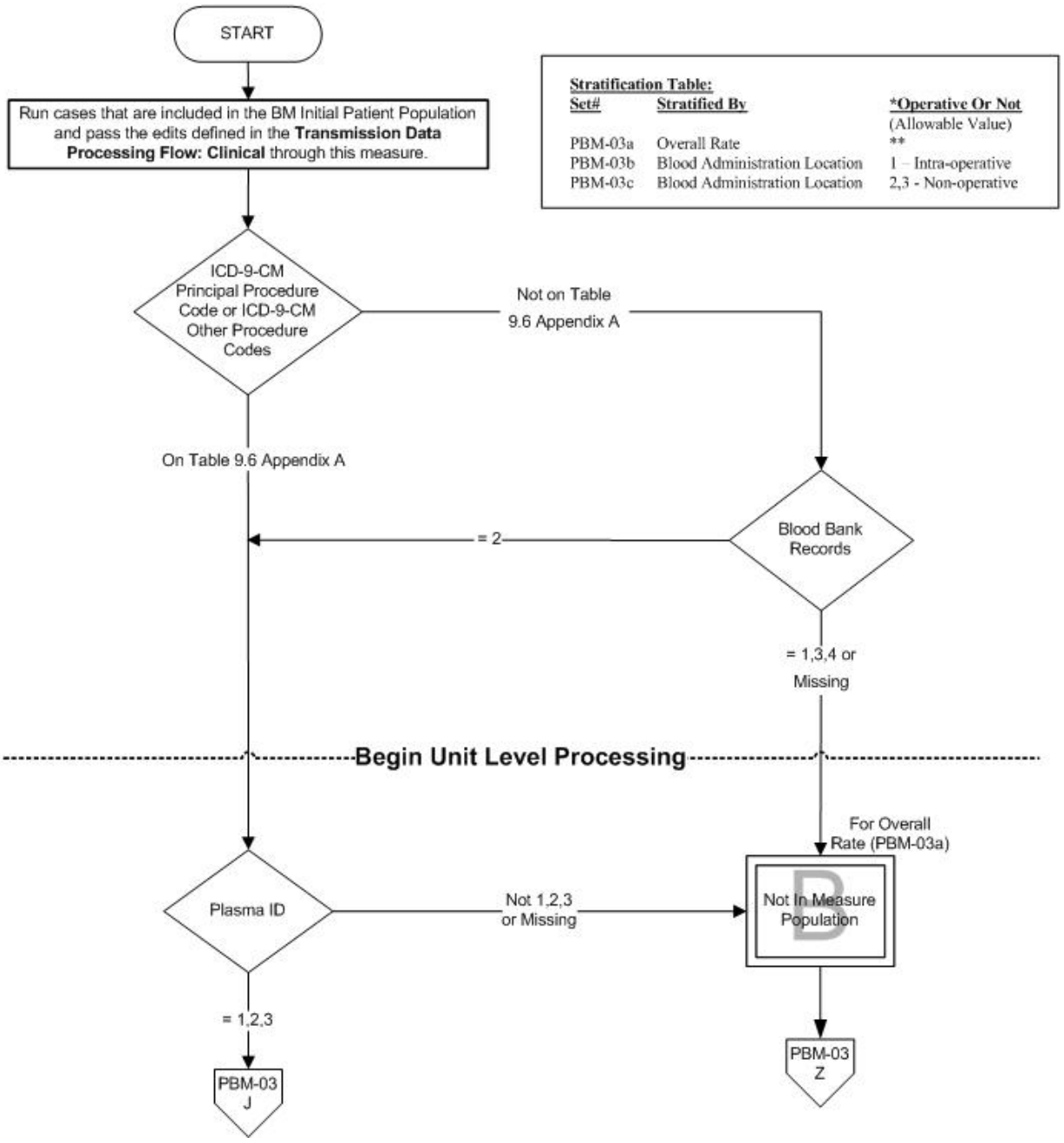
- Hui C, Williams I, Davis K. Clinical audit of the use of fresh-frozen plasma and platelets in a tertiary teaching hospital and the impact of a new transfusion request form. Int Med J. 2005;35:283-288.
- Wallis JP, Dzik S. Is fresh frozen plasma overtransfused in the United States? Transfusion. 2004;44:1674-75.
- Ardel-Wahab OI, Healy B, Dzik WH. Effect of fresh-frozen plasma transfusion on prothrombin time and bleeding in patients with mild coagulation abnormalities. Transfusion. 2006;46:1479-1285.
- Segal J, Dzik WH; Transfusion Medicine/Hemostasis Clinical Trials Network. Paucity of studies to support that abnormal coagulation test results predict bleeding in the setting of invasive procedures: an evidenced-based review. Transfusion. 2005;45:1413-25.

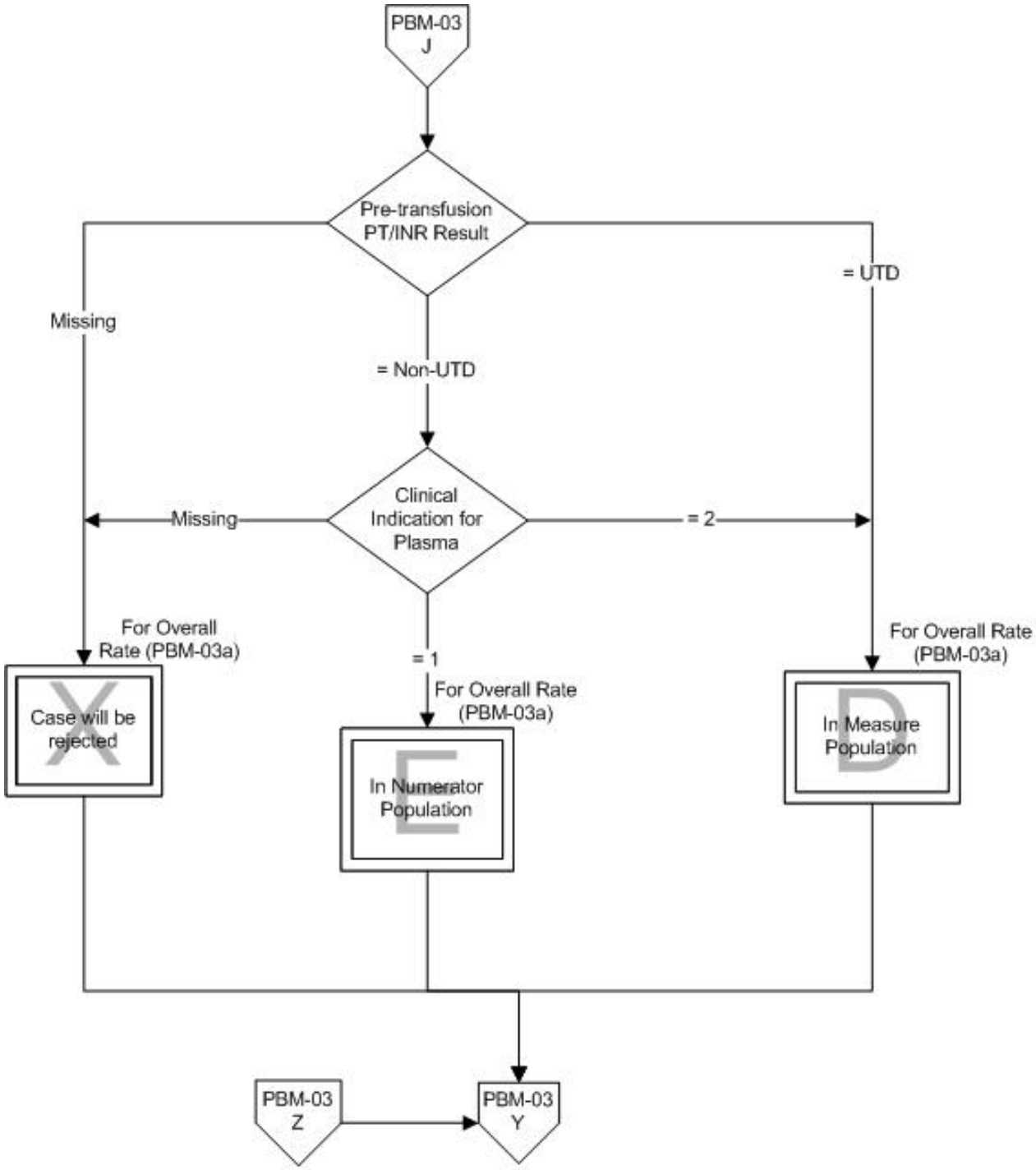
Measure Algorithm:

PBM–03: Plasma Transfusion Indication

Numerator: Number of plasma units with pre-transfusion PT/INR result and clinical indication documented

Denominator: Number of transfused plasma units evaluated





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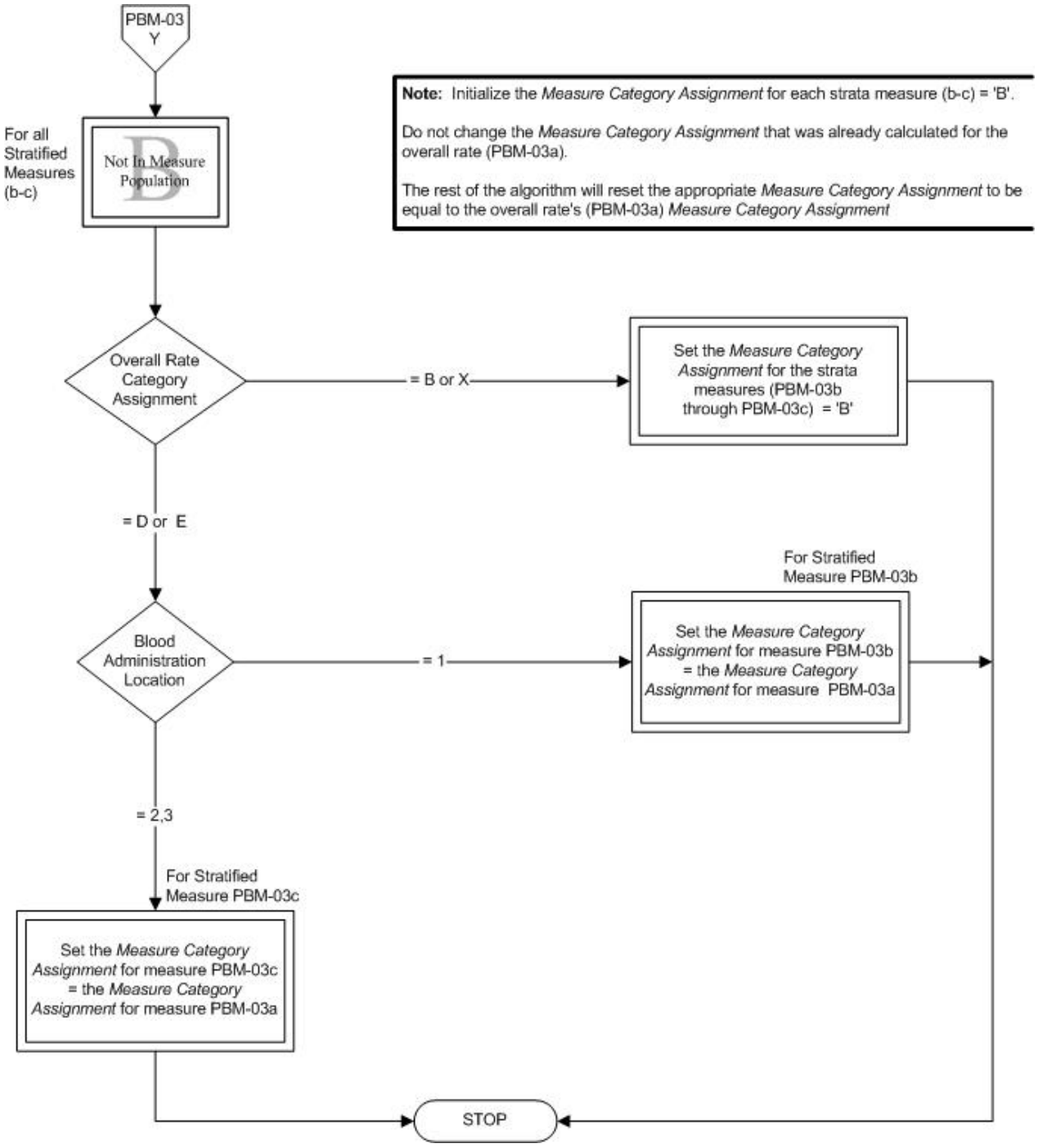


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-04

Performance Measure Name: Platelet Transfusion Indication

Description: The number of transfused platelet units with pre-transfusion platelet count and clinical indication documented from patients of all ages who received platelets.

Rationale: Platelets are transfused to treat or prevent bleeding associated with thrombocytopenia and/or platelet dysfunction. Platelets given therapeutically should help stop the bleeding, and if given prophylactically, post transfusion platelet counts should be obtained to monitor the response to determine the effectiveness of the transfusion. Repeated platelet transfusions can cause alloimmunization and cause platelet refractoriness to future transfusions. Multiple infectious risks are associated with platelet transfusions so patients should only be exposed to the least amount needed.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of platelet units with pre-transfusion platelet count result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for Platelets*
- *Platelet ID*
- *Pre-transfusion Platelet Count*

Denominator Statement: Number of transfused platelet units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.5 or a platelet transfusion documented from Blood Bank Records
- The first three platelet units transfused after hospital arrival

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Blood Administration Location*
- *Blood Bank Records*

- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received platelets.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Data from this measure may be used to evaluate the utilization and approriateness of platelets used by an organization.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

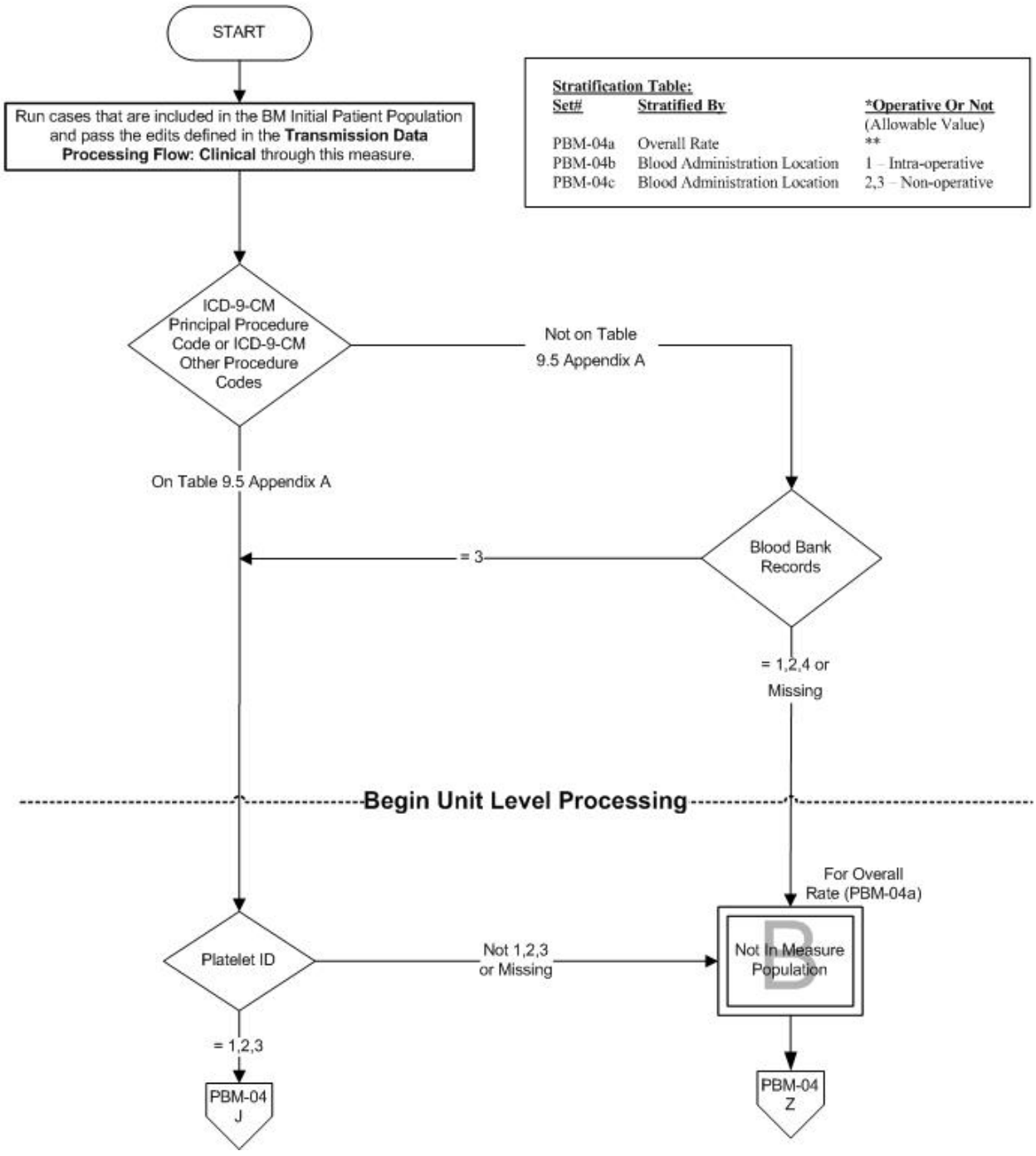
- Garrioch M, Sandbach J, Pirie E, Morrison A, Todd A, Green R. Reducing red cell transfusion by audit, education and a new guideline in a large teaching hospital. Transfusion Med. 2004;14:25-31.
- Petrides M. Red cell transfusion “trigger”: A review. Southern Med J. 2003; 96:664-667.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- BR J Haematol 1998, 101:609 - 617.

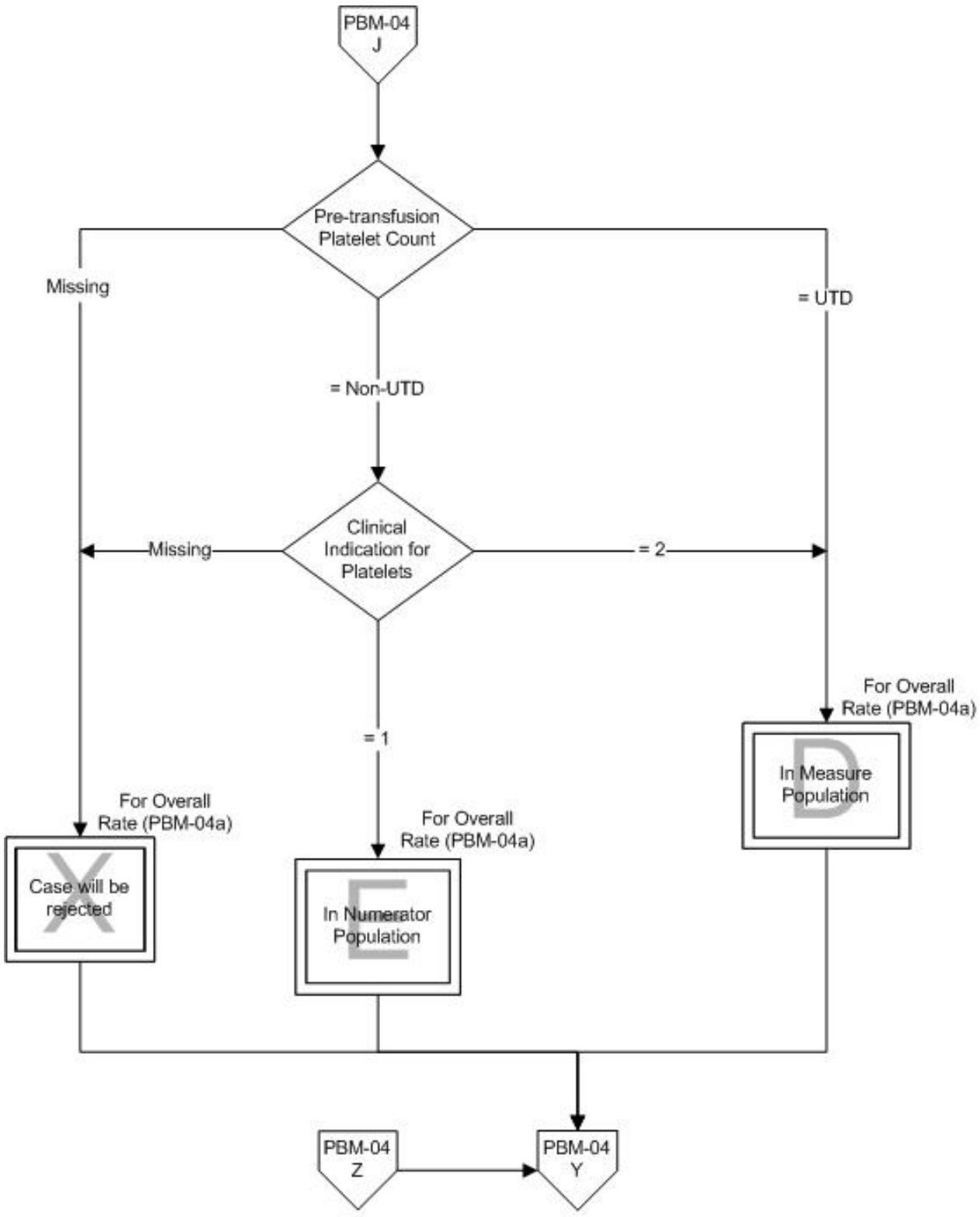
Measure Algorithm:

PBM–04: Platelet Transfusion Indication

Numerator: Number of platelet doses with pre-transfusion platelet count result and clinical indication documented

Denominator: Number of transfused platelet units evaluated





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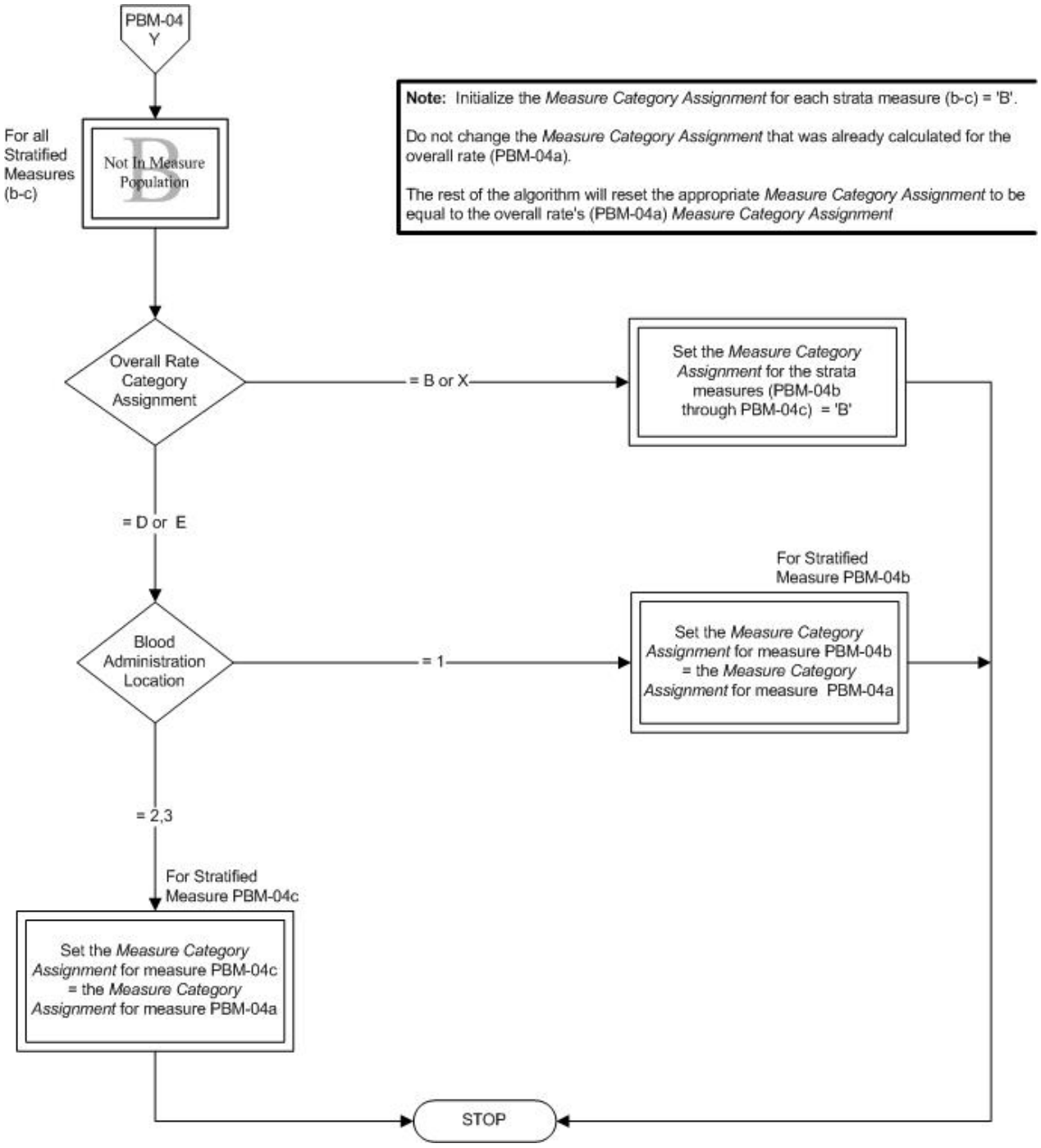


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-05

Performance Measure Name: Blood Administration Documentation

Description: The number of transfused red blood cells, plasma or platelet transfusion units/doses (bags) that had documentation of the following: patient identification and an order to transfuse (Blood ID Number) confirmed prior to the initiation of transfusion, transfusion start date and time, and blood pressure, pulse and temperature recorded at specific intervals.

Rationale: Since the majority of blood units are transfused in hospitals, specific policies and procedures have been developed by each hospital to address documentation of blood administration standards in accordance with their state and federal regulations. Though documentation components vary among organizations, identification of the patient and confirmation of the order to transfuse are common indicators used for all blood products since incomplete patient identification could result in an adverse outcome. Prior to administering blood or blood products, patient identification by two identifiers is required by numerous organizations including the AABB Standard 5.19.3, and the Joint Commission National Patient Safety Goal (NPSG) 1. In addition, numerous organizations require or advise that the licensed staff confirm that there is a transfusion order as directed by the AABB Standard 5.19.6 and the elements of performance for the Joint Commission NPSG.01.01.01.

Patient monitoring during the transfusion is an important component related to patient safety. The first 10 to 15 minutes of the transfusion are considered the most critical to assess for a potential transfusion reaction and close observation during this time is recommended in the AABB Primer. Monitoring of vital signs at baseline, during and at the completion of the transfusion in addition to observation are used to assess the patient's condition for any changes.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of units/doses (bags) with documentation for all of the following:

- patient identification and transfusion order (Blood ID Number) confirmed prior to the initiation of transfusion
- transfusion start date and time
- blood pressure, pulse and temperature recorded pre, during and post transfusion

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Blood ID Number*
- *Patient ID Verification*
- *Plasma ID*

- *Platelet ID*
- *RBC ID*
- *Transfusion Order*
- *Transfusion Start Date*
- *Transfusion Start Time*
- *Vital Sign Monitoring*

Denominator Statement: Number of transfused red blood cells, plasma or platelet units/doses (bags) evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.3-9.6 or a transfusion documented from Blood Bank Records

Excluded Populations:

- Units used in massive transfusion protocols
- Uncrossmatched units
- Units used to prime equipment

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*
- *RBC Unit Exclusions*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: The data from this measure may be used to evaluate the adherence to organizational policies and procedures for blood administration for each of the blood products. Data could be evaluated by unit or service in order to identify areas for staff education. The data could also be used during accreditation surveys to document the hospital's efforts to improve the accuracy of patient identification when administering blood related to the Joint Commission National Patient Safety Goal #1.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

- Whitsett CF, Robichaux MG. Assessment of blood administration procedures: problems identified by direct observation and administrative incident reporting. Transfusion. 2001;41:581-86.
- Saxena S, Ramer L, Shulman IA. A comprehensive assessment program to improve blood-administering practices using the FOCUS-PDCA model. Transfusion. 2004; 44:1350-56.
- Novis DA, Miller KA, Howanitz PJ, Renner SW, Walsh MK; College of American Pathologists. Audit of transfusion procedures in 660 hospitals. A College of American Pathologists Q–Probes study of patient identification and vital sign monitoring frequencies in 16494 transfusions. Arch Pathol Lab Med. 2003;127:541-8.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009.
- The Joint Commission, “National Patient Safety Goals (NPSG)”, IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.
- AABB Primer of Blood Administration. Revised August 2008. Bethseda, Maryland. [Available at http://www.aabb.org/Content/Professional_Development/Education_and_Training_Material/edtr (accessed November 2009).]

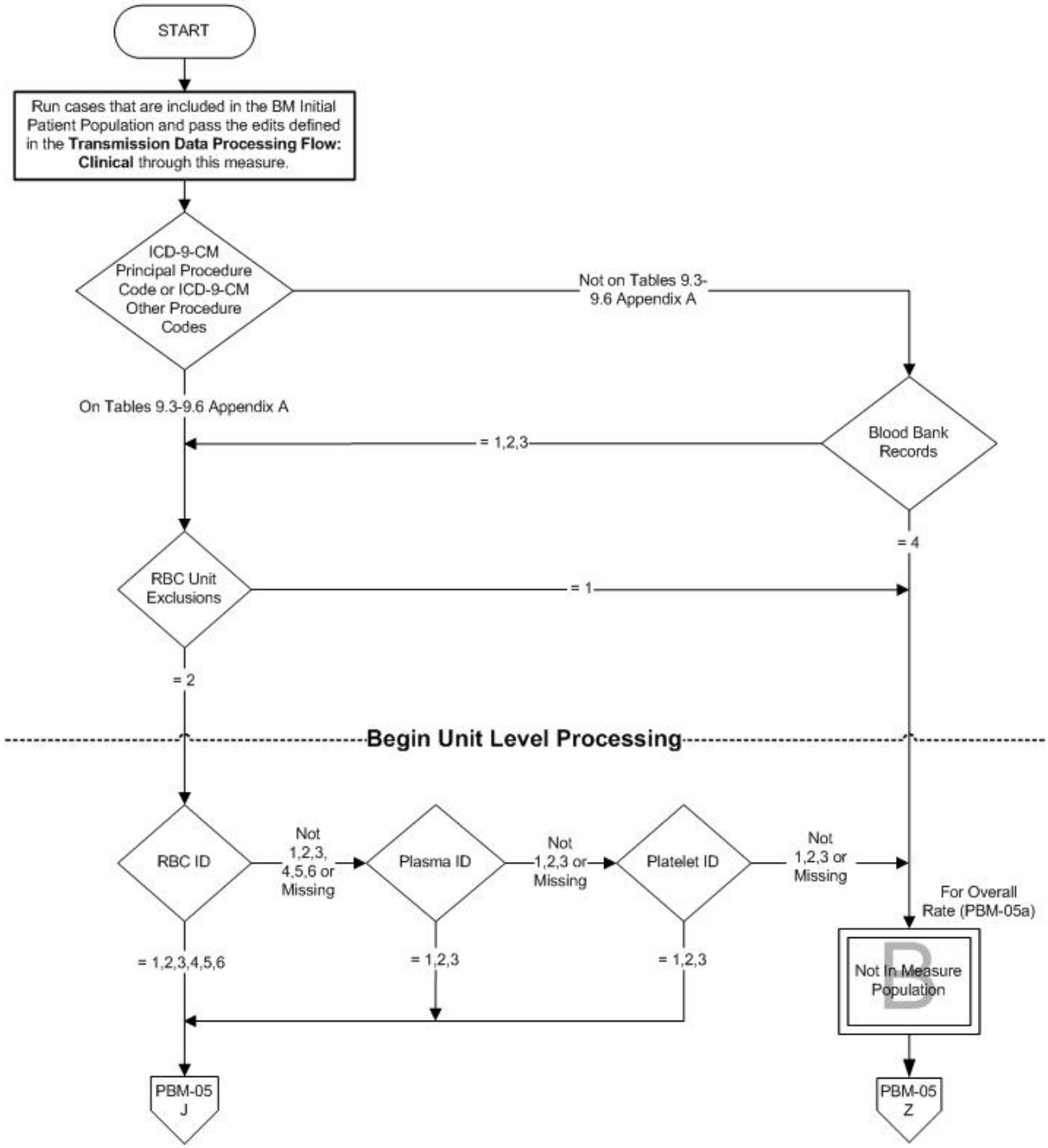
Measure Algorithm:

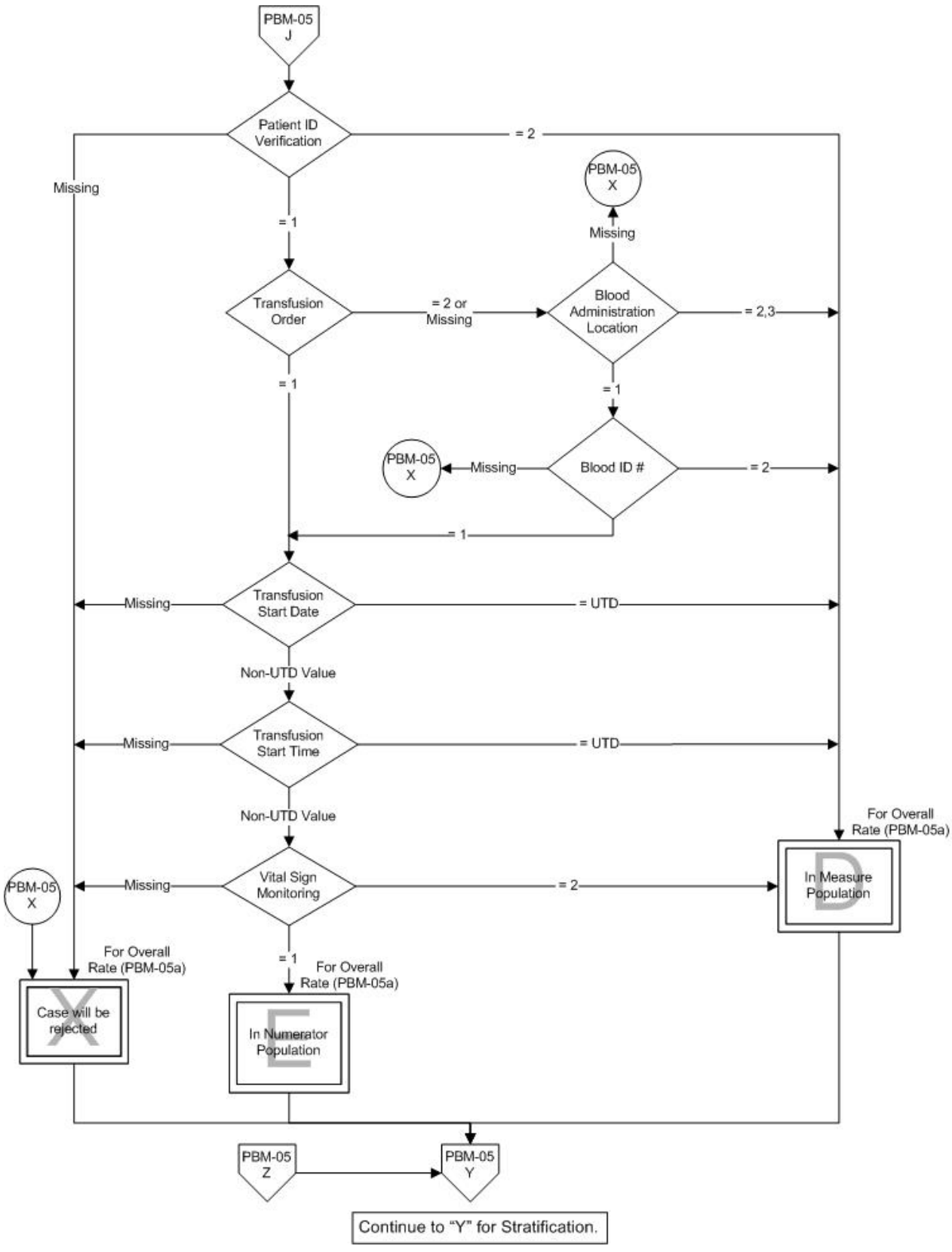
PBM–05: Blood Administration Documentation

Numerator: Number of blood transfusion units (bags) or doses with documentation for all of the following:

- patient identification (ID) and transfusion order (blood ID number) confirmed prior to the initiation of blood
- date and time of transfusion
- blood pressure, pulse and temperature recorded pre, during and post transfusion

Denominator: Number of transfused red blood cells, plasma and platelet units (bags) or doses evaluated

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Missing
PBM-05 X
= 1
Missing
Transfusion Order
= 2 or Missing
Blood Administration Location
= 2,3
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PBM-05 X
Missing
Blood ID #
= 2
= 1
Transfusion Start Date
Missing
= UTD
Non-UTD Value
Transfusion Start Time
Missing
= UTD
Non-UTD Value
For Overall Rate (PBM-05a)
PBM-05 X
Vital Sign Monitoring
Missing
= 2
In Measure Population
D
For Overall Rate (PBM-05a)
= 1
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Case will be rejected
X
In Numerator Population
E
PBM-05 Z
PBM-05 Y
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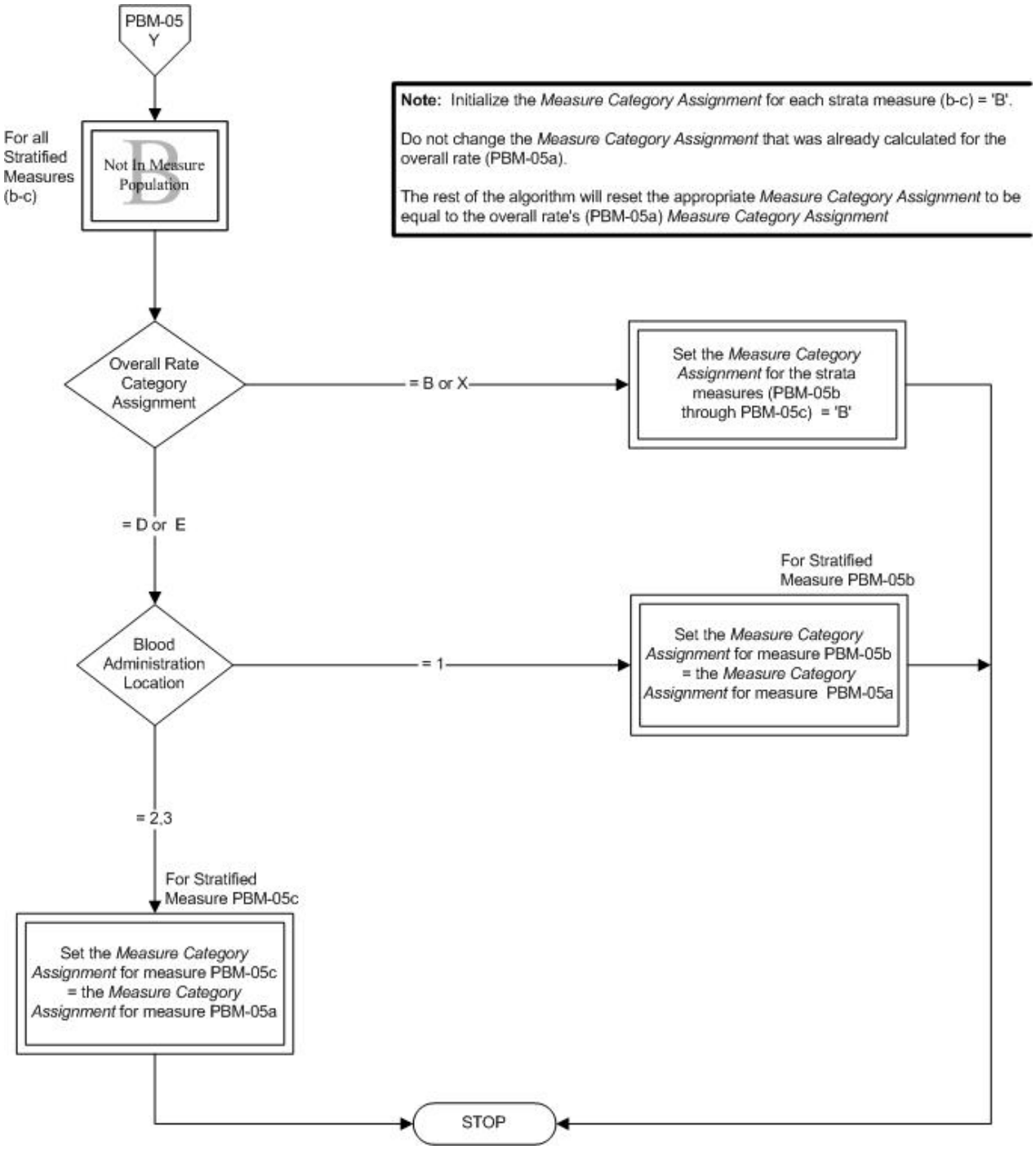


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-06

Performance Measure Name: Preoperative Anemia Screening

Description: Selected elective orthopedic, cardiac and hysterectomy surgical patients with documentation of preoperative anemia screening date 14 – 45 days before surgery start date for procedures scheduled 14 or more days before surgery.

Rationale: Development of formal protocols for preoperative testing of hemoglobin (hgb) for potential high-blood loss elective surgeries could be used to identify and intervene for optimal management of blood resources. Preoperative anemia often goes unrecognized and untreated unless tests are ordered in advance of a planned surgery. Early recognition of anemia offers patients an opportunity to receive the most appropriate transfusion-sparing strategy, and avoid the risk of a potential transfusion. Researchers have shown that preoperative hgb and hematocrit can be used as predictors of outcome for specific types of patients such as cardiac artery bypass graft or orthopedic surgery. In a study by Salido, orthopedic patients with a preoperative hemoglobin <13 g/dL had four times the risk of transfusion than those with a hemoglobin level between 13 g/dL and 15 g/dL.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with preoperative anemia screening 14 - 45 days before Anesthesia Start Date

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Preoperative Anemia Screening Date*

Denominator Statement: Selected elective surgical patients

Included Populations:

- Discharges with an ICD-9-CM Principal Procedure Codes of selected surgeries as defined in Appendix A, Tables 2.2, 5.01, 5.02, 5.08, 5.11, 5.22, 5.23, 9.1 or 9.2.

Excluded Populations:

- Patients less than 18 years of age
- Patients with surgery scheduled less than 14 days before Anesthesia Start Date
- Patients not admitted from home

Data Elements:

- *Admission Date*
- *Admission From Home*
- *Birthdate*
- *Discharge Date*
- *ICD-9-CM Principal Procedure Code*
- *ICD-9-CM Principal Procedure Date*
- *Surgery Scheduled Timeframe*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: These data may be used to evaluate specific patient groups at high risk for a blood transfusion that did not have their pre-operative hemoglobin and/or transfusion testing completed and/or documented prior to surgery. The data could be further analyzed based on physician or type of procedure. Patients who are not included in the numerator could be tracked to see if there were any adverse outcomes due to the lack of preoperative anemia screening.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References: * Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.

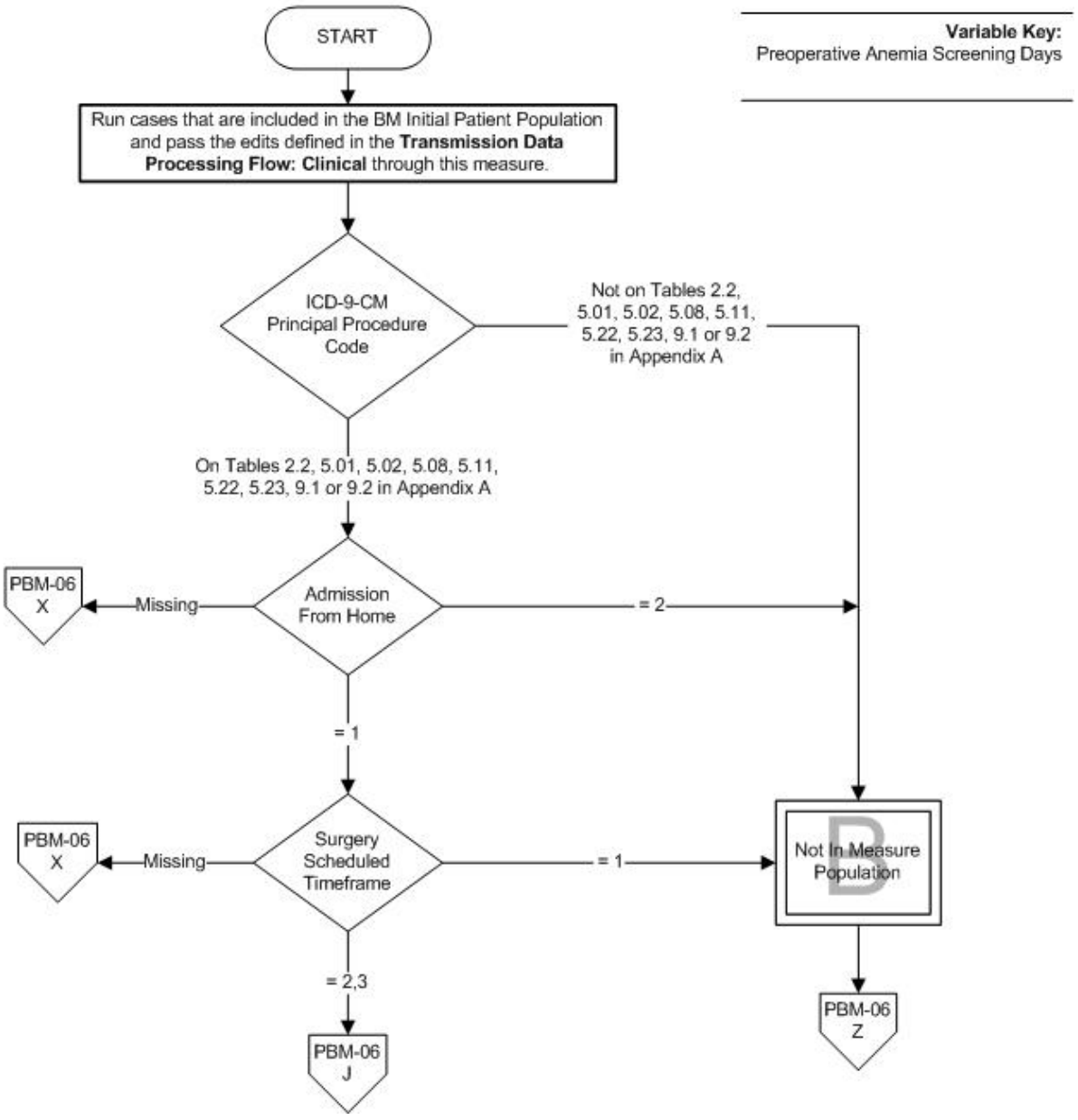
- Salido JA, Martin LA, Gomez LA, et al. Preoperative hemoglobin levels and the need for transfusion after prosthetic hip and knee surgery; analysis of predictive factors. J Bone Joint Surg. 2002;84: 216-20.
- Rady MY, Ryan T, Starr NJ. Perioperative determinants of morbidity and mortality in elderly patients undergoing cardiac surgery. Crit Care Med. 1998;26: 225-235.
- Magovern JA, Sakert T, Magovern GJ et al. A model that predicts morbidity and mortality after coronary artery bypass graft surgery. J Am Coll Cardiol. 1996;28: 1147-1153.
- Campbell DA, Henderson WG, Englesbe, MJ, Hall BL, O'Reilly M, Bratzler D et al. Surgical site infection prevention: the importance of operative duration and blood transfusion-results of the first american college of surgeons –national surgical quality improvement program best practices initiative. J AM Coll Surg 2008;207:810-820.

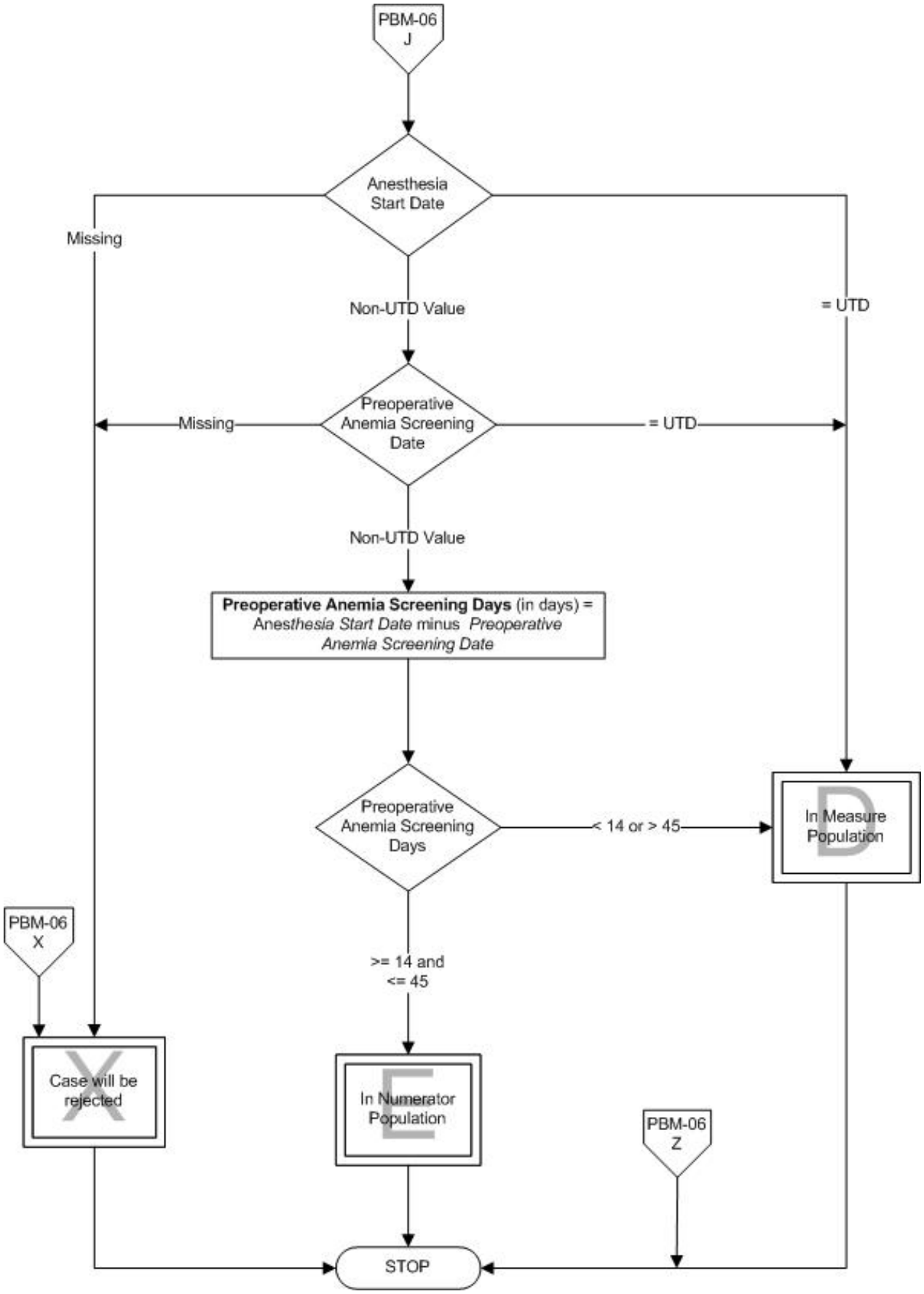
Measure Algorithm:

PBM–06: Preoperative Anemia Screening

Numerator: Patients with documentation of preoperative anemia screening 14 - 45 days before Anesthesia Start Date

Denominator: Selected elective surgical patients





Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-07

Performance Measure Name: Preoperative Blood Type Testing and Antibody Screening

Description: Selected elective orthopedic, cardiac and hysterectomy surgical patients who had preoperative blood type testing and antibody screening (type and screen or type and crossmatch) completed prior to surgery start time if ordered preoperatively.

Rationale: Hospitals need to ensure that sufficient compatible blood is available for each scheduled procedure. Since about 3% of specimens have a serologic finding that requires further investigation that may cause a delay in the availability of the blood, patient screening of ABO group and Rh type should be collected in sufficient time to complete all pretransfusion testing before surgery begins. According to the Joint Commission's Pre-publication National Patient Safety Goal UP.01.01.01 for 2010, a preprocedure verification process should be conducted to identify items that must be available for the procedure and use a standardized list to verify their availability. Documentation of any required blood products for the procedure is required. Development of formal protocols to ensure that patients have blood testing completed prior to surgery start time for potential high-blood loss elective surgeries may optimize management of blood resources and maximize patient safety.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with preoperative type and crossmatch or type and screen completed prior to surgery start time

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Preoperative Blood Type Testing*

Denominator Statement: Selected elective surgical patients

Included Populations:

- Discharges with an ICD-9-CM Principal Procedure Code of selected surgeries as defined in Appendix A, Tables 2.2, 5.01, 5.02, 5.08, 5.11, 5.22, 5.23, 9.1 or 9.2.

Excluded Populations:

- Patients less than 18 years of age
- Patients with type and screen or type and crossmatch ordered preoperatively

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Type Testing Ordered*
- *Discharge Date*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data collection sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: These data may be used to evaluate specific patient groups at high risk for a blood transfusion that did not have pre-operative transfusion testing completed and/or documented prior to surgery start time. The data could be further analyzed based on physician or type of procedure. Patients who are not included in the numerator could be tracked to see if there were any adverse outcomes due to the lack of preoperative testing.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References: * Saxena S, Nelson JM, Osby M, Shah M, Kempf R, Shulman IA. Ensuring timely completion of type and screen testing and the verification of ABO/Rh status for elective surgical patients. Arch Pathol Lab Med. 2007;131:576-81.

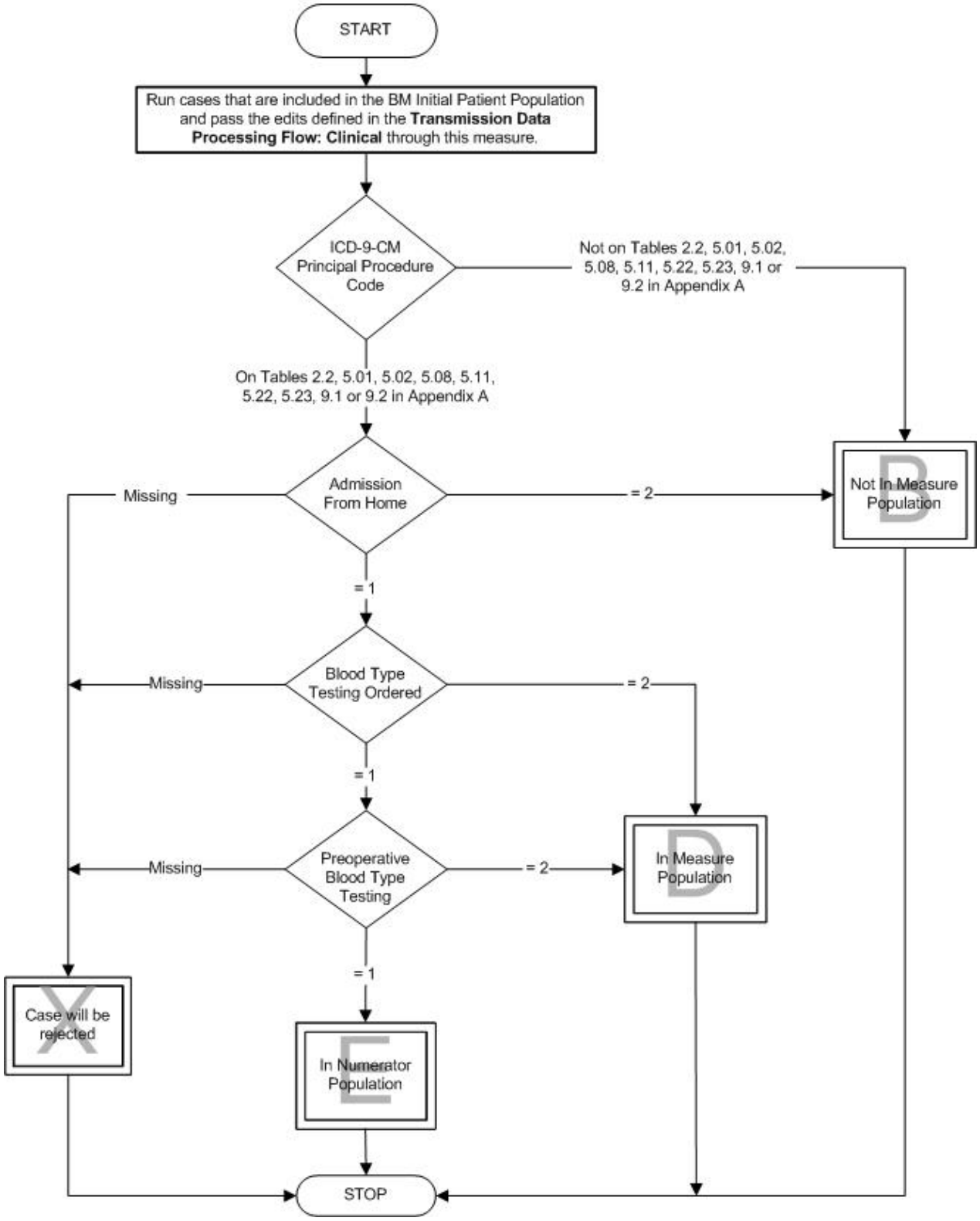
- Friedberg RC, Jones BA, Walsh MK. Type and screen completion for scheduled surgical procedures. A College of American Pathologists Q-Probes study of 8941 type and screen tests in 108 institutions. Arch Pathol Lab Med. 2003;127:533-40.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- Magovern JA, Sakert T, Magovern GJ et al. A model that predicts morbidity and mortality after coronary artery bypass graft surgery. J Am Coll Cardiol. 1996;28: 1147-1153.
- The Joint Commission 2010 National Patient Safety Goals, Oakbrook Terrace, IL [Available at http://www.jointcommission.org/NR/rdonlyres/868C9E07-037F-433D-8858-0D5FAA4322F2/0/RevisedChapter_HAP_NPSG_20090924.pdf (accessed January 27, 2010).]

Measure Algorithm:

PBM–07: Preoperative Blood Type Testing and Antibody Screening

Numerator: Patients with documentation of preoperative type and crossmatch or type and screen completed prior to Anesthesia Start Time

Denominator: Selected elective surgical patients



Related Topics

Data Element Name: *Admission From Home*

Collected For: PBM-06,

Definition: Patient was admitted for the pre-scheduled elective surgery procedure from home.

Suggested Data Collection Question: Was the patient admitted from home?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 Patient was admitted from home.

2 Patient was not admitted from home or unable to determine from medical record documentation.

Notes for Abstraction:

- Patients who have to stay overnight at a location other than their primary residence due to long distance travel for procedure are considered admitted from home.

Suggested Data Sources:

- Face sheet
- Nursing admission assessment
- Physician's notes
- Preop checklist

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Anesthesia Start Date*
Collected For:	PBM-06,
Definition:	The date the anesthesia for the procedure started.
Suggested Data Collection Question:	On what date did the anesthesia for the procedure start?
Format:	**Length:** 10 – MM-DD-YYYY (includes dashes) **Type:** Date **Occurs:** 1
Allowable Values:	MM-DD-YYYY MM = Month (01-12) DD = Day (01-31) YYYY = Year (2001-Current Year) Leave Blank if Unable to Determine
Notes for Abstraction:	If the Anesthesia Start Date cannot be determined from medical record documentation, enter UTD. When the date documented is obviously invalid (not a valid format/range [12-39-20xx] or after the Discharge Date or Anesthesia End Date) and no other documentation can be found that provides the correct information, the abstractor should select "UTD." Example: Patient expires on 02-12-20xx and documentation indicates the Anesthesia Start Date was 03-12-20xx. Other documentation in the medical record supports the date of death as being accurate, but no other documentation of the Anesthesia Start Date can be found. Since the Anesthesia Start Date is outside of the parameter for care (after the Discharge Date [death]) and no other documentation is found, the abstractor should leave blank. If the Anesthesia Start Date is incorrect (in error) but it is a valid date and the correct date can be supported with other documentation in the medical record, the correct date may be entered. If supporting documentation of the correct date cannot be found, the medical record must be abstracted as documented or at "face value." Examples: The anesthesia form is dated 12-10-2007, but other documentation in the medical record supports that the correct date was 12-10-2009. Enter the correct date of 12-10-2009 as the Anesthesia Start Date. An Anesthesia End Date of 11-20-20xx is documented but the Anesthesia Start Date is documented as 11-10-20xx. If no other documentation can be found to support another Anesthesia Start Date, then it must be abstracted as 11-10-20xx because the date is not considered invalid or outside the parameter of care.

Suggested Data Sources:

Other Suggested Sources:

- Intraoperative record
- Circulator record
- Post-anesthesia evaluation record
- Operating room notes

Additional Notes:

Suggested Data Sources:

Note: The anesthesia record is the priority data source for this data element, if a valid Anesthesia Start Date is found on the anesthesia record, use that date. If a valid date is not on the anesthesia record, other suggested data sources may be used in no particular order to determine the Anesthesia Start Date.

Priority Source:

- Anesthesia record

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Blood Administration Location*
Collected For:	PBM-02, PBM-03, PBM-04, PBM-05,
Definition:	The hospital setting (intraoperative or non-intraoperative) where the blood product began infusing.
Suggested Data Collection Question:	In what setting did the blood product begin infusing?
Format:	**Length:** 1 **Type:** Alphanumeric **Occurs:** 1-12

Allowable Values:

1 Intraoperative setting

2 Non-introperative setting

3 Unable to determine

Notes for Abstraction:

- Select setting for each unit transfused based on the physical location of the patient.
- Intraoperative setting is anytime during the operation.
- Non-intraoperative setting is any area outside of the operating room. For example, setting such as the intensive care unit, surgical floor or emergency room.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Nursing notes
- Nursing flow sheet
- Nursing admission assessment
- Progress notes
- Physician's notes
- Operative notes
- Operating room notes
- Operative report
- Procedure notes
- ICU notes
- PACU/recovery room record

Blood Administration Documentation Sheet

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Blood Bank Records*

Collected For: PBM-01, PBM-02, PBM-03, PBM-04, PBM-05,

Definition: Documentation that the patient received red blood cells (RBCs), plasma or platelets after hospital arrival.

Suggested Data Collection Question: Was there documentation that the patient received RBCs, plasma or platelets after hospital arrival?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1-12

Allowable Values:

Select all that apply: 1 RBCs

2 Plasma

3 Platelets

4 None of the above or unable to determine from medical record documentation

Notes for Abstraction:

- Include transfusions given in the emergency room or observation area.

Suggested Data Sources: Blood Bank Records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name: *Blood ID Number*

Collected For: PBM-05,

Definition: Documentation of the actual blood bank identification number in the intraoperative record for the unit that was transfused.

Suggested Data Collection Question: Was there documentation of a blood bank identification number for the unit or dose of blood transfused during surgery?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 There is documentation of a blood bank identification number for the unit that was transfused.

2 There is no documentation of a blood bank identification number for the unit that was transfused or unable to determine from medical record documentation.

Notes for Abstraction:

Suggested Data Sources:

- Anesthesia record
- Operative report

Blood administration record

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Blood Type Testing Ordered*

Collected For: PBM-07,

Definition: A type and screen and/or type and crossmatch was ordered preoperatively for the elective surgery.

Suggested Data Collection Question: Was a type and screen and/or type and crossmatch ordered preoperatively?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 A type and screen and/or type and crossmatch was ordered preoperatively.

2 A type and screen and/or type and crossmatch was not ordered preoperatively or unable to determine

Notes for Abstraction:

Suggested Data Sources:

- Physician orders
- Preop checklist

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for Plasma*

Collected For: PBM-03,

Definition: Documentation by the physician/advance practice nurse/physician assistant or (physician/APN/PA) of the clinical indication for the plasma transfusion unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused plasma unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused plasma unit.

2 There was no documentation of a clinical indication for the transfusion or unable to determine from the medical record.

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first four plasma transfusion units closest to hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING BLOOD:

- Anesthesia record
- Consultation notes
- Emergency department record
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for Platelets*

Collected For: PBM-04,

Definition: Documentation by the physician/advance practice nurse/physician assistant (physician/APN/PA) of the clinical indication for the transfused platelet unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused platelet unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused platelet unit.

2 There was no documentation of clinical indication for the platelet transfusion or unable to determine from the medical record

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first three units transfused after hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING PLASMA:

- Anesthesia record
- Consultation notes
- Emergency department record
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for RBCs*

Collected For: PBM-02,

Definition: Documentation by the physician/advance practice nurse/physician assistant (physician/APN/PA) of the clinical indication for the tranfused red blood cell (RBCs) unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused RBC unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 6

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused RBC unit.

2 There was no clinical indication documented by the physician/APN/PA for the transfused RBC unit or unable to determine from medical record documentation.

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first six RBC transfusion units after hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING RBCs:

- Anesthesia record
- Consultation notes
- Emergency department record
- Operative notes
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Education Addressed Risks, Benefits and Alternatives to Transfusion*
Collected For:	PBM-01,
Definition:	Documentation that information addressing risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion or the initial transfusion was deemed a medical emergency after hospital arrival.
Suggested Data Collection Question:	Was there documentation that information regarding risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion event or was the initial transfusion deemed a medical emergency after hospital arrival?
Format:	**Length:** 1 **Type:** Numeric **Occurs:** 1

Allowable Values:

1 Information addressing the risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion after hospital arrival.

2 Information addressing the risks, benefits and alternatives to transfusion was not given to the patient/caregiver prior to the initial transfusion after hospital arrival or unable to determine from medical record documentation.

Notes for Abstraction:

- Use only documentation provided in the medical record.
- If the patient refused information about risks, benefits and alternatives to transfusion, select “1.”
- The caregiver is defined as the patient’s family or any other person (e.g., guardian) who will be responsible for care of the patient.

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Nursing notes
- Progress notes
- Operative notes
- Admission forms
- Consent form
- Emergency department record
- Progress notes
- Nursing notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Patient ID Verification*

Collected For: PBM-05,

Definition: Documentation that two unique patient identifiers were checked during a two-person verification process (or the use of automated identification technology may be used in place of one of the individuals) prior to the administration of the transfusion unit/dose (bag).

Suggested Data Collection Question: Was there documentation that two unique patient identifiers were checked or automated identification was used in place of one person during the verification process prior to the administration of the blood transfusion unit/dose (bag)?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 12

Allowable Values:

1 There was documentation that two unique patient identifiers were checked during the two person verification process or an automated identification system was used in place of one of the individuals prior to the administration of the transfusion unit/dose (bag).

2 There was no documentation that two unique patient identifiers or automated identification were used during the two-person identification check prior to the administration of the transfusion unit/dose (bag) or unable to determine from medical record documentation.

Notes for Abstraction:

- *Patient ID Verification* must be associated with the blood product and RBC ID that was selected for abstraction.
- *Patient ID Verification* can be documented by the signature of two persons that attest that two unique patient identifiers were checked to verify the identification of the patient prior to the transfusion or the signature of one person and an automated identification device.
- Patient identifiers that could be used include; name, date of birth, patient identification number or unique identifier given at the time the crossmatch was drawn.
- The patient room number should not be used to identify the patient.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Nursing notes
- Progress notes
- Physician's notes
- Operative notes
- Operative report
- Procedure notes
- PACU/recovery room record

- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Plasma ID*

Collected For: PBM-03, PBM-05,

Definition: The number assigned to designate whether the plasma unit was the first, second or third unit transfused after hospital arrival.

Suggested Data Collection Question: What number was assigned to the plasma unit selected for abstraction?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 First Plasma Unit

2 Second Plasma Unit

3 Third Plasma Unit

Notes for Abstraction:

- The abstractor assigns a plasma identification (ID) number for each unit evaluated.
- Each allowable value is only used one time and is determined by the order in which it was administered.
- Abstract up to three plasma transfusion units per patient.
- Include plasma transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Platelet ID*

Collected For: PBM-04, PBM-05,

Definition: The number assigned to designate whether the platelet unit was the first, second or third unit that was transfused after hospital arrival.

Suggested Data Collection Question: What number was assigned to the platelet unit selected for abstraction?

Format:

Length: 2
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 First Platelet Unit

2 Second Platelet Unit

3 Third Platelet Unit

Notes for Abstraction:

- The abstractor assigns a platelet identification (ID) number for each unit evaluated.
- Each allowable value is only used one time and is determined by the order in which it was administered.
- Abstract up to three platelet units per patient
- Include platelet transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Hematocrit*

Collected For: PBM-02,

Definition: Documentation of the closest hematocrit (hct) completed prior to the RBC transfusion.

Suggested Data Collection Question: What was documented as the closest pre-transfusion hct prior to the RBC transfusion?

Format:

Length: 4
Type: Alphanumeric
Occurs: 1 - 6

Allowable Values:

Enter the patient's closest hematocrit result (number only, reported in percent) performed prior to each RBC transfusion.

UTD = Unable to Determine

- For abstraction, select either the pre-transfusion hematocrit or the hemoglobin result; both are not required.
- Select the result associated with the RBC ID selected for abstraction.
- When recording the allowable value for hematocrit, input 23.00 if the patient's hematocrit is 23%.

Notes for Abstraction:

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Hemoglobin*

Collected For: PBM-02,

Definition: Documentation of the closest hemoglobin (hgb) completed prior to the RBC transfusion.

Suggested Data Collection Question: What was documented as the closest pre-transfusion hgb prior to the RBC transfusion?

Format:

Length: 4
Type: Alphanumeric
Occurs: 1 - 6

Allowable Values:

Enter the patient's closest hemoglobin result reported in g/dL performed prior to transfusion.

UTD = Unable to Determine

- For abstraction, select either the pre-transfusion hematocrit or the hemoglobin result; both are not required.
- Select the hemoglobin result that is associated with the RBC ID selected for abstraction.
- If the hemoglobin result is 9.9 g/dL, enter 9.9.

Notes for Abstraction:

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion PT/INR Result*

Collected For: PBM-03,

Definition: Documentation of PT/INR result completed prior to the plasma transfusion.

Suggested Data Collection Question: What was the PT/INR result completed prior to the plasma transfusion.

Format:

Length: 1 - 5
Type: Alphanumeric
Occurs: 1 - 3

Allowable Values:

Enter the closest PT/INR result to the plasma transfusion.

UTD = Unable to determine

Notes for Abstraction:

- Enter the PT/INR result that is associated with the plasma ID selected for abstaction.
- An allowable value should be entered with one decimal. For example, a PT/INR of 1.5 should be entered as written. INR values over 10 should be entered as 10.00.

Suggested Data Sources:

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Platelet Count*

Collected For: PBM-04,

Definition: Documentation of the closest platelet count completed prior to the platelet transfusion.

Suggested Data Collection Question: What was the closest platelet count documented prior to the platelet transfusion?

Format:

Length: 1 - 5
Type: Alphanumeric
Occurs: 1 - 3

Allowable Values:

Enter the patient's closest platelet count result, in 10^9/µL performed prior to the platelet transfusion selected for abstraction.

UTD = Unable to Determine

Note:

- Select the platelet count result that is associated with the Platelet ID selected for abstraction.
- An allowable value for a platelet count result should be entered as '11.00' for a platelet count of 11,000.

Notes for Abstraction:

Suggested Data Sources:

- Anesthesia record
- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Preoperative Anemia Screening Date*

Collected For: PBM-06,

Definition: The date that preoperative anemia screening or a hemoglobin (hgb)or hematocrit (hct) result was completed.

Suggested Data Collection Question: What date was preoperative anemia screening or a hgb or hct result completed?

Format:

Length: 10 - MM-DD-YYYY (includes dashes)
Type: Date
Occurs: 1

Allowable Values:

MM-DD-YYYY

MM = Month (01-12)
DD = Day (01-31)
YYYY = Year (2001-Current Year)
UTD

Notes for Abstraction:

- Select the *Preoperative Anemia Screening Date* associated with the elective surgical procedure selected for abstraction.*Preoperative Transfusion Testing*.
- The medical record must be abstracted as documented (taken at "face value"). When the date documented is obviously in error (not a valid date/format) and no other documentation is found that provides this information, the abstractor should select UTD.
- Example: Documentation indicates the Preoperative Anemia Screening Date was 03-42-2008. No other documentation in the medical record provides a valid date. Since the Preoperative Anemia Screening Date is outside of the range listed in the Allowable Values for "Day," it is not a valid date, and the abstractor should select UTD.

Suggested Data Sources:

- Nursing notes
- Progress notes
- Preop checklist
- Pre-arrival laboratory reports

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Preoperative Blood Type Testing*

Collected For: PBM-07,

Definition: Documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time.

Suggested Data Collection Question: Was there documentation of a type and screen or type and crossmatch completed prior to anesthesia start time?

Format:

Length: 1
Type: Numeric
Occurs: 1

Allowable Values:

1 There is documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time.

2 There is no documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time or unable to determine from medical record documentation.

Notes for Abstraction:

- If type and screen and type and crossmatch were completed prior to the surgical procedure, select “1”.
- Anesthesia Start Time is the same as surgery start time.

Suggested Data Sources:

- Consultation notes
- History and physical
- Progress notes
- Preop checklist
- Pre-arrival laboratory reports

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *RBC ID*

Collected For: PBM-02, PBM-05,

Definition: The number assigned to designate whether the RBC transfusion was the first through the sixth RBC transfusion unit that was transfused after hospital arrival.

Suggested Data Collection Question: What RBC unit was selected for abstraction?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 6

Allowable Values:

1 First RBC Unit

2 Second RBC Unit

3 Third RBC Unit

4 Fourth RBC Unit

5 Fifth RBC Unit

6 Sixth RBC Unit

Notes for Abstraction:

- The abstractor assigns a RBC identification (ID) number for each unit evaluated.
- Each allowable value is used only one time and is determined by the order in which it was administered.
- Abstract up to six RBC transfusion units per patient.
- Include RBC transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Operative report
- Medication administration record (MAR)
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion

None	None

Data Element Name:	*RBC Unit Exclusions*
Collected For:	PBM-02, PBM-05,
Definition:	Red blood cell (RBC) units that are excluded from abstraction. The following RBC units excluded from abstraction are; units used for a massive transfusion protocol or documentation of hemorrhagic shock, uncrossmatched units given during an emergency situation and units used to prime equipment for treatment.
Suggested Data Collection Question:	Was this unit transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment?
Format:	**Length:** 1 **Type:** Alphanumeric **Occurs:** 1-6

Allowable Values:

1. There was documentation that this unit was transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment

1. There was no documentation that this unit was transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment or unable to determine from medical record documentation.

Notes for Abstraction:

- If the initial six units transfused are excluded due to the exclusion criteria, abstract the next six units that were tranfused. If the patient only received RBC units that are excluded, then no RBC units should be abstracted.

Suggested Data Sources:

- Anesthesia record
- Circulation record
- Emergency department record
- Laboratory report
- Nursing notes
- Nursing flow sheet
- Progress notes
- Physician orders
- Physician’s notes
- Operative notes
- Operating room notes
- Operative report
- Procedure notes
- ICU notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Surgery Scheduled Timeframe*

Collected For: PBM-06,

Definition: The elective surgery was scheduled in less than 14 days from the planned surgery start date.

Suggested Data Collection Question: Was the elective surgery scheduled in less than 14 days from the planned surgery?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 There was documentation that the elective surgery was scheduled in less than 14 days from the planned surgery.

2 There was no documentation that the elective surgery was scheduled in less than 14 days from the planned surgery or unable to determine from medical record documentation.

Notes for Abstraction:

Suggested Data Sources:

- Preop checklist

Preoperative paperwork

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Transfusion Consent*

Collected For: PBM-01,

Definition: Documentation of a signed consent **prior** to the first transfusion of RBCs, platelets or plasma.

Suggested Data Collection Question: Was there documentation of a signed consent **prior** to the first blood transfusion?

Format:

Length: 1
Type: Numeric
Occurs: 1

Allowable Values:

1 There was documentation of a signed consent prior to the first blood transfusion.

2 The first blood transfusion was deemed a medical emergency.

3 There was no documentation of a blood transfusion consent prior to the first blood transfusion or unable to determine from medical record documentation.

Notes for Abstraction:

- The consent may be signed by the patient or caregiver.
- If organizations require a consent prior to every transfusion, then review the record for the first transfusion to answer this data element.
- For hospitals that use a general consent for treatment that includes transfusions, select “Yes”.
- If a patient receives chronic transfusions and a previous consent is acceptable for a defined timeframe within the institution, select “1” if the consent is valid.

Suggested Data Sources:

- Emergency department record
- History and physical
- Nursing notes
- Progress notes
- Operative notes
- Consent form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Transfusion Order*

Collected For: PBM-05,

Definition: An order to transfuse was written by the physician/advance practice nurse/physician assistant (physician/APN/PA) **prior** to the initiation of the transfusion.

Suggested Data Collection Question: Was there documentation of an order to transfuse **prior** to the transfusion?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 12

Allowable Values:

1 There was documentation of an order to transfuse prior to transfusion.

2 There was no documentation of an order to transfuse prior to transfusion or unable to determine from medical record documentation.

Notes for Abstraction:

- A verbal or telephone order that was written prior to the transfusion is acceptable.
- The Transfusion Order must be associated with the blood product unit ID that was selected for abstraction.
- Note: Transfusion Order may apply to more than one unit/dose (bag). For example: An order written to "Transfuse two doses of platelets" would apply to both bags that were administered.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE ORDER TO TRANSFUSE:

- Anesthesia record
- Consultation notes
- Emergency department record
- Operative notes
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Transfusion Start Date*
Collected For:	PBM-05,
Definition:	The date that the blood transfusion unit/dose (bag) was administered.
Suggested Data Collection Question:	What is the date that the blood transfusion unit/dose (bag) was administered?
Format:	**Length:** 10 – MM-DD-YYYY (includes dashes) **Type:** Date **Occurs:** 1 - 12
Allowable Values:	MM-DD-YYYY MM = Month (01-12) DD = Day (01-31) YYYY = Year (2001-Current Year) UTD
Notes for Abstraction:	• Abstract the Transfusion Date associated with the Transfusion Start Time of the unit/dose (bag) from the blood product ID selected for abstraction. • Some of the dates of the transfusion units may be the same date. Record a transfusion date for each unit abstracted up to three units for plasma or platelets or up to six units for RBCs. • The medical record must be abstracted as documented (taken at "face value"). When the date documented is obviously in error (not a valid date/format) and no other documentation is found that provides this information, the abstractor should select UTD. Example: Documentation indicates the Transfusion Start Date was 03-42-2008. No other documentation in the medical record provides a valid date. Since the Transfusion Start Date is outside of the range listed in the Allowable Values for "Day," it is not a valid date and the abstractor should select UTD.
Suggested Data Sources:	• Anesthesia record • Emergency department record • Nursing notes • Progress notes • Operative notes • Blood administration record
Additional Notes:	

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Transfusion Start Time*
Collected For:	PBM-05,
Definition:	The start time (military time) of the unit/dose (bag) of RBCs, plasma or platelets that was administered.
Suggested Data Collection Question:	What was the start time of the blood unit/dose (bag) administration?
Format:	**Length:** 5 - HH:MM (with or without colon) or UTD **Type:** Time **Occurs:** 1 - 12

Allowable Values:

Select the Transfusion Start Time associated with the Transfusion Start Date of the unit/dose (bag) from the associated blood product ID being abstracted.

HH = Hour (00-23)
MM = Minutes (00-59)
UTD = Unable to Determine

Notes for Abstraction:

Time must be recorded in military time format. With the exception of Midnight and Noon:

- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour

Examples:
Midnight - 00:00 Noon - 12:00
5:31 am - 05:31 5:31pm - 17:31
11:59 am - 11:59 11:59pm - 23:59

- For times that include “seconds,” remove the seconds and record the time as is. Example: 15:00:35 would be recorded as 15:00
- If more than one Transfusion Start Time is documented, use the earliest time documented.
- The medical record must be abstracted as documented (taken at “face value”). When the time documented is obviously in error (not a valid format/range) and no other documentation is found that provides this information, the abstractor should select “UTD.”
- Example: Documentation indicates the Transfusion Start Time was 3300. Since the Transfusion Start Time is outside of the range in the Allowable Values for “Hour,” it is not a valid time and the abstractor should select “UTD.”

Suggested Data Sources:

- Anesthesia record

- Emergency department record
- Nursing notes
- Operative notes
- Operative report
- Blood administration form

Additional Notes:

Select the Transfusion Start Time associated with the Transfusion Start Date of the unit/dose (bag) from the blood product ID identified for abstraction.

Time must be recorded in military time format.
With the exception of Midnight and Noon:

- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour.

The medical record must be abstracted as documented (taken at "face value"). When the time documented is obviously in error (not a valid format/range) and no other documentation is found that provides this information, the abstractor should select "UTD."

Example:
Documentation indicates the Transfusion Start Time was 3300. Since the Transfusion Start Time is outside of the range in the Allowable Values for "Hour," it is not a valid time and the abstractor should select "UTD."

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Vital Sign Monitoring*
Collected For:	PBM-05,
Definition:	Documentation of blood pressure (BP), pulse and temperature monitored at specific intervals for the transfusion. The intervals are: • Pre-transfusion, within 15 minutes of the initiation of the transfusion and within one hour of transfusion completion
Suggested Data Collection Question:	Was there documentation of BP and temperature monitored for all of the specified intervals for the transfusion?
Format:	**Length:** 2 **Type:** Numeric **Occurs:** 1 -12
Allowable Values:	**1** There was documentation for all of the BP, pulse and temperature monitoring intervals for the transfusion. **2** There was no documentation for all of the blood pressure, pulse and temperature monitoring intervals for the transfusion or unable to determine from medical record documentation.
Notes for Abstraction:	• All vital signs must be recorded at the following times: pre-transfusion, within 15 minutes of the initiation of the transfusion and within one hour of transfusion completion. To select "1", all recordings must be documented. • The pre-transfusion BP, pulse and temperature must be within one hour of the Transfusion Start Time. Vitals documented at the start of the transfusion are considered “within one hour of transfusion initiation". • For blood that may be transfused within 15 minutes, select "1" if the pre-transfusion and the within one hour of transfusion completion vitals are documented. • Vitals documented at the completion of the transfusion are considered “within one hour of transfusion completion". • The "unit" or "dose" information for the Vital Sign Monitoring data element must be associated with the blood product ID that was selected for abstraction.
Suggested Data Sources:	• Anesthesia record • Consultation notes • Emergency department record • Nursing notes • Progress notes • Operative notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 2.2 Left Ventricular Assistive Device (LVAD) and Heart Transplant		
Code	ICD-9-CM Description	Shortened Description
33.6	Combined heart-lung transplantation	COMB HEART/LUNG TRANSPLA
37.51	Heart transplantation	HEART TRANSPLANTATION
37.52	Implantation of total replacement heart system	IMPLANT TOT REP HRT SYS
37.53	Replacement or repair of thoracic unit of total replacement heart system	REPL/REP THORAC UNIT HRT
37.54	Replacement or repair of other implantable component of total replacement heart system	REPL/REP OTH TOT HRT SYS
37.62	Insertion of non-implantable heart assist system	INS NON-IMPL HRT ASSIST
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of heart assist system	REMOVE HEART ASSIST SYS
37.65	Implant of external heart assist system	IMP EXT HRT ASSIST SYST
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.68	Insertion of percutaneous external heart assist device	PERCUTAN HRT ASSIST SYST

Table 5.01 Coronary Artery Bypass Graft (CABG)		
Code	ICD-9-CM Description	Shortened Description
36.10	Aortocoronary bypass for heart revascularization, not otherwise specified	AORTOCORONARY BYPASS NOS
36.11	(Aorto)coronary bypass of one coronary artery	(AORTO)COR BYPAS-1 COR ART
36.12	(Aorto)coronary bypass of two coronary arteries	(AORTO)COR BYPAS-2 COR ART
36.13	(Aorto)coronary bypass of three coronary arteries	(AORTO)COR BYPAS-3 COR ART
36.14	(Aorto)coronary bypass of four coronary arteries	(AORT)COR BYPAS-4+ COR ART
36.15	Single internal mammary-coronary artery bypass	1 INT MAM-COR ART BYPASS
36.16	Double internal mammary-coronary artery bypass	2 INT MAM-COR ART BYPASS
36.17	Abdominal-coronary artery bypass	ABD-CORON ARTERY BYPASS
36.19	Other bypass anastomosis for heart revascularization	HRT REVAS BYPS ANAS NEC

Table 5.02 Other Cardiac Surgery		
Code	ICD-9-CM Description	Shortened Description
35.10	Open heart valvuloplasty, without replacement, unspecified valve	OPEN VALVULOPLASTY NOS
35.11	Open heart valvuloplasty of aortic valve without replacement	OPN AORTIC VALVULOPLASTY
35.12	Open heart valvuloplasty of mitral valve without replacement	OPN MITRAL VALVULOPLASTY
35.13	Open heart valvuloplasty of pulmonary valve without replacement	OPN PULMON VALVULOPLASTY
35.14	Open heart valvuloplasty of tricuspid valve without	OPN TRICUS

	replacement	VALVULOPLASTY
35.20	Replacement of unspecified heart valve	REPLACE HEART VALVE NOS
35.21	Replacement of aortic valve with tissue graft	REPLACE AORT VALV-TISSUE
35.22	Other replacement of aortic valve	REPLACE AORTIC VALVE NEC
35.23	Replacement of mitral valve with tissue graft	REPLACE MITR VALV-TISSUE
35.24	Other replacement of mitral valve	REPLACE MITRAL VALVE NEC
35.25	Replacement of pulmonary valve with tissue graft	REPLACE PULM VALV-TISSUE
35.26	Other replacement of pulmonary valve	REPLACE PULMON VALVE NEC
35.27	Replacement of tricuspid valve with tissue graft	REPLACE TRIC VALV-TISSUE
35.28	Other replacement of tricuspid valve	REPLACE TRICUSP VALV NEC
35.31	Operations on papillary muscle	PAPILLARY MUSCLE OPS
35.32	Operations on chordae tendineae	CHORDAE TENDINEAE OPS
35.33	Annuloplasty	ANNULOPLASTY
35.34	Infundibulectomy	INFUNDIBULECTOMY
35.35	Operations on trabeculae carneae cordis	TRABECUL CARNEAE CORD OP
35.39	Operations on other structures adjacent to valves of heart	TISS ADJ TO VALV OPS NEC
35.42	Creation of septal defect in heart	CREATE SEPTAL DEFECT
35.50	Repair of unspecified septal defect of heart with prosthesis	PROSTH REP HRT SEPTA NOS
35.51	Repair of atrial septal defect with prosthesis, open technique	PROS REP ATRIAL DEF-OPN
35.53	Repair of ventricular septal defect with prosthesis, open technique	PROS REP VENTRIC DEF-OPN
35.54	Repair of endocardial defect with prosthesis	PROS REP ENDOCAR CUSHION
35.60	Repair of unspecified septal defect with tissue graft	GRFT REPAIR HRT SEPT NOS
35.61	Repair of atrial septal defect with tissue graft	GRAFT REPAIR ATRIAL DEF
35.62	Repair of ventricular septal defect with tissue graft	GRAFT REPAIR VENTRIC DEF
35.63	Repair of endocardial cushion defect with tissue graft	GRFT REP ENDOCAR CUSHION
35.70	Other and unspecified repair of unspecified septal defect of heart	HEART SEPTA REPAIR NOS
35.72	Other and unspecified repair of ventricular septal defect	VENTR SEPTA DEF REP NEC
35.73	Other and unspecified repair of endocardial cushion defect	ENDOCAR CUSHION REP NEC
35.81	Total repair of tetralogy of Fallot	TOT REPAIR TETRAL FALLOT
35.82	Total repair of total anomalous pulmonary venous connection	TOTAL REPAIR OF TAPVC
35.83	Total repair of truncus arteriosus	TOT REP TRUNCUS ARTERIOS
35.84	Total correction of transposition of great vessels, not elsewhere classified	TOT COR TRANSPOS GRT VES
35.91	Interatrial transposition of venous return	INTERAT VEN RETRN TRANSP

35.92	Creation of conduit between right ventricle and pulmonary artery	CONDUIT RT VENT-PUL ART
35.93	Creation of conduit between left ventricle and aorta	CONDUIT LEFT VENTR-AORTA
35.94	Creation of conduit between atrium and pulmonary artery	CONDUIT ARTIUM-PULM ART
35.98	Other operations on septa of heart	OTHER HEART SEPTA OPS
35.99	Other operations on valves of heart	OTHER HEART VALVE OPS

Table 5.08 Vascular Surgery

Code	ICD-9-CM Description	Shortened Description
38.14	Endarterectomy, aorta	ENDARTERECTOMY OF AORTA
38.16	Endarterectomy, abdominal arteries	ABDOMINAL ENDARTERECTOMY
38.18	Endarterectomy, lower limb arteries	LOWER LIMB ENDARTEREC T
38.34	Resection of vessel with anastomosis, aorta	AORTA RESECTION & ANAST
38.36	Resection of vessel with anastomosis, abdominal arteries	ABD VESSEL RESECT/ANAST
38.37	Resection of vessel with anastomosis, abdominal veins	ABD VEIN RESECT & ANAST
38.44	Resection of vessel with replacement, aorta, abdominal	RESECT ABDM
38.48	Resection of vessel with replacement, lower limb arteries	LEG ARTERY RESEC W REPLA
38.49	Resection of vessel with replacement, lower limb veins	LEG VEIN RESECT W REPLAC
38.64	Other excision of vessels, aorta, abdominal	EXCISION OF AORTA
39.25	Aorta-iliac-femoral bypass	AORTA-ILIAC-FEMOR BYPASS
39.26	Other intra-abdominal vascular shunt or bypass	INTRA-ABDOMIN SHUNT NEC
39.29	Other (peripheral) vascular shunt or bypass	VASC SHUNT & BYPASS NEC

Table 5.11 Cardiac Surgery

Code	ICD-9-CM Description	Shortened Description
35.10	Open heart valvuloplasty without replacement, unspecified valve	OPEN VALVULOPLASTY NOS
35.11	Open heart valvuloplasty of aortic valve without replacement	OPN AORTIC VALVULOPLASTY
35.12	Open heart valvuloplasty of mitral valve without replacement	OPNMITRAL VALVULOPLASTY
35.13	Open heart valvuloplasty of pulmonary valve without replacement	OPN PULMON VALVULOPLASTY
35.14	Open heart valvuloplasty of tricuspid valve without replacement	OPN TRICUS VALVULOPLASTY
35.20	Replacement of unspecified heart valve	REPLACE HEART VALVE NOS
35.21	Replacement of aortic valve with tissue graft	REPLACE AORT VALVE-TISSUE
35.22	Other replacement of aortic valve	REPLACE AORT VALVE NEC

35.23	Replacement of mitral valve with tissue graft	REPLACE MITR VALVE-TISSUE
35.24	Other replacement of mitral valve	REPLACE MITRAL VALVE NEC
35.25	Replacement of pulmonary valve with tissue graft	REPLACE PULM VALV-TISSUE
35.26	Other replacement of pulmonary valve	REPLACE PULMON VALVE NEC
35.27	Replacement of tricuspid valve with tissue graft	REPLACE TRICUSP VALV NEC
35.28	Other replacement of tricuspid valve	REPLACE TRICUSP VALV NEC
35.31	Operations on papillary muscle	PAPILLARY MUSCLE OPS
35.32	Operations on chordae tendineae	CHORDAE TENDINEAE OPS
35.33	Annuloplasty	ANNULOPLASTY
35.34	Infundibulectomy	INFUNDIBULECTOMY
35.35	Operations of trabeculae carneae cordis	TRABECUL CARNEAE CORD OP
35.39	Operations on other structures adjacent to valves of heart	TISS ADJ TO VALV OPS NEC
35.42	Creation of septal defect in heart	CREATE SEPTAL DEFECT
35.50	Repair of unspecified septal defect of heart with prosthesis	PROSTH REP HRT SEPTA NOS
35.51	Repair of atrial septal defect with prosthesis, open technique	PROS REP ATRIAL DEF-OPN
35.53	Repair of ventricular septal defect with prosthesis, open technique	PROS REP VENTRIC DEF-OPN
35.54	Repair of endocardial cushion defect with prosthesis	PROS REP ENDOCAR CUSHION
35.60	Repair of unspecified septal defect of heart with tissue graft	GRFT REPAIR HRT SEPT NOS
35.61	Repair of atrial septal defect with tissue graft	GRAFT REPAIR ATRIAL DEF
35.62	Repair of ventricular septal defect with tissue graft	GRAFT REPAIR VENTRIC DEF
35.63	Repair of endocardial cushion defect with tissue graft	GRFT REP ENDOCAR CUSHION
35.70	Other and unspecified repair of unspecified septal defect of heart	HEART SEPTA REPAIR NOS
35.71	Other and unspecified repair of atrial septal defect	ATRIA SEPTA DEF REP NEC
35.72	Other and unspecified repair of ventricular septal defect	VENTR SEPTA DEF REP NEC
35.73	Other and unspecified repair of endocardial cushion defect	ENDOCAR CUSHION REP NEC
35.81	Total repair of tetralogy of Fallot	TOT REPAIR TETRAL FALLOT
35.82	Total repair of total anomalous pulmonary venous connection	TOTAL REPAIR OF TAPVC
35.83	Total repair of truncus arteriosus	TOT REP TRUNCUS ARTERIOS

Table 5.11 Cardiac Surgery (cont.)		
Code	ICD-9-CM Description	Shortened Description

35.84	Total connection of transposition of great vessels, not elsewhere classified	TOT COR TRANSPOS GRT VES
35.91	Interatrial transposition of venous return	INTERAT VEN RETRN TRANSP
35.92	Creation of conduit between right ventricle and pulmonary artery	CONDUIT RT VENT-PUL ART
35.93	Creation of conduit between left ventricle and aorta	CONDUIT LEFT VENTR-AORTA
35.94	Creation of conduit between atrium and pulmonary artery	CONDUIT ARTIUM-PULM ART
35.98	Other operations on septa of heart	OTHER HEART SEPTA OPS
35.99	Other operations on valves of heart	OTHER HEART VALVE OPS
36.03	Open chest coronary artery angioplasty	OPEN CORONRY ANGIOPLASTY
36.10	Aortocoronary bypass for heart revascularization, not otherwise specified	AORTOCORONARY BYPASS NOS
36.11	Aortocoronary bypass of one coronary artery	AORTOCOR BYPASS-1 COR ART
36.12	Aortocoronary bypass of two coronary arteries	AORTOCOR BYPASS-2 COR ART
36.13	Aortocoronary bypass of three coronary arteries	AORTOCOR BYPASS-3 COR ART
36.14	Aortocoronary bypass of four or more coronary arteries	AORTOCOR BYPASS-4+ COR ART
36.15	Single internal mammary-coronary artery bypass	1 INT MAM-COR ART BYPASS
36.16	Double internal mammary-coronary artery bypass	2 INT MAM-COR ART BYPASS
36.17	Abdominal-coronary artery bypass	ABD-CORON ARTERY BYPASS
36.19	Other bypass anastomosis for heart revascularization	HRT REVAS BYPS ANAS NEC
36.31	Open chest transmyocardial revascularization	OPEN CHEST TRANS REVASC
36.32	Other transmyocardial revascularization	OTH TRANSMYO REVASCULAR
36.39	Other heart revascularization	OTH REVASCULAR
36.91	Repair of aneurysm of coronary vessel	CORON VESS ANEURYSM REP
36.99	Other operations on vessels of heart	HEART VESSEL OP NEC
37.10	Incision of heart, not otherwise specified	INCISION OF HEART NOS
37.11	Cardiotomy	CARDIOTOMY
37.31	Pericardiectomy	PERICARDIECTOMY
37.32	Excision of aneurysm of heart	HEART ANEURYSM EXCISION
37.33	Excision or destruction of other lesion or tissue of heart, open approach	EXC/DEST HRT LESION OPEN
37.35	Partial ventriculectomy	PARTIAL VENTRICULECTOMY
37.41	Implantation of prosthetic cardiac support device around the heart	IMPL CARDIAC SUPPORT DEV
37.49	Other repair of heart and pericardium	HEART/PERICARD REPR NEC
37.51	Heart transplantation	HEART TRANSPLANTATION

37.52	Implantation of total replacement heart system	IMPLANT TOT REP HRT SYS
37.53	Replacement or repair of thoracic unit of total replacement heart system	REPL/REP THORAC UNIT HRT
37.54	Replacement or repair of other implants component of total replacement heart system	REPL/REP OTH TOT HRT SYS
37.62	Insertion of non-implantable heart assist system	INS NON-IMPL HRT ASSIST
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of heart assist system	REMOVE HEART ASSIST SYS
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.67	Implantation of cardiomyostimulation system	IMP CARDIOMYOSTIMUL SYS

Table 5.22 Elective Hip Replacement

Code	ICD-9-CM Description	Shortened Description
00.70	Revision of hip replacement, both acetabular and femoral components	REV HIP REPL-ACETAB/FEM
00.71	Revision of hip replacement, acetabular component	REV HIP REPL-ACETAB COMP
00.72	Revision of hip replacement, femoral component	REV HIP REPL-FEM COMP
00.73	Revision of hip replacement, acetabular liner and/or femoral head only	REV HIP REPL-LINER/HEAD
00.77	Hip bearing surface, ceramic-on-polyethylene	HIP SURFACE, CERMC/POLY
00.85	Resurfacing hip, total, acetabulum and femoral head	RESRF HIP,TOTAL-ACET/FEM
00.86	Resurfacing hip, partial, femoral head	RESRF HIP,PART-FEM HEAD
00.87	Resurfacing hip, partial, acetabulum	RESRF HIP,PART-ACETABLUM
81.51	Total hip replacement	TOTAL HIP REPLACEMENT
81.52	Partial hip replacement	PARTIAL HIP REPLACEMENT
81.53	Revision of hip replacement	REVISE HIP REPLACEMENT

Table 5.23 Elective Total Knee Replacement

Code	ICD-9-CM Description	Shortened Description
00.80	Revision of knee replacement, total (all components)	REV KNEE REPLACEMT-TOTAL
00.81	Revision of knee replacement, tibial component	REV KNEE REPL-TIBIA COMP
00.82	Revision of knee replacement, femoral component	REV KNEE REPL-FEMUR COMP
00.83	Revision of knee replacement, patellar component	REV KNEE REPLACE-PATELLA
00.84	Revision of total knee replacement, tibial insert (liner)	REV KNEE REPL-TIBIA LIN
81.54	Total knee replacement	TOTAL KNEE REPLACEMENT
81.55	Revision of knee replacement	REVISE KNEE REPLACEMENT

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 9.1 Elective Cardiac Surgery (Selected Codes from Table 5.25)		
Code	ICD-9-CM Description	Shortened Description
35.71	Other and unspecified repair of atrial septal defect	ATRIA SEPTA DEF REP NEC
36.03	Open chest coronary artery angioplasty	OPEN CORONRY ANGIOPLASTY
36.31	Open chest transmyocardial revascularization	OPEN CHEST TRANS REVASC
36.32	Other transmyocardial revascularization	OTH TRANSMYO REVASCULAR
36.39	Other heart revascularization	OTH HEART REVASCULAR
36.91	Repair of aneurysm of coronary vessel	CORON VESS ANEURYSM REP
36.99	Other operations on vessels of heart	HEART VESSEL OP NEC
37.10	Incision of heart, not otherwise specified	INCISION OF HEART NOS
37.11	Cardiotomy	CARDIOTOMY
37.32	Excision of aneurysm of heart	HEART ANEURYSM EXCISION
37.33	Excision or destruction of other lesion or tissue of heart, open approach	EXC/DEST HRT LESION OPEN
37.35	Partial ventriculectomy	PARTIAL VENTRICULECTOMY
37.36	Excision or destruction of left atrial appendage (LAA)	EXC LEFT ATRIAL APPENDAG
37.41	Implantation of prosthetic cardiac support device around the heart	IMPL CARDIAC SUPPORT DEV
37.49	Other repair of heart and pericardium	HEART/PERICARD REPR NEC
37.51	Heart transplantation	HEART TRANSPLANTATION
37.52	Implantation of total internal biventricular heart replacement system	IMP TOT INT BI HT RP SYS
37.53	Replacement or repair of thoracic unit of (total) replacement heart system	REPL/REP THR UNT TOT HRT
37.54	Replacement or repair of other implantable component of (total) replacement heart system	REPL/REP OTH TOT HRT SYS
37.55	Removal of internal biventricular heart replacement system	REM INT BIVENT HRT SYS
37.60	Implantation or insertion of biventricular external heart assist system	IMP BIVN EXT HRT AST SYS
37.62	Insertion of temporary non-implantable extracorporeal circulatory assist device	INSRT NON-IMPL CIRC DEV
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of external heart assist system(s) or device(s)	REMVE EXT HRT ASSIST SYS
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.67	Implantation of cardiomyostimulation system	IMP CARDIOMYOSTIMUL SYS

Table 9.2 Elective Gynecological		
Code	ICD-9-CM Description	Shortened Description
68.31	Other incision and excision of uterus, subtotal abdominal hysterectomy, other incision and excision of uterus, laparoscopic supracervical hysterectomy [LSH]	Lap scervic hysterectomy
68.39	Other incision and excision of uterus, subtotal abdominal hysterectomy, other incision and excision of uterus, other and unspecified subtotal	Subtotl abd hyst NEC/NOS

	abdominal hysterectomy	
68.41	Other incision and excision of uterus, total abdominal hysterectomy, laparoscopic total abdominal hysterectomy	Lap total abdominal hyst
68.49	Other incision and excision of uterus, total abdominal hysterectomy, other and unspecified total abdominal hysterectomy	Total abd hyst NEC/NOS
68.51	Vaginal hysterectomy, laparoscopically assisted vaginal hysterectomy [LAVH]	Lap ast vag hysterectomy
68.59	Vaginal hysterectomy, other and unspecified vaginal hysterectomy	Vag hysterectomy NEC/NOS
68.61	Radical abdominal hysterectomy, laparoscopic radical abdominal hysterectomy	Lap radical abdomnl hyst
68.69	Radical abdominal hysterectomy, other and unspecified radical abdominal hysterectomy	Radical abd hyst NEC/NOS
68.71	Radical vaginal hysterectomy, laparoscopic radical vaginal hysterectomy [LRVH]	Lap radical vaginal hyst
68.79	Radical vaginal hysterectomy, other and unspecified radical vaginal hysterectomy	Radical vag hyst NEC/NOS
68.9	Other and unspecified hysterectomy	Hysterectomy NEC/NOS

Table 9.3 Previously Donated Autologous Transfusion

Code	ICD-9-CM Description	Shortened Description
99.02	Other nonoperative procedures, transfusion of blood and blood components, transfusion of previously collected autologous blood	TRANSFUS PREV AUTO BLOOD

Table 9.4 Packed Red Blood Cell Transfusion

Code	ICD-9-CM Description	Shortened Description
99.04	Other nonoperative procedures, transfusion of blood and blood components, transfusion of packed cells	PACKED CELL TRANSFUSION

Table 9.5 Platelet Transfusion

Code	ICD-9-CM Description	Shortened Description
99.05	Other nonoperative procedures, transfusion of blood and blood components, transfusion of platelets	PLATELET TRANSFUSION

Table 9.6 Plasma Transfusion

Code	ICD-9-CM Description	Shortened Description
99.07	Other nonoperative procedures, transfusion of blood and blood components, transfusion of other serum	SERUM TRANSFUSION NEC

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 9.7 Trauma		
Code	ICD-9-CM Description	Shortened Description
800	Fracture of vault of skull	CLOSED SKULL VAULT FX
801	Fracture of base of skull	CLOS SKULL BASE FRACTURE
802	Fracture of face bones	NASAL BONE FX-CLOSED
803	Other and unqualified skull fractures	CLOSE SKULL FRACTURE NEC
804	Multiple fractures involving skull or face with other bones	CL SKUL FX W OTH BONE FX
805	Fracture of vertebral column without mention of spinal cord injury	FX CERVICAL VERT NOS-CL
806	Fracture of vertebral column with spinal cord injury	C1-C4 FX-CL/CORD INJ NOS
807	Fracture of rib(s), sternum, larynx, and trachea	FRACTURE RIB NOS-CLOSED
808	Fracture of pelvis	FRACTURE ACETABULUM-CLOS
809	III-defined fractures of bones of trunk	FRACTURE TRUNK BONE-CLOS
810	Fracture of clavicle	FX CLAVICLE NOS-CLOSED
811	Fracture of scapula	FX SCAPULA NOS-CLOSED
812	Fracture of humerus	FX UP END HUMERUS NOS-CL
813	Fracture of radius and ulna	FX UPPER FOREARM NOS-CL
814	Fracture of carpal bones(s)	FX CARPAL BONE NOS-CLOSE
815	Fracture of metacarpal bones(s)	FX METACARPAL NOS-CLOSED
816	Fracture of one or more phalanges of hands	FX PHALANX, HAND NOS-CL
817	Multiple fractures of hand bones	MULTIPLE FX HAND-CLOSED
818	III-defined fractures of upper limb	FX ARM MULT/NOS-CLOSED
819	Multiple fractures involving both upper limbs, and upper limb with rib(s) and sternum	FX ARMS W RIB/STERNUM-CL
820	Fracture of neck of femur	FX FEMUR INTRCAPS NOS-CL
821	Fracture of other and unspecified parts of femur	FX FEMUR NOS-CLOSED
822	Fracture of patella	FRACTURE PATELLA-CLOSED
823	Fracture of tibia and fibula	FX UPPER END TIBIA-CLOSE
824	Fracture of ankle	FX MEDIAL MALLEOLUS-CLOS
825	Fracture of one or more tarsal and metatarsal bones	FRACTURE CALCANEUS-CLOSE
826	Fracture of one or more phalanges of foot	FX PHALANX, FOOT-CLOSED
827	Other, multiple, and ill-defined fractures of lower limb	FX LOWER LIMB NEC-CLOSED
828	Multiple fractures involving both lower limbs, lower with upper limb, and lower limb(s) with rib(s) and sternum	FX LEGS W ARM/RIB-CLOSED
829	Fracture of unspecified bones	FRACTURE NOS-CLOSED
830	Dislocation of jaw	DISLOCATION JAW-CLOSED
831	Dislocation of shoulder	DISLOC SHOULDER NOS-

		CLOS
832	Dislocation of elbow	DISLOCAT ELBOW NOS-CLOSE
833	Dislocation of wrist	DISLOC WRIST NOS-CLOSED
834	Dislocation of finger	DISL FINGER NOS-CLOSED
835	Dislocation of hip	DISLOCAT HIP NOS-CLOSED
836	Dislocation of knee	TEAR MED MENISC KNEE-CUR
837	Dislocation of ankle	DISLOCATION ANKLE-CLOSED
838	Dislocation of foot	DISLOCAT FOOT NOS-CLOSED
839	Other, multiple, and ill-defined dislocations	DISLOC CERV VERT NOS-CL
840	Sprains and strains of shoulder and upper arm	SPRAIN ACROMIOCLAVICULAR
841	Sprains and strains of elbow and forearm	SPRAIN RADIAL COLLAT LIG
842	Sprains and strains of wrist and hand	SPRAIN OF WRIST NOS
843	Sprains and strains of hip and thigh	SPRAIN ILIOFEMORAL
844	Sprains and strains of knee and leg	SPRAIN LATERAL COLL LIG
845	Sprains and strains of ankle and foot	SPRAIN OF ANKLE NOS
846	Sprains and strains of sacroiliac region	SPRAIN LUMBOSACRAL
847	Sprains and strains of other and unspecified parts of back	SPRAIN OF NECK
848	Other and ill-defined sprains and strains	SPRAIN OF NASAL SEPTUM
850	Concussion	CONCUSSION W/O COMA
851	Cerebral laceration and contusion	CEREBRAL CORTX CONTUSION
852	Subarachnoid, subdural, and extradural hemorrhage, following injury	TRAUM SUBARACHNOID HEM
853	Other and unspecified intracranial hemorrhage following injury	TRAUMATIC BRAIN HEM NEC
854	Intracranial injury of other and unspecified nature	BRAIN INJURY NEC
860	Traumatic pneumothorax and hemothorax	TRAUM PNEUMOTHORAX-CLOSE
861	Injury to heart and lung	HEART INJURY NOS-CLOSED
862	Injury to other and unspecified intrathoracic organs	DIAPHRAGM INJURY-CLOSED
863	Injury to gastrointestinal tract	STOMACH INJURY-CLOSED
864	Injury to liver	LIVER INJURY NOS-CLOSED
865	Injury to spleen	SPLEEN INJURY NOS-CLOSED
866	Injury to kidney	KIDNEY INJURY NOS-CLOSED
867	Injury to pelvic organs	BLADDER/URETHRA INJ-CLOS
868	Injury to other intra-abdominal organs	INTRA-ABDOM INJ NOS-CLOS
869	Internal injury to unspecified or ill-defined organs	INTERNAL INJ NOS-CLOSED
870	Open wound of ocular adnexa	LAC EYELID SKN/PERIOCULR
871	Open wound of eyeball	OCULAR LAC W/O PROLAPSE
872	Open wound of ear	OPN WOUND EXTERN EAR

		NOS
873	Other open wound of head	OPEN WOUND OF SCALP
874	Open wound of neck	OPN WND LARYNX W TRACHEA
875	Open wound of chest (wall)	OPEN WOUND OF CHEST
876	Open wound of back	OPEN WOUND OF BACK
877	Open wound of buttock	OPEN WOUND OF BUTTOCK
878	Open wound of genital organs (external), including traumatic amputation	OPEN WOUND OF PENIS
879	Open wound of other and unspecified sites, except limbs	OPEN WOUND OF BREAST
880	Open wound of shoulder and upper arm	OPEN WOUND OF SHOULDER
881	Open would of elbow, forearm, and wrist	OPEN WOUND OF FOREARM
882	Open wound of hand except finger(s) alone	OPEN WOUND OF HAND
883	Open wound of finger(s)	OPEN WOUND OF FINGER
884	Multiple and unspecified open wound of upper limb	OPEN WOUND ARM MULT/NOS
885	Traumatic amputation of thumb (complete) (partial)	AMPUTATION THUMB
886	Traumatic amputation of other finger(s) (complete) (partial)	AMPUTATION FINGER
887	Traumatic amputation of arm and hand (complete) (partial)	AMPUT BELOW ELB, UNILAT
890	Open wound of hip and thigh	OPEN WOUND OF HIP/THIGH
891	Open wound of knee, leg [except thigh], and ankle	OPEN WND KNEE/LEG/ANKLE
892	Open wound of foot except toe(s) alone	OPEN WOUND OF FOOT
893	Open wound of toe(s)	OPEN WOUND OF TOE
894	Multiple and unspecified open wound of lower limb	OPEN WOUND OF LEG NEC
895	Traumatic amputation of toe(s) (complete) (partial)	AMPUTATION TOE
896	Traumatic amputation of foot (complete) (partial)	AMPUTATION FOOT, UNILAT
897	Traumatic amputation of leg(s) (complete) (partial)	AMPUT BELOW KNEE, UNILAT
900	Injury to blood vessels of head and neck	INJUR CAROTID ARTERY NOS
901	Injury to blood vessels of thorax	INJURY THORACIC AORTA
902	Injury to blood vessels of abdomen and pelvis	INJURY ABDOMINAL AORTA
903	Injury to blood vessels of upper extremity	INJ AXILLARY VESSEL NOS
904	Injury to blood vessels of lower extremity and unspecified sites	INJ COMMON FEMORAL ARTER
905	Late effects of musculoskeletal and connective tissue injuries	LATE EFFEC SKULL/FACE FX
906	Late effects of injuries to skin and subcutaneous tissues	LT EFF OPN WND HEAD/TRNK
907	Late effects of injuries to the nervous system	LT EFF INTRACRANIAL INJ
908	Late effects of other and unspecified injuries	LATE EFF INT INJUR CHEST
909	Late effects of other and unspecified external causes	LATE EFF DRUG POISONING
910	Superficial injury of face, neck, and scalp except eye	ABRASION HEAD
911	Superficial injury of trunk	ABRASION TRUNK
912	Superficial injury of shoulder and upper arm	ABRASION SHOULDER/ARM

913	Superficial injury of elbow, forearm, and wrist	ABRASION FOREARM
914	Superficial injury of hand(s) except finger(s) alone	ABRASION HAND
915	Superficial injury of finger(s)	ABRASION FINGER
916	Superficial injury of hip, thigh, leg, and ankle	ABRASION HIP & LEG
917	Superficial injury of foot and toe(s)	ABRASION FOOT & TOE
918	Superficial injury of eye and adnexa	SUPERFIC INJ PERIOCULAR
919	Superficial injury of other, multiple, and unspecified sites	ABRASION NEC
920	Contusion of face, scalp, and neck except eye(s)	CONTUSION FACE/SCALP/NCK
921	Contusion of eye and adnexa	BLACK EYE NOS
922	Contusion of trunk	CONTUSION OF BREAST
923	Contusion of upper limb	CONTUSION SHOULDER REG
924	Contusion of lower limb and of other and unspecified sites	CONTUSION OF THIGH
925	Crushing injury of face, scalp, and neck	
926	Crushing injury of trunk	CRUSH INJ EXT GENITALIA
927	Crushing injury of upper limb	CRUSH INJ SHOULDER REG
928	Crushing injury of lower limb	CRUSHING INJURY THIGH
929	Crushing injury of multiple and unspecified sites	CRUSH INJ MULT SITE NEC
930	Foreign body on external eye	CORNEAL FOREIGN BODY
931	Foreign body in ear	FOREIGN BODY IN EAR
932	Foreign body in nose	FOREIGN BODY IN NOSE
933	Foreign body in pharynx and larynx	FOREIGN BODY IN PHARYNX
934	Foreign body in trachea, bronchus, and lung	FOREIGN BODY IN TRACHEA
935	Foreign body in mouth, esophagus, and stomach	FOREIGN BODY IN MOUTH
936	Foreign body in intestine and colon	FB IN INTESTINE & COLON
937	Foreign body in anus and rectum	FOREIGN BODY ANUS/RECTUM
938	Foreign body in digestive system, unspecified	FOREIGN BODY GI NOS
939	Foreign body in genitourinary tract	FB BLADDER & URETHRA
940	Burn confined to eye and adnexa	CHEMICAL BURN PERIOCULAR
941	Burn of face, head, and neck	BURN NOS HEAD-UNSPEC
942	Burn of trunk	BURN NOS TRUNK-UNSPEC
943	Burn of upper limb, except wrist and hand	BURN NOS ARM-UNSPEC
944	Burn of wrist(s) and hand(s)	BURN NOS HAND-UNSPEC
945	Burn of lower limb(s)	BURN NOS LEG-UNSPEC
946	Burns of multiple specified sites	BURN NOS MULTIPLE SITE
947	Burn of internal organs	BURN OF MOUTH & PHARYNX
948	Burns classified according to extent of body surface involved	BDY BRN < 10%/3D DEG NOS
949	Burn, unspecified	BURN NOS
950	Injury to optic nerve and pathways	OPTIC NERVE INJURY
951	Injury to other cranial nerve(s)	INJURY OCULOMOTOR NERVE
952	Spinal cord injury without evidence of spinal bone injury	C1-C4 SPIN CORD INJ NOS

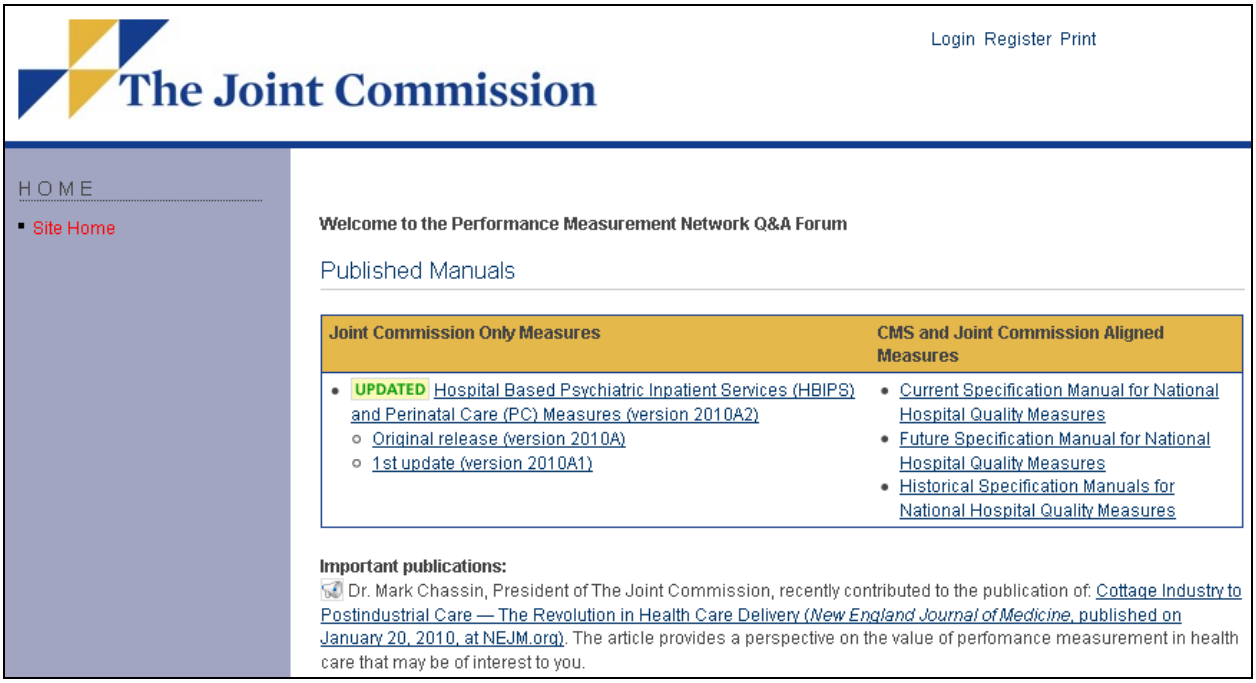
953	Injury to nerve roots and spinal plexus	CERVICAL ROOT INJURY
954	Injury to other nerve(s) of trunk, excluding shoulder and pelvic girdles	INJ CERV SYMPATH NERVE
955	Injury to peripheral nerve(s) of shoulder girdle and upper limb	INJURY AXILLARY NERVE
956	Injury to peripheral nerve(s), of pelvic girdle and lower limb	INJURY SCIATIC NERVE
957	Injury to other and unspecified nerves	INJ SUPERF NERV HEAD/NCK
958	Certain early complications of trauma	AIR EMBOLISM
959	Injury, other and unspecified	
960	Poisoning by antibiotics	POISONING-PENICILLINS
961	Poisoning by other anti-infectives	POISONING-SULFONAMIDES
962	Poisoning by hormones and synthetic substitutes	POIS-CORTICOSTEROIDS
963	Poisoning by primarily systemic agents	POIS-ANTIALLRG/ANTIEMET
964	Poisoning by agents primarily affecting blood constituents	POISONING-IRON/COMPOUNDS
965	Poisoning by analgesics, antipyretics, and antirheumatics	POISONING-OPIUM NOS
966	Poisoning by anticonvulsants and anti-Parkinsonism drugs	POISON-OXAZOLIDINE DERIV
967	Poisoning by sedatives and hypnotics	POISONING-BARBITURATES
968	Poisoning by other central nervous system depressants and anesthetics	POIS-CNS MUSCLE DEPRESS
969	Poisoning by psychotropic agents	POISON-ANTIDEPRESNT NOS
970	Poisoning by central nervous system stimulants	POISONING-ANALEPTICS
971	Poisoning by drugs primarily affecting the autonomic nervous system	POIS-PARASYMPATHOMIMETIC
972	Poisoning by agents primarily affecting the cardiovascular system	POIS-CARD RHYTHM REGULAT
973	Poisoning by agents primarily affecting the gastrointestinal system	POIS-ANTACID/ANTIGASTRIC
974	Poisoning by water, mineral, and uric acid metabolism drugs	POIS-MERCURIAL DIURETICS
975	Poisoning by agents primarily acting on the smooth and skeletal muscles and respiratory system	POISONING-OXYTOCIC AGENT
976	Poisoning by agents primarily affecting skin and mucous membrane, ophthalmological, otorhinolaryngological, and dental drugs	POIS-LOCAL ANTI-INFECT
977	Poisoning by other and unspecified drugs and medicinal substances	POISONING-DIETETICS
978	Poisoning by bacterial vaccines	POISONING-BCG VACCINE
979	Poisoning by other vaccines and biological substances	POISON-SMALLPOX VACCINE
980	Toxic effect of alcohol	TOXIC EFF ETHYL ALCOHOL
981	Toxic effect of petroleum products	TOXIC EFF PETROLEUM PROD
982	Toxic effect of solvents other than petroleum-based	TOXIC EFFECT BENZENE
983	Toxic effect of corrosive aromatics, acids, and caustic alkalis	TOX EFF CORROSIVE AROMAT

984	Toxic effect of lead and its compounds (including fumes)	TX EFF INORG LEAD COMPND
985	Toxic effect of other metals	TOXIC EFFECT MERCURY
986	Toxic effect of carbon monoxide	TOX EFF CARBON MONOXIDE
987	Toxic effect of other gases, fumes, or vapors	TOXIC EFF LIQ PETROL GAS
988	Toxic effect of noxious substances eaten as food	TOXIC EFF FISH/SHELLFISH
989	Toxic effect of other substances, chiefly nonmedicinal as to source	TOXIC EFFECT CYANIDES
990	Effects of radiation, unspecified	EFFECTS RADIATION NOS
991	Effects of reduced temperature	FROSTBITE OF FACE
992	Effects of heat and light	HEAT STROKE & SUNSTROKE
993	Effects of air pressure	BAROTRAUMA, OTITIC
994	Effects of other external causes	EFFECTS OF LIGHTNING
995	Certain adverse effects not elsewhere classified	ANAPHYLACTIC SHOCK
996	Complications peculiar to certain specified procedures	MALFUNC CARD DEV/GRF NOS
997	Complications affecting specified body systems, not elsewhere classified	NERVOUS SYST COMPLC NOS
998	Other complications of procedures, not elsewhere classified	POSTOPERATIVE SHOCK
999	Complications of medical care, not elsewhere classified	GENERALIZED VACCINIA

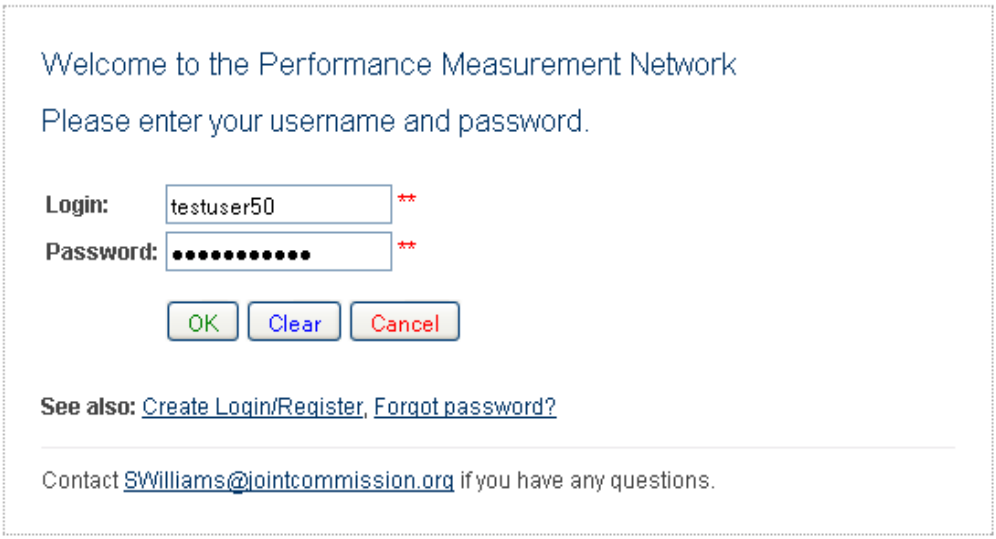
Navigating the Blood Management Project
Data Collection Tool

How to Log In and Get Started

1) Once you have registered and received your confirmation to submit data for the Blood Management Project, you may access the project website at: http://manual.jointcommission.org
2) Click on "Login" in the upper right hand corner.



3) Enter your Login and Password and click "ok".



Navigating the Blood Management Project
Data Collection Tool

4) Welcome to the Performance Measurement Network. Select the "Blood Mgmt Project" link from the left hand navigation bar.

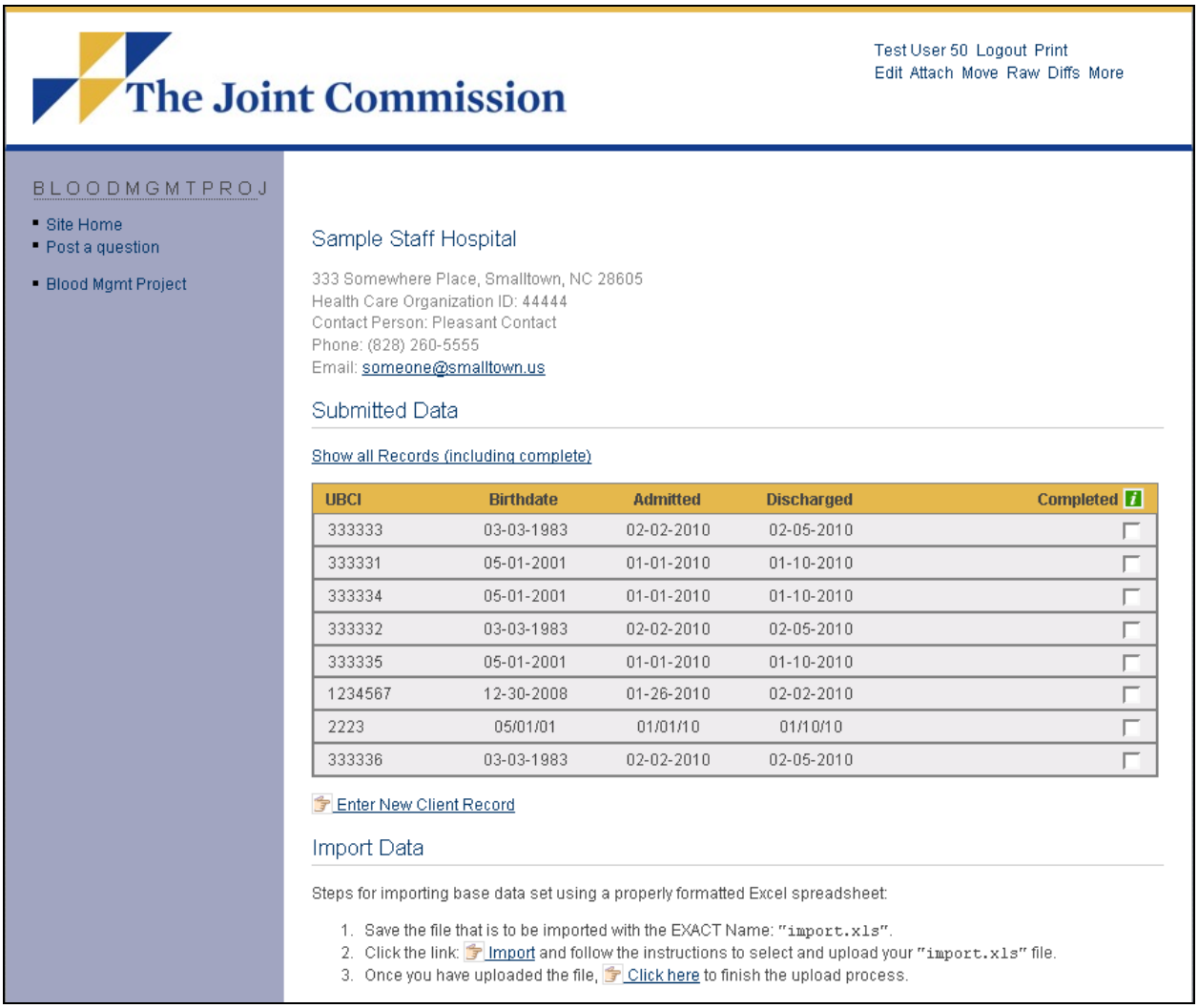
5) You are now on the Blood Management Project Page. You will see your hospitals(s) listed here. In the Project Help section, you will find a link to the measure specifications, an example of the import file template, and other material intended to assist you with your participation in this project. Please click on the hospital name to enter blood management data.

Navigating the Blood Management Project
Data Collection Tool

6) You are now on your hospital page. From this page, you can:

- update your hospital demographic information
- enter new records
- import new records
- view and update existing records
- add RBC, Plasma and Platelet events
- mark records as "complete"
- review records that have been completed
- view import attachments

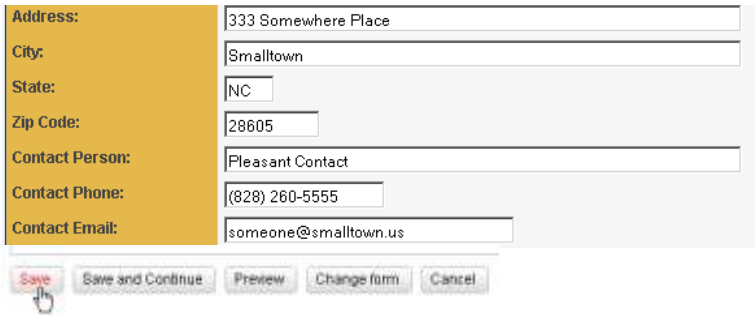
Each function will be discussed in detail below.



Navigating the Blood Management Project
Data Collection Tool
Updating your Hospital Demographic Information

a) To update your hospital's demographic information, click the "Edit" link, Fill out the form that appears, and click the "Save" button at the bottom of the form.

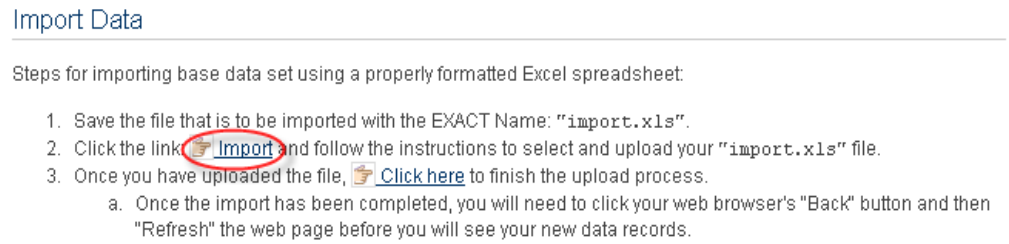
You will be directed to the Edit form, and you can change your hospital's contact details here. Click "Save" to save your changes, or "Cancel" to exit without saving.



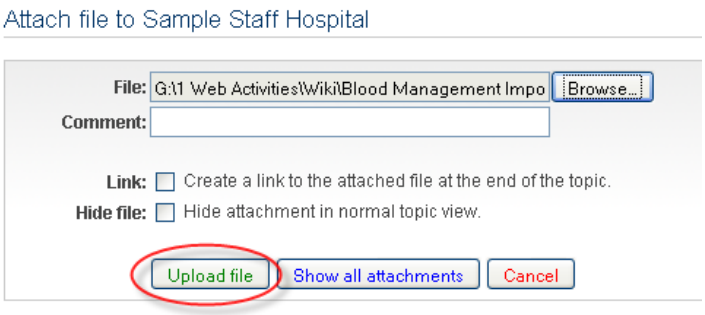
Navigating the Blood Management Project
Data Collection Tool

Importing Records

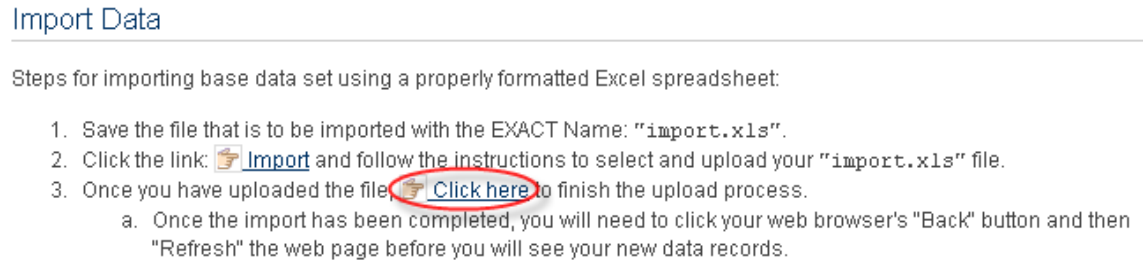
a) To import data, click on the "Import" link on your hospital home page. The template for this import file can be found on the project home page.



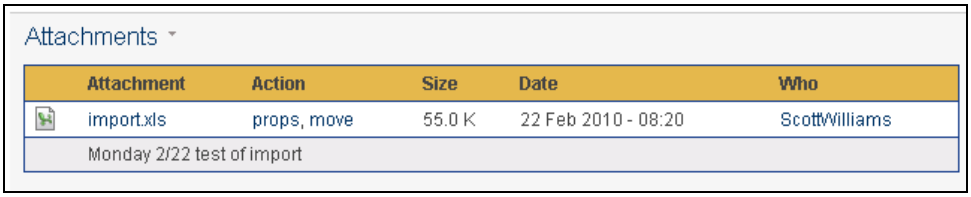
b) Click on "browse" to find and select your import file (which must be named "import.xls"), and click on "Upload File". You do not need to check the checkboxes, but <u>you may want to add a comment to keep track of your imports (e.g., April 2010 discharges; 51 records)</u>



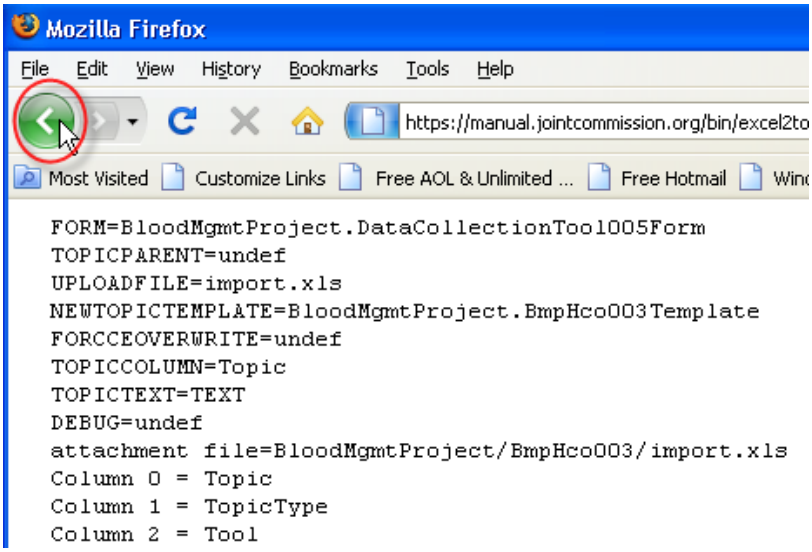
c) Once you have uploaded your file, you will need to click on the "Click here" link to finish the upload process. You'll then need to click your browser's "Back" button and "Refresh" your hospital page.



d) You may notice a form at the bottom of your hospital page. It displays the most recently imported file. This area will only be used to verify that your import was successful (note the date, time and comments to ensure that it represents the file you imported.



e) Your uploaded records are shown here (in a rather unappealing format!) and you will need to click on your browser's "Back" button to return to your hospital home page.



f) You are now back on your hospital's home page. Please click on your browser's "Refresh" button to view the records you just imported. Your records have been imported, but you will not be able to see them until the page is refreshed (or you navigate away from it and then back to it).

g) Your uploaded files should now viewable in the "Submitted Data" section of your hospital home page.

Navigating the Blood Management Project
Data Collection Tool

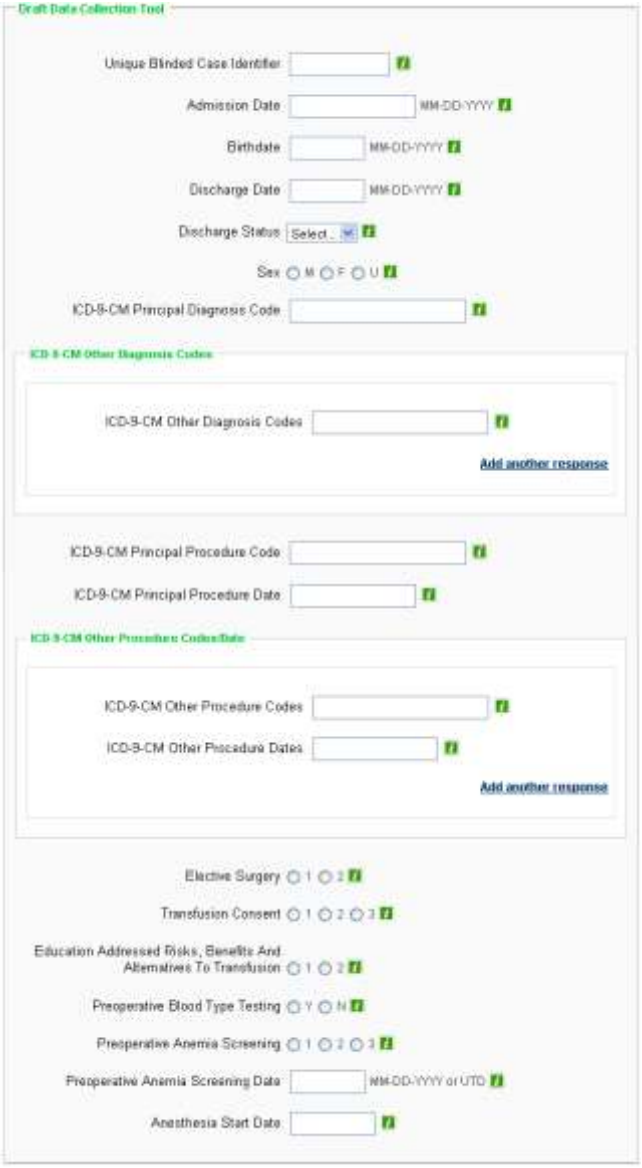
Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

Navigating the Blood Management Project
Data Collection Tool
Enter New Records (without using the file import

a) To enter a new record, click on the "Enter New Client Record" link (right below the data record table).

b) You are now viewing the data collection tool for Blood Management. Enter data for the client record. Note: hovering over the green "i" next to a data element will show you the question and allowable values associated with that data element as well as a link to the data element page.



c) Once you have completed data entry for this record, click on "Save Data Record".

Navigating the Blood Management Project
Data Collection Tool
To View and Update Existing Records

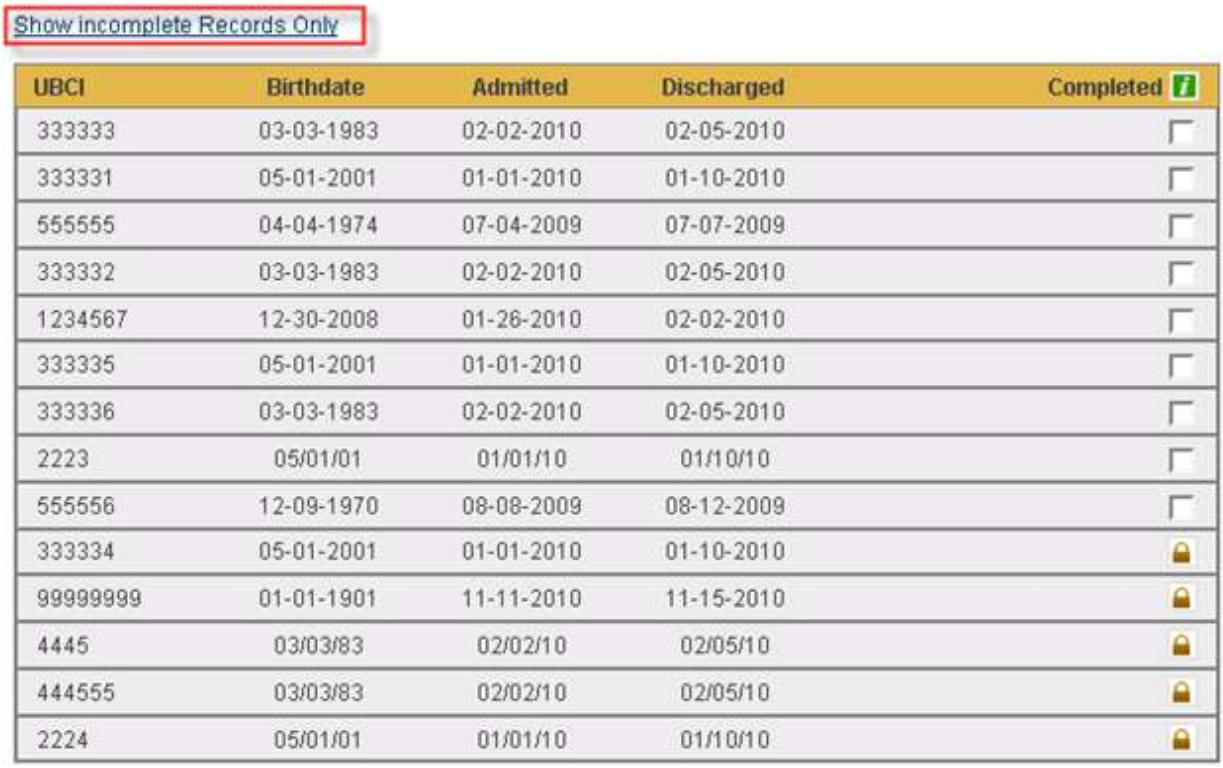
a) There are two ways to view the list of submitted records. The default view is of all incomplete records. If you would like to view all records, including completed (locked) records, click the link "Show all Records (including complete)".

View of the default setting showing a list of only incomplete records:

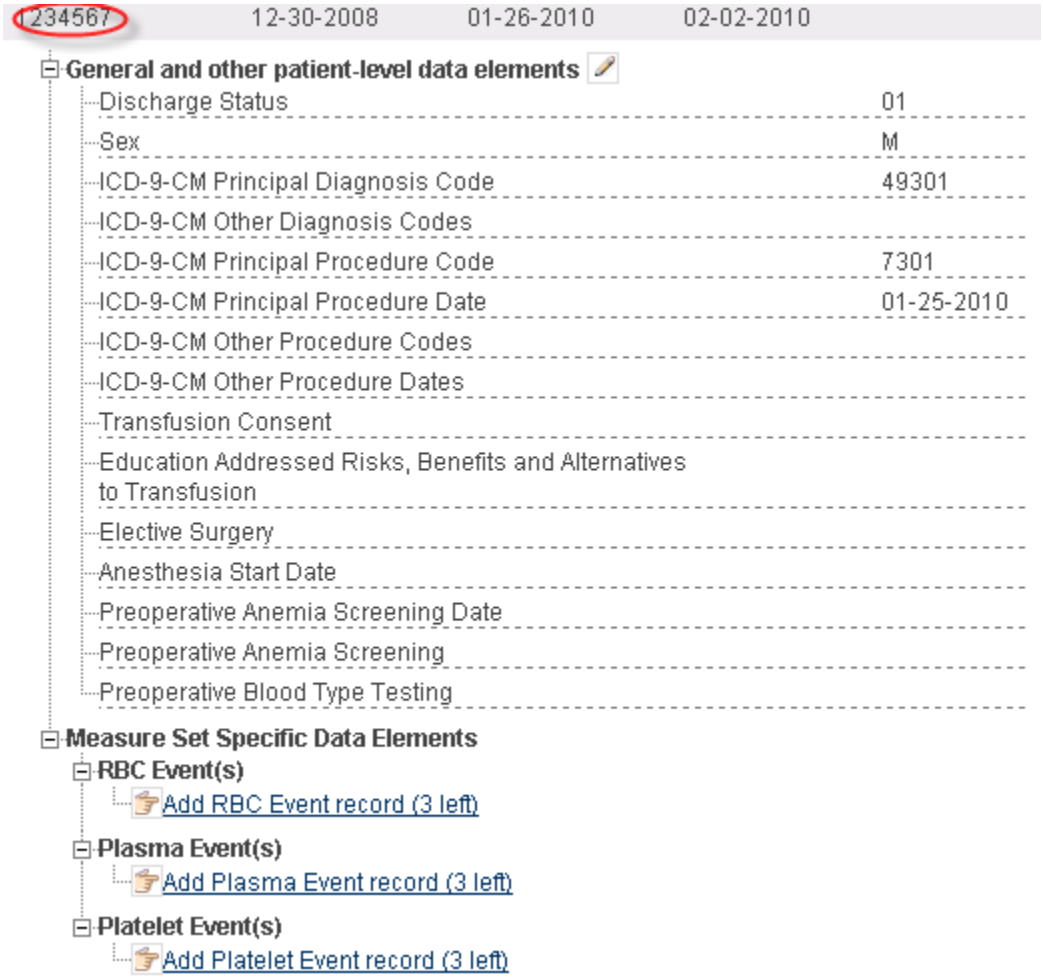
Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

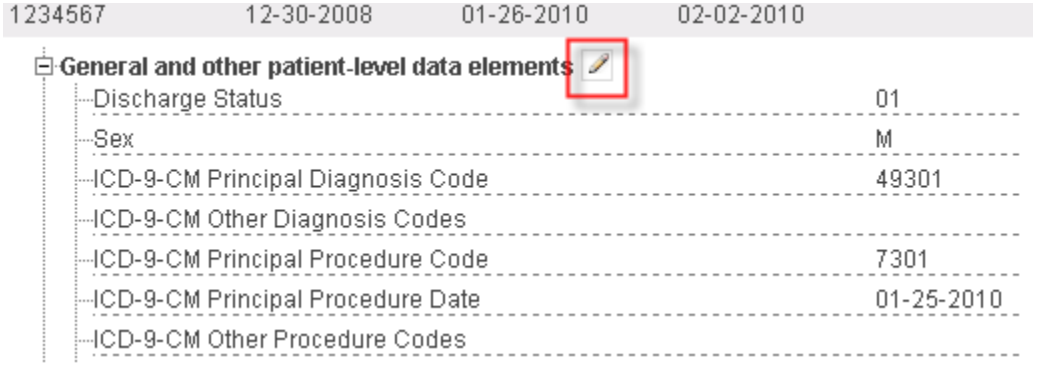
View of alternate setting showing list of all records (both incomplete and complete). To return the default setting, click the link "Show Incomplete Records Only"



b) To view or update data in an existing record, click on the UBCI number. This will create a drop down that includes all of the information for that client record. You can contract the drop down by clicking on the "-"or expand by clicking on the "+" before the different sections.

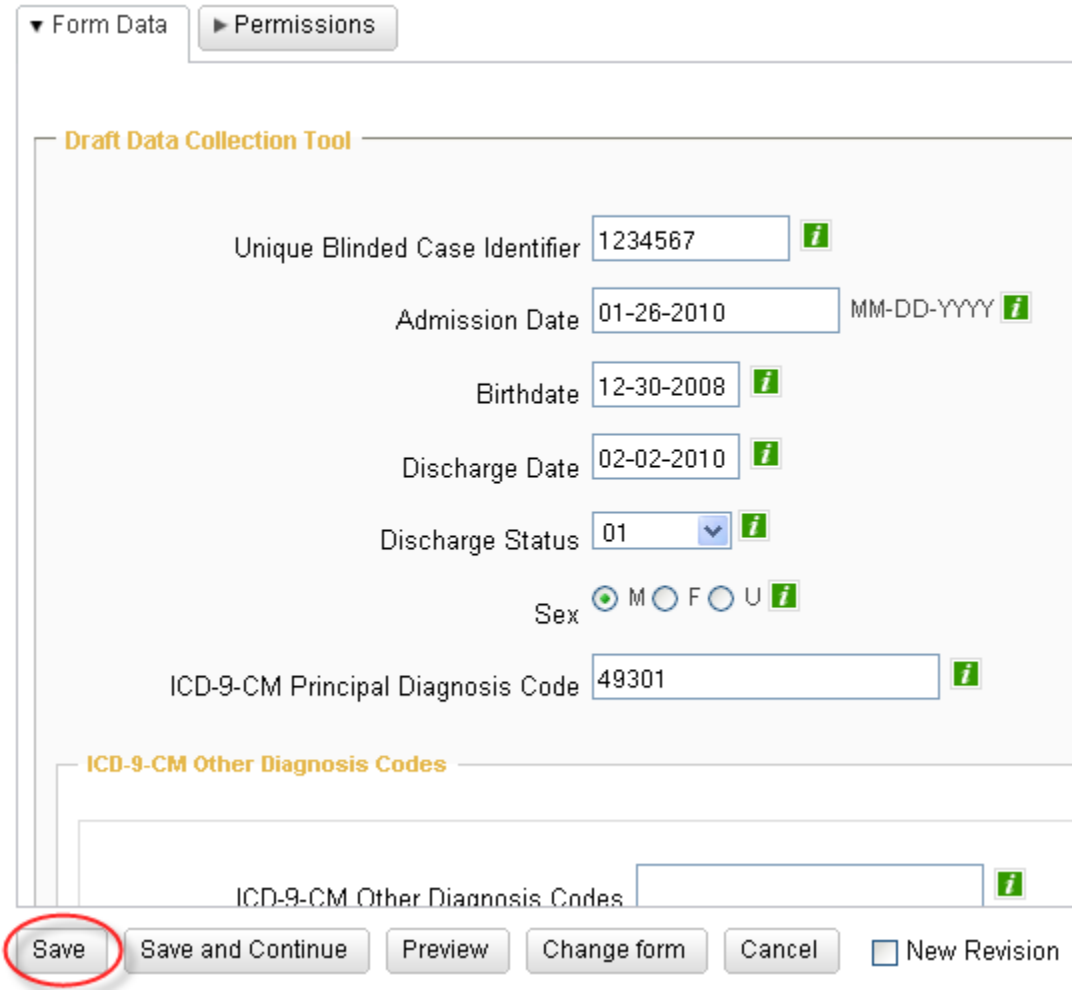


c) To edit the "General and other patient-level data elements", click on the pencil icon.



d) Make changes to the "General and other patient-level data elements" and click "Save" when you are done.

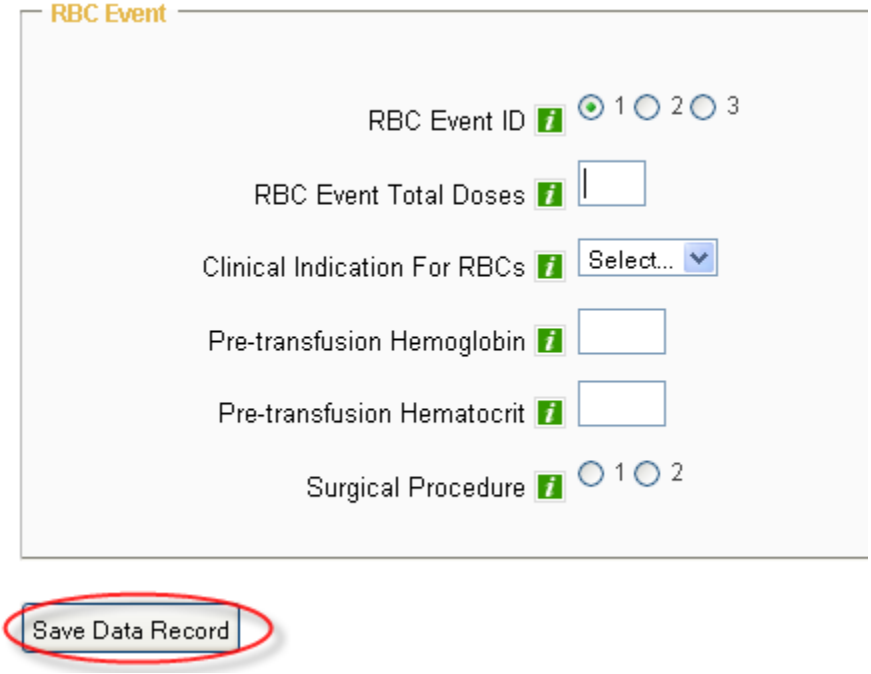
Navigating the Blood Management Project
Data Collection Tool



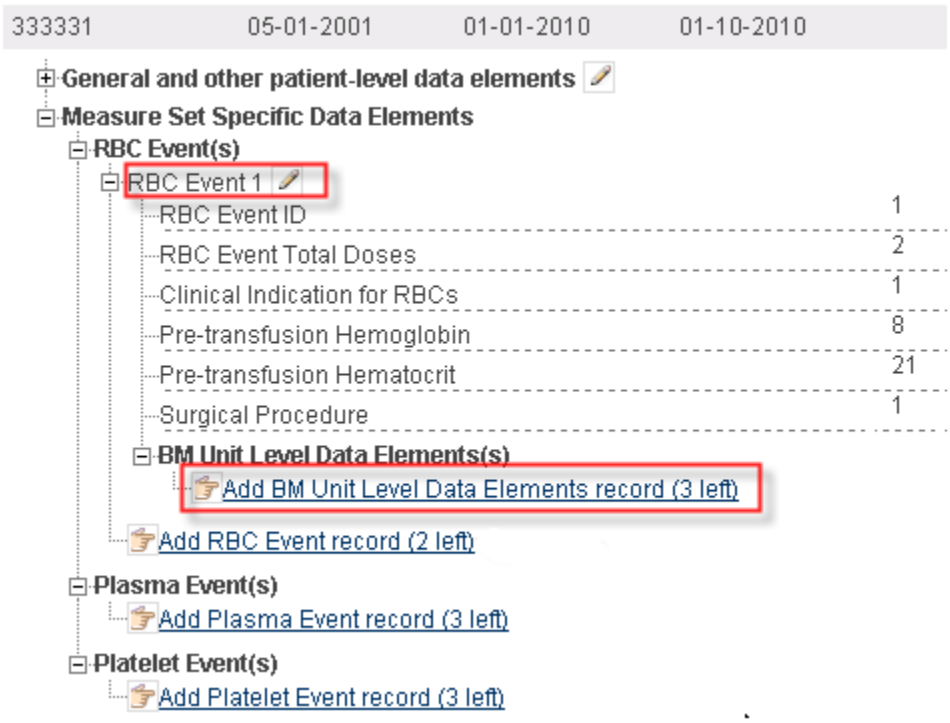
Navigating the Blood Management Project
Data Collection Tool
Add RBC Events and BM Unit Level Data Elements

a) To add a RBC event (NOTE: you can add up to three RBC events), click on the "Add RBC Event Record" Link.

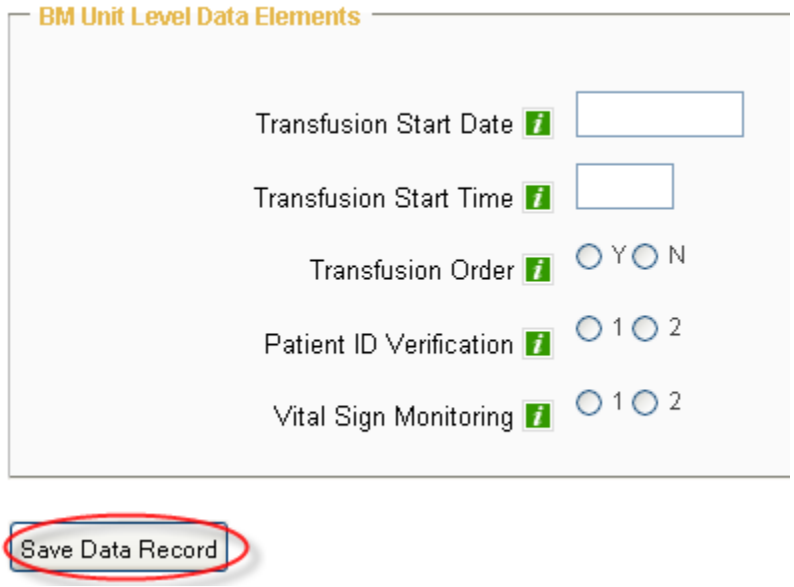
b) Enter data for RBC Event 1 and click "Save Data Record"



c) Data for "RBC Event 1" is now included with this client record. To edit the RBC Event data that you just entered, click on the pencil icon next to the event. To add unit level data for RBC Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)

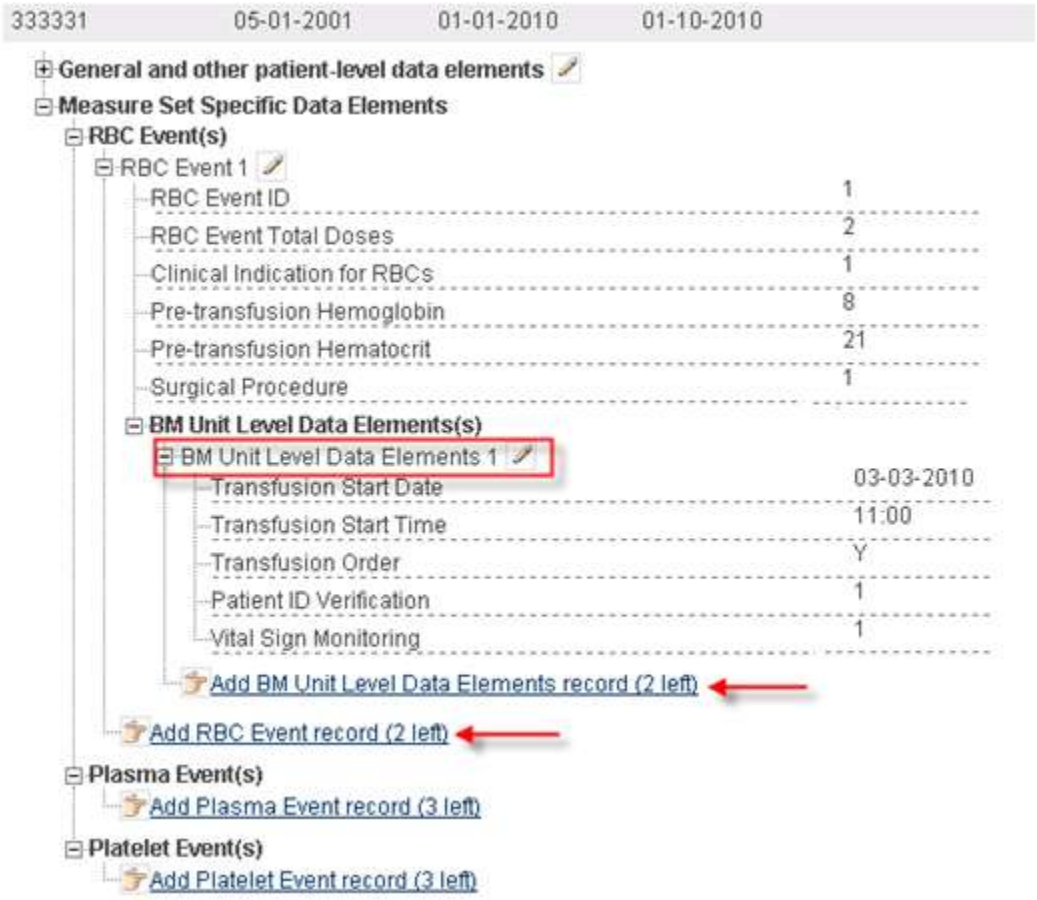


d) Enter data for the BM Unit Level Record for RBC Event 1 and click "Save Data Record"



e) Data for "BM Unit 1" for "RBC Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for RBC Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another RBC Event, click on "Add RBC Event Record".

Navigating the Blood Management Project Data Collection Tool

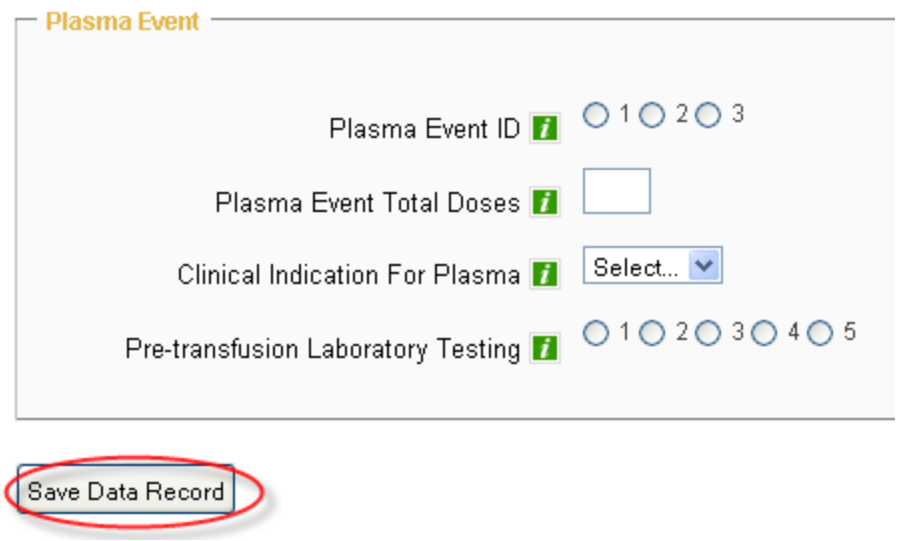


Navigating the Blood Management Project Data Collection Tool

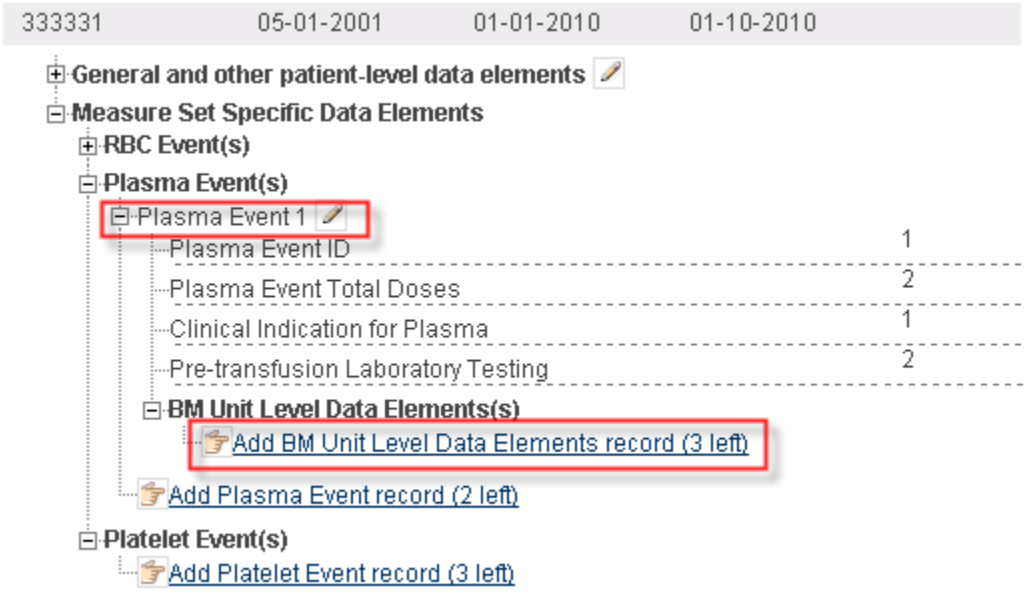
Add Plasma Events and BM Unit Level Data Elements

a) To add a Plasma event, click on the "Add Plasma Event Record" Link

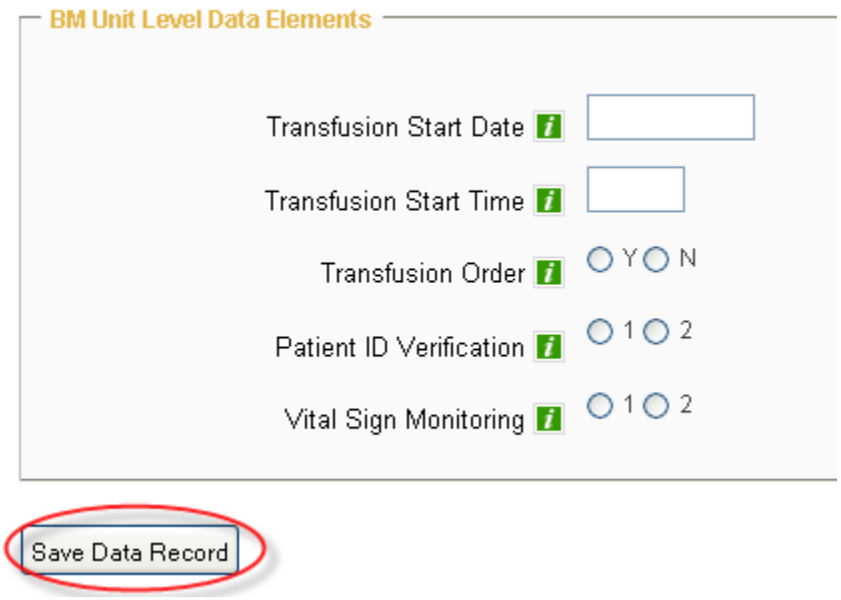
b) Enter data for Plasma Event 1 and click "Save Data Record"



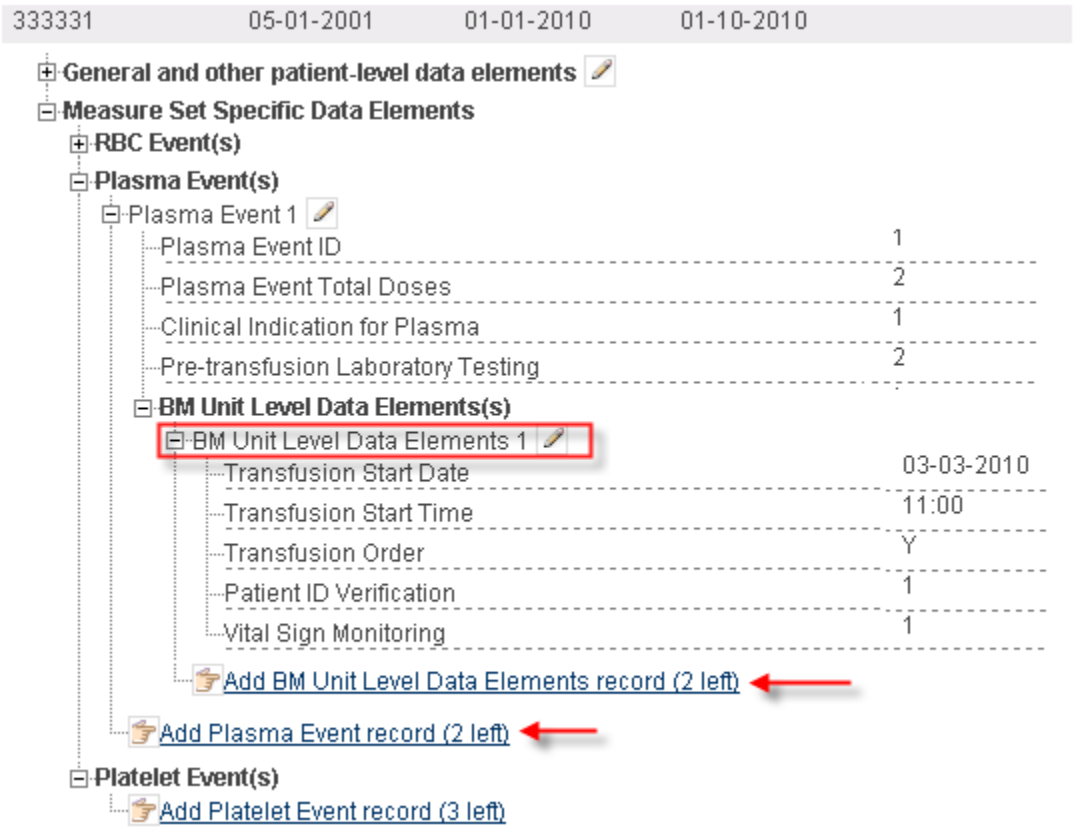
c) Data for "Plasma Event 1" is now included with this client record. To edit the Plasma Event data that you just entered, click on the pencil icon next to the event. To add unit level data for Plasma Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)



d) Enter data for the BM Unit Level Record for Plasma Event 1 and click "Save Data Record"



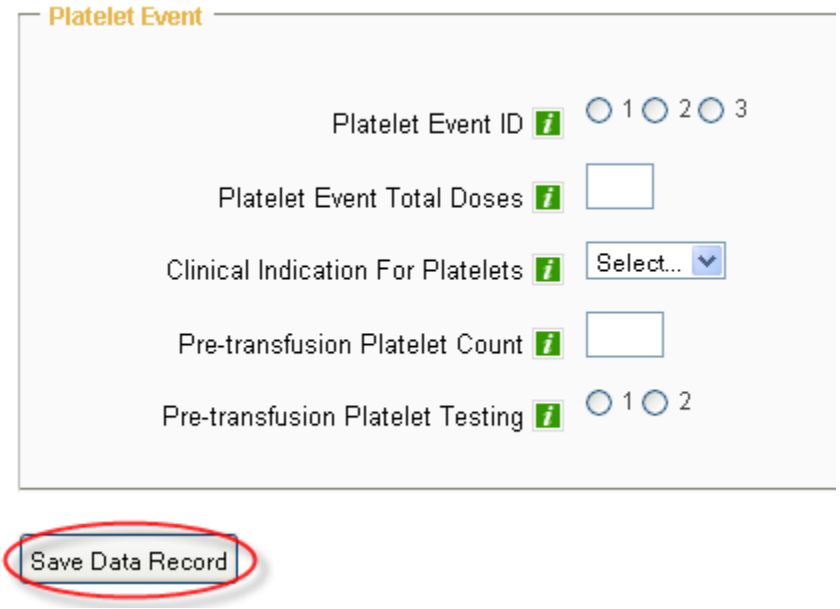
e) Data for "BM Unit Level 1" for "Plasma Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for Plasma Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another Plasma Event, click on "Add Plasma Event Record".



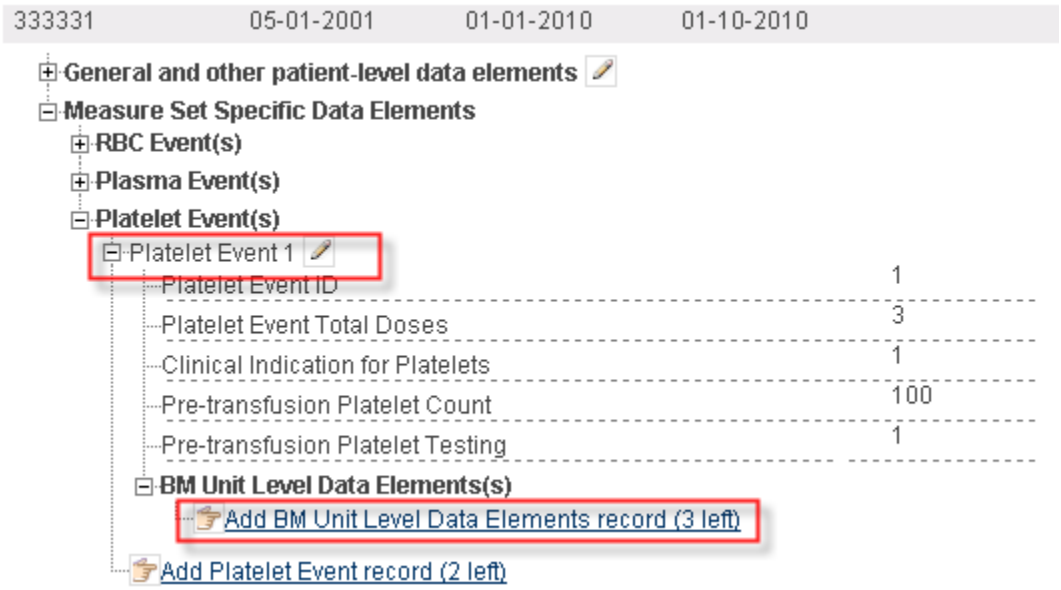
Navigating the Blood Management Project
Data Collection Tool
Add Platelet Events and BM Unit Level Data Elements

a) To add a Platelet event, click on the "Add Platelet Event Record" Link

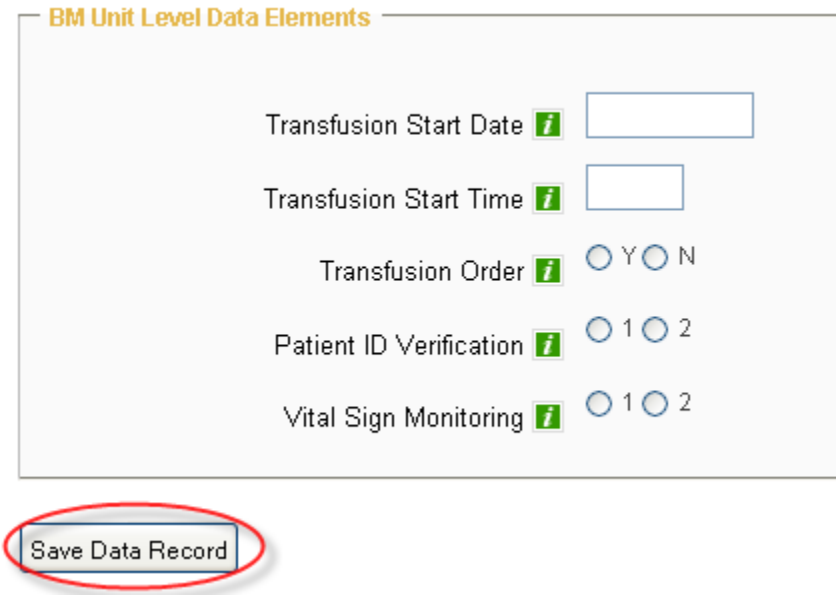
b) Enter data for Platelet Event 1 and click "Save Data Record"



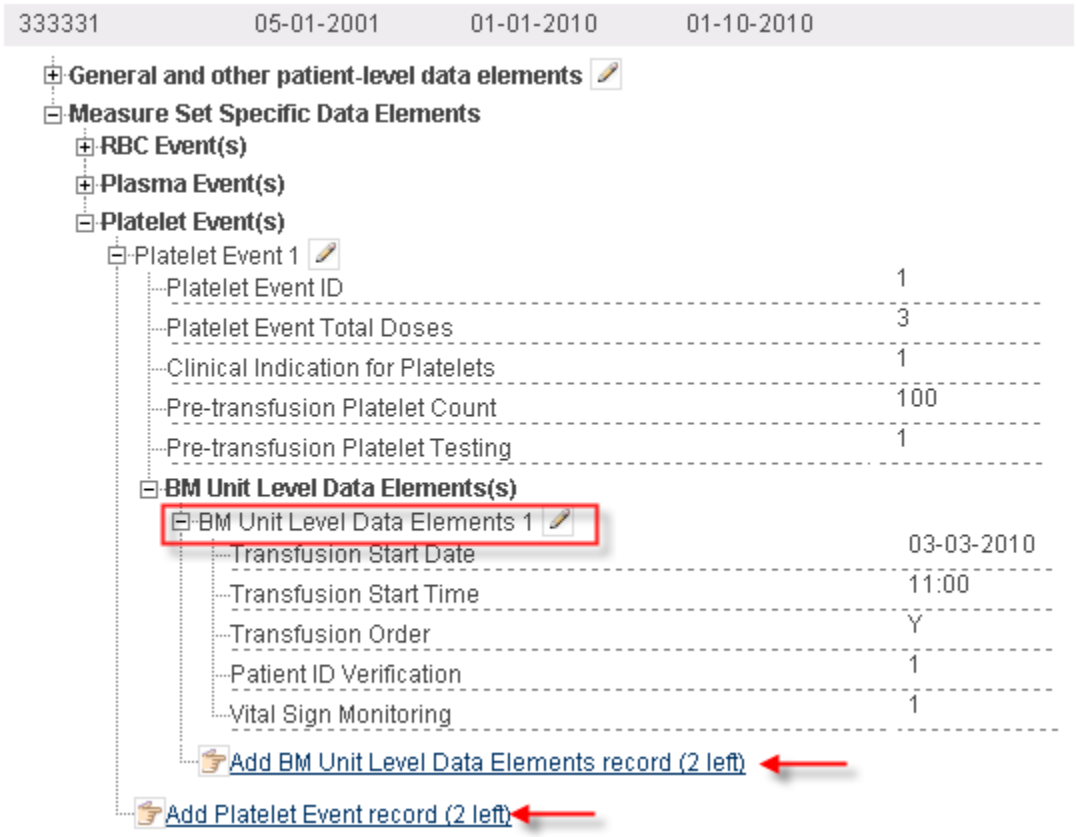
c) Data for "Platelet Event 1" is now included with this client record. To edit the Platelet Event data that you just entered, click on the pencil icon next to the event. To add unit level data for Platelet Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)



d) Enter data for the BM Unit Level Record for Platelet Event 1 and click "Save Data Record"



e) Data for "BM Unit Level 1" for "Platelet Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for Platelet Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another Platelet Event, click on "Add Platelet Event Record".



Marking Records As "Complete"

a) Once you are done entering and editing data for a record, you will need to mark the record as complete. **Please note: Once you check the box for a record under "Complete" you are BOTH marking the record as complete AND locking that record for any further editing**. When you click on the checkbox, the record will "disappear" from view. Do not be alarmed. The default view of the table is to only show incomplete records. To view the record you just completed, click on the link to "Show all Records (including complete)"

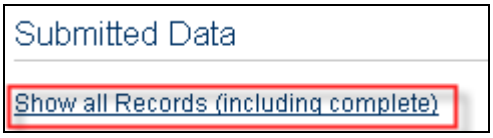

Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

Navigating the Blood Management Project
Data Collection Tool

Reviewing Records That Have Been Completed

a) To review a record that has been marked complete, switch the view on your hospital home page by clicking on the "Show all Records (including complete)" link.

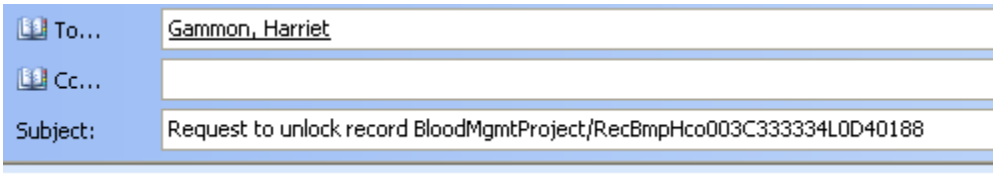


b) In this view you can see all records both complete and incomplete. Completed records are now LOCKED and can not be edited.

Show incomplete Records Only

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐
333334	05-01-2001	01-01-2010	01-10-2010	🔒
99999999	01-01-1901	11-11-2010	11-15-2010	🔒
4445	03/03/83	02/02/10	02/05/10	🔒
444555	03/03/83	02/02/10	02/05/10	🔒
2224	05/01/01	01/01/10	01/10/10	🔒

b) If, for any reason, you need to unlock a record, you will need to send an e-mail to the project leader, Harriet Gammon. To send your e-mail request, click on the "lock" icon, and an e-mail form should appear. It will be addressed to Harriet, and the subject line will contain a reference to the specific record.



c) In your e-mail, please briefly explain why the record needs to be unlocked (e.g., Accidentally clicked the "Complete" checkbox).

PATIENT BLOOD MANAGEMENT PERFORMANCE MEASURES PROJECT - Technical Advisory Panel

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Englewood, NJ

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Lynne Uhl, MD
Beth Israel Deaconess Medical Center
Boston, MA

Jeffrey Wagner, BSN, RN
Puget Sound Blood Center
Seattle, WA

Rosalyn Yomtovian, MD
Department of Veterans Affairs, Louis Stokes Medical Center
Case Western Reserve University School of Medicine
Cleveland, OH

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 1542 **NQF Project:** Surgery Endorsement Maintenance 2010

MEASURE DESCRIPTIVE INFORMATION

De.1 **Measure Title:** Preoperative Anemia Screening

De.2 **Brief description of measure:** Percentage of selected orthopedic, cardiac and hysterectomy elective surgical patient = 18 years with documentation of preoperative anemia screening 14 - 45 days before Anesthesia Start Date.

1.1-2 **Type of Measure:** Process
De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** PBM-06 is a part of the Patient Blood Management (PBM) measure set: PBM-01 (Transfusion Consent), PBM-02 (RBC Transfusion Indication), PBM-03 (Plasma Transfusion Indication), PBM-04 (Platelet Transfusion Indication), PBM-05 (Blood Administration Documentation), PBM-07 (Preoperative Blood Type Testing and Antibody Screening)

De.4 **National Priority Partners Priority Area:** Patient and family engagement, Care coordination, Safety
De.5 **IOM Quality Domain**: Effectiveness, Patient-centered, Efficiency, Safety, Equity, Timeliness
De.6 **Consumer Care Need:** Getting better, Staying healthy

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	NQF Staff
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Agreement will be signed and submitted prior to or at the time of measure submission A.4 **Measure Steward Agreement attached:**	**A** Y☐ N☐

B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	**B** Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement Accreditation	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers, Leading cause of morbidity/mortality, High resource use, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** Previously undiagnosed anemia is identified in 5% - 75% of elective surgery patient in certain populations and a national audit demonstrated that 35% of patients scheduled for joint replacement therapy have a hemoglobin < 13 g/dL on preadmission testing. Development of formal protocols for preoperative testing of hemoglobin (hgb) for potential high-blood loss elective surgeries could be used to identify and intervene for optimal management of blood resources. Preoperative anemia often goes unrecognized and untreated unless tests are ordered in advance of a planned surgery. Early recognition of anemia offers patients an opportunity to receive the most appropriate transfusion-sparing strategy, and avoid the risk of a potential transfusion. According to the 2007 Society of Thoracic Surgeons Clinical Practice Guidelines, a minority of patients having cardiac procedures (15% - 20%) consume more than 80% of the blood products transfused during operation. Previously in 2000, north England reported that major orthopedic hip and knee surgery (total hip arthroplasty [THA], total knee arthroplasty [TKA], and surgical hip fracture repair) consumed 8% of all transfused units and was the leading indication for blood transfusions in surgical patients. Seven percent of the total number of transfused units were used by obstetric and gynecology patients. 1a.4 **Citations for Evidence of High Impact:** Roback JD, ed. Technical manual. 16th ed, Bethseda, MD:	**1a** C☐ P☐ M☐ N☐

AABB, 2008.
Salido JA, Martin LA, Gomez LA, et al. Preoperative hemoglobin levels and the need for transfusion after prosthetic hip and knee surgery; analysis of predictive factors. J Bone Joint Surg. 2002;84:216-20.
Rady MY, Ryan T, Starr NJ. Perioperative determinants of morbidity and mortality in elderly patients undergoing cardiac surgery. Crit Care Med.1998;26:225-235.
Magovern JA, Sakert T, Magovern GJ et al. A model that predicts morbidity and mortality after coronary artery bypass graft surgery. J Am Coll Cardiol. 1996;28:1147-1153.
Campbell DA, Henderson WG, Englesbe, MJ, Hall BL, O'Reilly M, Bratzler D et al. Surgical site infection prevention: the importance of operative duration and blood transfusion-results of the first american college of surgeons –national surgical quality improvement program best practices initiative. J AM Coll Surg 2008;207:810-820.
Gruson KI, Aharonoff GB, Egol KA, et al. The relationship between admission hemoglobin level and outcome after hip fracture. J Orthop Trauma 2002;16:39-44.
Wilson A, Yu HT, Goodnough LT, Nissenson AR. Prevalence and outcomes of anemia in rheumatoid arthritis; a systematic review of the literature. Am J Med 2004;116:50S-7.
Goodnough LT, Shander A, Spivak JL, et al. Detection, evaluation, and management of anemia in the elective surgical patient. Anesth Analg 2005;101:1858-61.
Wells AW, Mounter PJ, Chapman CE, Stansby D, Wallis JP: Where does blood go? Prospective observational study of red cell transfusion in north England. BMJ 2002;325:803.
Anemia and patient blood management in hip and knee surgery. A systematic review of the literature Spahn DR. Anesthesiology 2010;113:482-95.
Perioperative Blood Transfusion and Blood Conservation in Cardiac Surgery: The Society of Thoracic Surgeons and The Society of Cardiovascular Anesthesiologists Clinical Practice Guideline. Ann. Thorac. Surg., May 2007;83:S27-S86.

1b. Opportunity for Improvement

1b.1 Benefits (improvements in quality) envisioned by use of this measure: Hospital schedules for preadmission testing before elective surgery vary between hospitals; his measure would promote a standardized approach to early identification and evaluation of anemia to assist in expedited diagnosis and treatment that will improve patient outcomes during and after surgery for identified high-blood use elective surgeries.

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
In one study, hospitals that were high outliers for surgical site infections (SSI) tended to be larger hospitals. Patients at high outlier hospitals were more likely to present to the operating room with a hematocrit < 30% (9.7% of patients versus 4.9%, p=0.007) and were more likely to receive a blood transfusion (8.0% of patients versus 5.1%, p=0.03).
In a retrospective review of nearly 8,000 consecutive non-cardiac surgery patients, 40% had preoperative anemia that was associated with a five-fold increase in 90-day postoperative mortality.
A panel of multidisciplinary physicians were convened by the Society For Blood Management to develop a clinical care pathway for anemia management in the elective surgical patients for whom blood transfusion is a probability (defined as any procedure for which a preoperative blood type and crossmatch is requested). They recommended that "Whenever clinically feasible, elective surgical patients should have a hemoglobin level tested a minimum of 30 days before the scheduled surgical procedure". Early detection, evaluation, and management of preoperative anemia (hemoglobin, 12 g/dl for females and 13 g/dl for males) were identified as an unmet medical need. It has even been suggested that the red cell mass should be optimized before elective surgery begins.

1b.3 Citations for data on performance gap:
Campbell DA, Henderson WG, Englesbe, MJ, Hall BL, O'Reilly M, Bratzler D et al. Surgical site infection prevention: the importance of operative duration and blood transfusion-results of the first american college of surgeons –national surgical quality improvement program best practices initiative. J AM Coll Surg 2008;207:810-820.
Goodnough LT, Nissenson AR, Dubois RW. Anemia: not just an innocent bystander? Arch Intern Med 2003;163:1400-4.
Detection, evaluation and management of preoperative anaemia in the elective orthpaedic patient-NATA guidelines. In press.

1b
C☐
P☐
M☐
N☐

Goodnough LT, Shander A, Spivak JL, et al. Detection, evaluation, and management of anemia in the elective surgical patient. Anesth Analg 2005;101:1858-61.

1b.4 Summary of Data on disparities by population group:
The overall prevalence of anemia in the general population increases with age. In a US national audit of patients undergoing elective orthopedic surgery, 35% of patients were found to have hemoglobin < 13 g/dl at preadmission testing; many of the patients were women. There was a substantially higher rate in non-Hispanic blacks that was 3 times the prevalence in non-Hispanic whites.

1b.5 Citations for data on Disparities:
Goodnough LT, Nissenson AR, Dubois RW. Anemia: not just an innocent bystander? Arch Intern Med 2003;163:1400-4.
Guralnik JM, Eisenstaedt RS, Ferrucci L, et al. Prevalence of anemia in persons 65 years and older in the United States: evidence for a high rate of unexplained anemia. Blood 2004;104:2263-8.
Bierbaum BE, Callaghan JJ, Galante JO, et al. An analysis of blood management in patients have a total hip or knee arthroplasty. J Bone Joint Surg AM 1999;81:2-10.

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Researchers have shown that preoperative hgb and hematocrit can be used as predictors of outcome for specific types of patients such as cardiac artery bypass graft or orthopedic surgery. Preoperative anemia is associated with increased morbidity and mortality after surgery as well as exposure to allogeneic blood transfusions. If blood transfusions are needed, they are associated with several postsurgical complications, including surgical site infections, pneumonia, slower wound healing, prolonged ventilator use and increased length of stay. Admission hemoglobin levels have also been shown to impact postoperative functional recovery in an elderly population with hip fractures and quality of life after THA.

1c.2-3. Type of Evidence: Cohort study, Observational study, Evidence-based guideline, Randomized controlled trial, Expert opinion, Systematic synthesis of research, Meta-analysis

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
Preoperative anemia is a major risk factor for adverse outcomes in major surgery and is the most important risk factor for perioperative blood transfusions. Veterans who were 65 years old with major non-cardiac surgery in 1997 – 2004 were analyzed for 30-day postoperative mortality. There was a 1.6% increase in mortality for every percentage point increase or decrease from the normal range of preoperative hematocrit level. Previously diagnosed anemia is common in elective orthopedic surgical patients and is associated with increased likelihood of blood transfusion as well as increased perioperative morbidity and mortality. In a study by Salido, orthopedic patients with a preoperative hemoglobin <13 g/dL had four times the risk of transfusion than those with a hemoglobin level between 13 g/dL and 15 g/dL.

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):**
Some of the evidence is based on current best practices for screening for preoperative anemia, anemia evaluation and anemia therapy by a group of multidisciplinary physicians located throughout the US and other evidence is based on studies.

1c.6 Method for rating evidence: Unknown

1c.7 Summary of Controversy/Contradictory Evidence: Three studies reported the absence of an association between anemia and poorer physical functioning post surgery.

1c.8 Citations for Evidence (*other than guidelines***):**
Wu WC, Schifftner TL, Henderson WG, et al. Preoperative hematocrit levels and postoperative outcomes in older patients undergoing noncardiac surgery. JAMA 2007;297:2481-8.
Goodnough LT, Shander A, Spivak JL, et al. Detection, evaluation, and management of anemia in the elective surgical patient. Anesth Analg 2005;101:1858-61.

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Shander A, Knight K, Thurer R, Adamson J, Spence R: Prevalence and outcomes of anemia in surgery: A systematic review of the literature. Am J Med 2004:116(suppl 7A):58S-69S.
Beattie WS, Karkouti K, Wijeysundera DN, Tait G: Risk associated with preoperative anemia in noncardiac surgery: A single-center cohort study. Anesthesiology 2009;110:574-81.
Dunne JR, Malone D, Tracey JK, Gannon C, Napolitano LM: Perioperative anemia: An independent risk factor for infection, mortality, and resource utilization in surgery. J Surg Res 2002;102:237-44.
Anemia and patient blood management in hip and knee surgery. A systematic review of the literature Spahn DR. Anesthesiology 2010;113:482-95.
Kulier A, Levin J, Moser R, Rumpold-Seitlinger G, Tudor IC , et al. Impact of preoperative anemia on outcome in patients undergoing coronary artery bypass cardiac surgery. Circulation 2007;116:471-9.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number*):
Preoperative identification of high-risk patients should be performed...
Number 1, p.S31

1c.10 Clinical Practice Guideline Citation: Perioperative Blood Transfusion and Blood Conservation in Cardiac Surgery: The Society of Thoracic Surgeons and The Society of Cardiovascular Anesthesiologists Clinical Practice Guideline. Ann. Thorac. Surg., May 2007; 83: S27 - S86.

1c.11 National Guideline Clearinghouse or other URL:
http://www.sts.org/sections/aboutthesociety/practiceguidelines

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom*):
Level of evidence is A . Class I

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*:
The classification system is the same as that used by the Joint Task Force for Guidelines of the American College of Cardiology (ACC) and the American Heart Association (AHA).

1c.14 Rationale for using this guideline over others:
This measure set includes elective cardiac surgery patients. This guideline is cited because it recognizes that preoperative anemia is a risk factor for blood transfusions and recommends (Grade 1A) that high-risk patients be identified prior to procedure so that all available preoperative measures of blood conservation can be undertaken to avoid transfusion. Note: An orthopedic guideline is in press that recommends anemia screening at least 28 days to surgery to optimize patient outcomes.

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*

1

Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met?
Rationale:

1
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N☐

2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)

Eval Rating

2a. MEASURE SPECIFICATIONS

S.1 Do you have a web page where current detailed measure specifications can be obtained?
S.2 If yes, provide web page URL:

2a. Precisely Specified

2a-specs
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2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*):
Patients with documentation of preoperative anemia screening 14 - 30 days before Anesthesia Start Date

2a.2 Numerator Time Window (*The time period in which cases are eligible for inclusion in the numerator***):**
Episode of care

2a.3 Numerator Details (*All information required to collect/calculate the numerator, including all codes, logic, and definitions***):**
The units in the numerator are a subset of the denominator units. The following data element is collected for the numerator; Preoperative Anemia Screening Date. Detailed descriptions are provided in attachment for Section 2a.30.

2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured***):**
Selected elective surgery patients

2a.5 Target population gender: Female, Male
2a.6 Target population age range: Over 18 years of age

2a.7 Denominator Time Window (*The time period in which cases are eligible for inclusion in the denominator***):**
Episode of Care

2a.8 Denominator Details (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions***):**
Admission Date
Admission From Home
Anesthesia Start Date
Birthdate
Surgery Scheduled Timeframe
ICD-9-CM Principal Procedure Codes
Detailed descriptions are provided in attachment for Section 2a.30

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population***):** Patients not admitted from home

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
To exclude cases that had surgery performed emergently or were not scheduled as an elective procedure, abstractors would review the Data Element ´Admission From Home´ and select allowable value "2" which is equal to "There is no documentation that the patient was admitted from home or UTD".
To exclude cases that were scheduled for surgery with less than 14 days notice, abstractors would review the data element “Elective Surgery Scheduled” and select allowable value “1” which is equal to “Surgery was scheduled with less than 14 days notice”. Cases that abstractors were unable to determine when surgery was scheduled would be included in the measure denominator.

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
This measure could be stratified according to ICD-9-CM Procedure Codes for Cardiac, Orthopedic and Hysterectomy. Algorithms are provided in the attachment for Section 2a.30

2a.12-13 Risk Adjustment Type: No risk adjustment necessary

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**

2a.15-17 Detailed risk model available Web page URL or attachment:

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Higher score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**
Algorithms are provided in attachment for Section 2a.30

2a.22 Describe the method for discriminating performance *(e.g., significance testing)*:
During the six-month pilot, the distribution of the hospital rates was reviewed over time.

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
For pilot testing, hospitals were requested to submit 10 cases of patients discharged from the designated six months for each of the three types of surgeries. Post pilot, the sample size will be based on the number of surgeries per discharge month or quarter.
Hospitals that choose to sample have the option of sampling quarterly or monthly. A hospital may choose to use a larger sample size than required. Hospitals with an initial population size less than the minimum number of cases per quarter/month for the measure, cannot apply sampling to the measure.

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested)*
Paper medical record/flow-sheet, Electronic administrative data/claims, Lab data

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
The Joint Commission developed a web-based data collection tool that was used by hospitals and for reliabilty testing during the pilot test. When the measures are made part of The Joint Commission's ORYX data collection and reporting program, the data would be collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy of the data collection tool with the specifications

2a.26-28 Data source/data collection instrument reference web page URL or attachment: Attachment The_Patient Blood_Management_Tool [1]-634279347803575926.pdf

2a.29-31 Data dictionary/code table web page URL or attachment: Attachment PBMSpecifications-634279421763604718.pdf

2a.32-35 Level of Measurement/Analysis (*Check the level(s) for which the measure is specified and tested)*
Facility/Agency, Can be measured at all levels

2a.36-37 Care Settings (*Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 Clinical Services (*Healthcare services being measured, check all that apply*)
Clinicians: PA/NP/Advanced Practice Nurse, Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)*: A sample of 194 medical records were reabstracted at 12 randomly selected pilot hospitals July through September 2010.

2b.2 Analytic Method *(type of reliability & rationale, method for testing)*:
Hospitals for reliability testing were randomly selected based on multiple characteristics, including region (west, south, north central, northeast), hospital type (teaching/non-teaching, rural/urban), and bed size (0-99, 100-199, 200-299, 300+). The objectives of the reliability site visits included: evaluation of the reliability of the individual measures and associated data elements, assessment of data collection effort including abstraction time and estimated cost, assessment of measure specifications including definitions, abstraction guidelines, etc. and assessment of sampling strategies. To prepare for the reliability site visits, the data collection tool that was used by the pilot hospitals was enhanced and tested. During the reliability site visit, Joint Commission staff re-abstracted a sub-set of records that had been previously submitted by the hospital into the enhanced data collection tool without knowing the measure specific data values that the hospital had submitted. When reabstraction was completed for each record, the results from the hospital and Joint Commission staff were compared and differences adjudicated in the program. Focus group interviews were conducted at each hospital and findings were discussed with each hospital to

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understand what aspects could be improved. A comparison of calculated indicator rates using data originally abstracted by hospitals and the data that were reabstracted by The Joint Commission staff was adjudicated on each measure and the individual data elements. Statistical analysis utilized Kappa scores and p values. 2b.3 **Testing Results** *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*: The number of originally abstracted denominator cases was 113 with a computed original measure rate of 37.2%. The number of re-abstracted denominator cases was 112 with a re-abstracted measure rate of 37.5%. The absolute difference was -0.3% with a Kappa score of 0.725. The percent of hospital identified population verified as 93%. The match rate for 166 cases for the individual data elements was: Anesthesia Start Date 95.8%, Elective Surgery 98.7%, Preoperative Screening 80.9% and Preoperative Anemia Screening Date 83.2%. Measure specifications have been revised to strengthen and provide additional clarity to the data element definitions and abstraction guidelines.	
2c. Validity testing 2c.1 **Data/sample** *(description of data/sample and size)*: Face validity was tested by a total of 63 hospitals of various sizes and geographic locations across the country that represented over 300 individuals during August and May 2009. Measure specifications were sent to the test hospitals for review. In addition, on-site focus interviews were conducted at five hospitals. Criterion validity was evaluated during the reliability site visits mentioned above as well as through an online survey that the participating hospitals completed. 2c.2 **Analytic Method** *(type of validity & rationale, method for testing)*: The measure information form and the data dictionary were evaluated for face validity. The following parts of the measure information form were evaluated: numerator statement, numerator inclusions, numerator exclusions, denominator statement, denominator inclusions, denominator exclusions and an overall understanding of the measure information form. Each area was scored utilizing a five-point Likert scale. For each data element, the hospitals were asked to comment on the clarity and understanding of the abstraction guidelines and data definitions. In addition, the data dictionary was reviewed for overall understanding, usefulness and clarity utilizing a five-point Likert scale. Qualitative analysis was performed on measure feedback received during the focus group interviews and from the online surveys. 2c.3 **Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)*: A total of 58 hospitals completed the face validity evaluation and rated the overall understanding of the numerator and denominator statements an average 4.1% that ranked the measure 8th out of the 10 measures. Modifications to improve the understanding and clarity of the measure specifications were made prior to pilot testing based on feedback received from the hospitals during the face validity evaluation. Analysis of the online survey revealed 80% (47/59) of the pilot hospitals recommended moving the measure forward to the pilot test with suggested modifications.	**2c** C☐ P☐ M☐ N☐
2d. Exclusions Justified 2d.1 **Summary of Evidence supporting exclusion(s):** 2d.2 **Citations for Evidence:** 2d.3 **Data/sample** *(description of data/sample and size)*: 2d.4 **Analytic Method** *(type analysis & rationale)*: 2d.5 **Testing Results** *(e.g., frequency, variability, sensitivity analyses)*:	**2d** C☐ P☐ M☐ N☐ NA☐
2e. Risk Adjustment for Outcomes/ Resource Use Measures	**2e** C☐

2e.1 Data/sample *(description of data/sample and size)*: **2e.2 Analytic Method** *(type of risk adjustment, analysis, & rationale)*: **2e.3 Testing Results** *(risk model performance metrics)*: **2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:**	**P☐ M☐ N☐ NA☐**
2f. Identification of Meaningful Differences in Performance **2f.1 Data/sample from Testing or Current Use** *(description of data/sample and size)*: A random sample of patients > 18 years of age was selected from the eligible measure population of select elective surgical inpatient discharges from 7/1/09 – 12/31/09 for measurement purposes. **2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*: Z-scores were used to determine hospital measure rates that were significantly different from the overall average. **2f.3 Provide Measure Scores from Testing or Current Use** *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*: Mean Rate for All Hospitals = 44.1% Overall Rate for All Hospitals = 37.3% Standard Deviation = 32.9% Median Rate for All Hospitals = 34.9% Min. = 0.0% Max. = 100% Lower Quartile = 22.3% pper Quartile = 65.7% Z< -2* = 0 Z< 2** = 0 38 hospitals contributed 2,721 cases in the denominator, of which 1,014 cases were in the numerator for a rate of 37.3%.	**2f** **C☐ P☐ M☐ N☐**
2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: **2g.2 Analytic Method** *(type of analysis & rationale)*: **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*:	**2g** **C☐ P☐ M☐ N☐ NA☐**
2h. Disparities in Care **2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**	**2h** **C☐ P☐ M☐ N☐ NA☐**
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	***2*** **C☐ P☐ M☐**

	N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information 3a.1 **Current Use:** Not in use but testing completed 3a.2 **Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:** We intend to incorporate these Patient Blood Management measures into our ORYX initiative with associated public reporting on Quality Check when there is a national call for these measures. 3a.3 **If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** The specifications will be posted on the Joint Commission website for public use in 2011. **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) 3a.4 **Data/sample** *(description of data/sample and size)***:** 3a.5 **Methods** *(e.g., focus group, survey, QI project)***:** 3a.6 **Results** *(qualitative and/or quantitative results and conclusions)***:**	**3a** C☐ P☐ M☐ N☐
3b/3c. Relation to other NQF-endorsed measures 3b.1 **NQF # and Title of similar or related measures:**	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): 3b.2 **Are the measure specifications harmonized? If not, why?**	**3b** C☐ P☐ M☐ N☐ NA☐
3c. Distinctive or Additive Value 3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** 5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:**	**3c** C☐ P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** C☐ P☐ M☐ N☐

4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes 4a.1-2 **How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	4a C☐ P☐ M☐ N☐
4b. Electronic Sources 4b.1 **Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) No 4b.2 **If not, specify the near-term path to achieve electronic capture by most providers.** The project will begin Phase III in January 2011 to retool the specifications for retrieval from an electronic health record.	4b C☐ P☐ M☐ N☐
4c. Exclusions 4c.1 **Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No 4c.2 **If yes, provide justification.**	4c C☐ P☐ M☐ N☐ NA☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences 4d.1 **Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.**	4d C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation 4e.1 **Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** There were several issues related to the abstraction of this measure. Many of the retrospective records did not include any preoperative screening result information that may have been there at the time of surgery, and the abstractors had difficulty understanding the eligibility timeframe for the measure. To increase reliability, only the preoperative anemia screening date will be collected versus trying to have the hospitals calculate if there were 14 or more days from the preoperative screening to the surgery start date. Additional notes for abstraction will also be added to help abstractors identify the "preoperative lab value result" and expand the list of data sources since some hospitals can access results outside of the hospital laboratory. A data element was also added to exclude patients if there is documentation that the surgery was scheduled in less than 14 days since some patients may have had surgery scheduled in less than 14 days especially if the surgery is cardiac. Records without information about the timeframe from 'scheduling to the surgery date' or with documentation that the surgery was scheduled more than 14 days in advance will continue through the algorithm. For further confirmation that the patients are admitted for an elective procedure, not an emergent procedure, a data element to document "admission from home" was added. Pilot hospitals were requested to estimate the time to abstract data for the two surgical measures for the six-month pilot. Twenty hospitals estimated an average time of 30 minutes to abstract the two surgical measures at an average cost of $21-25 per hour. However, these costs do not include the time or cost involved in identifying the patient population, staff training or data collection tool instruction. It should	4e C☐ P☐ M☐ N☐

also be noted that the learning curve varied widely due to the staff experience and expertise that were utilized for the 'time-limited' project. During the 12 reliability site visits, two Joint Commission staff also found that the abstraction time varied widely based on the method of record retrieval (e.g., paper record, scanned record or electronic information) at each hospital. Measure specifications have been revised to strengthen and provide additional clarity to data element definitions and abstraction guidelines based on hospital feedback. The timing and frequency of data collection will remain monthly or quarterly as it does for the other Joint Commission measure sets. Maintaining patient confidentially was not an issue during the pilot test, since blinded hospital and patient identifiers are used on all data received by The Joint Commission staff for data quality reviews. 4e.2 **Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** The majority of hospitals already have processes in place to abstract measures that identify the initial population with ICD-9-CM procedure codes and the majority of the codes are abstracted for the Surgical Care Improvement Project measures. This measure includes only patients with a principal procedure, so less charts would be needed because most records would be included in the measure. There are no Joint Commission fees to abstract the measures. 4e.3 **Evidence for costs:** 4e.4 **Business case documentation:** Many studies have shown that patients with low preoperative hemoglobin will receive blood during hospitalization, so screening for anemia and treating patients prior to an elective surgery may decrease the amount of blood administered which would in turn decrease the length of stay and infection rates. It is in the patient's best interest to establish a screening program optimize their hemoglobin to avoid the risks of a transfusion. The money invested in preoperative screening may result in decreased hospital costs, better outcomes for patients and increased patient satisfaction.	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** **C☐** **P☐** **M☐** **N☐**
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited ☐**
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y☐** **N☐** **A☐**
CONTACT INFORMATION	
Co.1 **Measure Steward (Intellectual Property Owner)** Co.1 **Organization** The Joint Commission, One Renaissance Boulevard, Oakbrook Terace, Illinois, 60181 Co.2 **Point of Contact** Jerod M., Loeb, PhD, jloeb@jointcommission.org, 630-792-5920-	
Measure Developer If different from Measure Steward Co.3 **Organization** The Joint Commission, One Renaissance Boulevard, Oakbrook Terace, Illinois, 60181 Co.4 **Point of Contact** Harriet, Gammon, MSN, RN, CPHQ, hgammon@jointcommission.org, 630-792-5926-	

Co.5 Submitter If different from Measure Steward POC
Harriet, Gammon, MSN, RN, CPHQ, hgammon@jointcommission.org, 630-792-5926-, The Joint Commission

Co.6 Additional organizations that sponsored/participated in measure development

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.
The technical advisory panel determined priority areas in blood management for measure development. They reviewed public comments and were actively involved in all phases of the project to identify and develop the numerator and denominator statements. Measure recommendations for National Quality Forum endorsement were made after careful review of the pilot results and site feedback.

Ad.2 If adapted, provide name of original measure:
Ad.3-5 If adapted, provide original specifications URL or attachment

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 Year the measure was first released:
Ad.7 Month and Year of most recent revision: 12, 2010
Ad.8 What is your frequency for review/update of this measure? Biannually
Ad.9 When is the next scheduled review/update for this measure? 06, 2011

Ad.10 Copyright statement/disclaimers: No royalty or use fee is required for copying or reprinting this manual, but the following are required as a condition of usage: 1) disclosure that the Specifications Manual is periodically updated, and that the version being copied or reprinted may not be up-to-date when used unless the copier or printer has verified the version to be up-to-date and affirms that, and 2) users participating in Joint Commission accreditation, including performance measures systems, are required to update their software and associated documentation based on the published manual production timelines.
Example Acknowledgement: The Specifications Manual for National Hospital Inpatient Quality Measures Patient Blood Management Performance Measure Set is periodically updated by The Joint Commission. Users of the Specifications Manual for National Hospital Inpatient Quality Measures Patient Blood Management Performance Measure Set must update their software and associated documentation based on the published manual production timelines.

Ad.11 -13 Additional Information web page URL or attachment: Attachment TAPLISTWEBc-634277863643150530.doc

Date of Submission (*MM/DD/YY*)**:** 12/29/2010

Patient Blood Management (PBM)

Set Measures

Set Measure ID	Measure Short Name
PBM-01	Transfusion Consent
PBM-02	RBC Transfusion Indication
PBM-03	Plasma Transfusion Indication
PBM-04	Platelet Transfusion Indication
PBM-05	Blood Administration Documentation
PBM-06	Preoperative Anemia Screening
PBM-07	Preoperative Blood Type Testing and Antibody Screening

Measure Set Specific Data Elements

Element Name	Collected For
Admission From Home	PBM-06,
Anesthesia Start Date	PBM-06,
Blood Administration Location	PBM-02, PBM-03, PBM-04, PBM-05,
Blood Bank Records	PBM-01, PBM-02, PBM-03, PBM-04, PBM-05,
Blood ID Number	PBM-05,
Blood Type Testing Ordered	PBM-07,
Clinical Indication for Plasma	PBM-03,
Clinical Indication for Platelets	PBM-04,
Clinical Indication for RBCs	PBM-02,
Education Addressed Risks, Benefits and Alternatives to Transfusion	PBM-01,
Patient ID Verification	PBM-05,
Plasma ID	PBM-03, PBM-05,
Platelet ID	PBM-04, PBM-05,
Pre-transfusion Hematocrit	PBM-02,
Pre-transfusion Hemoglobin	PBM-02,
Pre-transfusion PT/INR Result	PBM-03,
Pre-transfusion Platelet Count	PBM-04,
Preoperative Anemia Screening Date	PBM-06,
Preoperative Blood Type Testing	PBM-07,
RBC ID	PBM-02, PBM-05,
RBC Unit Exclusions	PBM-02, PBM-05,
Surgery Scheduled Timeframe	PBM-06,
Transfusion Consent	PBM-01,
Transfusion Order	PBM-05,
Transfusion Start Date	PBM-05,
Transfusion Start Time	PBM-05,
Vital Sign Monitoring	PBM-05,

Related Materials

Document Name
z. Appendix E - Miscellaneous Tables

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-01

Performance Measure Name: Transfusion Consent

Description: Patients with a signed consent who received information about the risks, benefits and alternatives of transfusion prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency.

Rationale: Planning a discussion with a licensed practitioner regarding the risks, benefits and alternatives of transfusion is an opportunity for the patient to participate in decisions about his or her care. It is a process that takes into consideration, each patient's preferences, clinical needs and provides information in compliance with the regulations and policies of the state and facility. Even though policies related to informed consent may vary among hospitals, all hospitals require some type of consent prior to treatment unless emergency care is needed. The elements of performance for the Joint Commission Standard RI.01.03.01 related to the informed consent process include a discussion about the risks, benefits and alternatives, and a discussion about the risk, if care is not received. This measure is also supported by the Joint Commission's National Patient Safety Goal (NPSG) 13 that encourages patients' active involvement in their own care as a patient safety strategy.

For many years, the American Association of Blood Banks (AABB) organization has supported the consent process for transfusion and has developed several standards such as AABB Standard 5.19.1. AABB requires that at a minimum, a recipient consent for transfusion and that should include; a description of the risks, benefits and treatment alternatives, the opportunity to ask questions and the right to accept or refuse transfusion.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with a signed consent who received information about the risks, benefits and alternatives prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Education Addressed Risks, Benefits and Alternatives to Transfusion*
- *Transfusion Consent*

Denominator Statement: Patients who received red blood cell, plasma or platelet transfusions

Included Populations: Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.3-9.6 or a transfusion documented from Blood Bank Records.

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data collection sources for required data elements include administrative data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document tranfusions may use blood bank records to identify the population.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Hospitals may want to evaluate the cases according to medical or surgical designation that were not included in the numerator in order to determine if the consent was signed and/or if all or only part of the educational components were given or if documentation was insufficient. Based on this information, hospitals may assess the barriers impacting this measure that could be improved.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

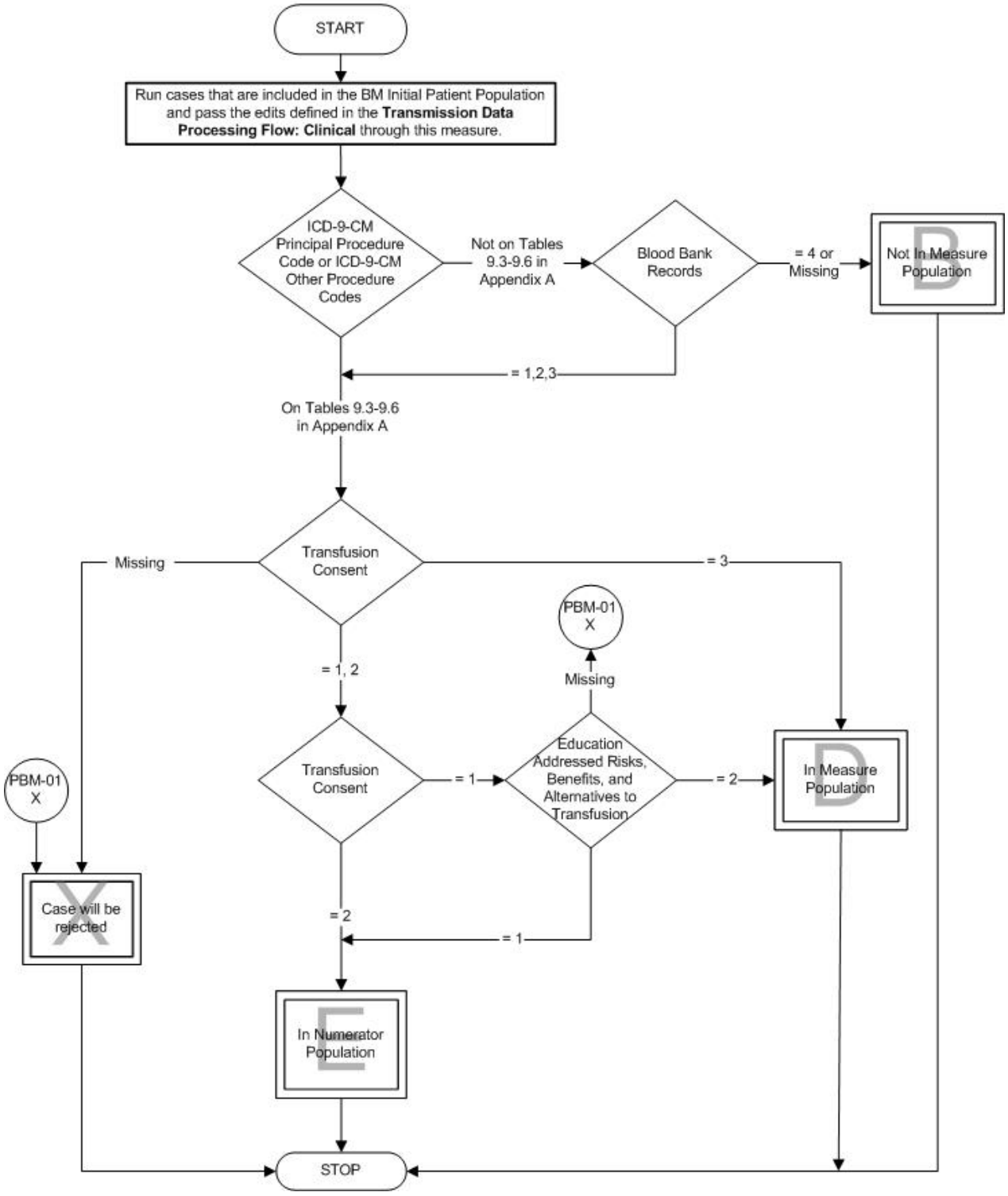
- Speiss BD, Counts RB, Gould SA. Perioperative Transfusion Medicine, Williams and Wilkins; 1998; 201-204.
- Stowell C, Sazama K. Informed Consent in Blood Transfusion and Cellular Therapies: Patients, Donors and Research Subjects. AABB Press; 2007; ISBN #978-1-56395-254-8.
- Burch JW, Uhl L. Guidelines for Informed Consent in Transfusion Medicine. AABB Press; 2006; ISBN #1-56395-146-0.2008.
- Standards for Blood Banks and Transfusion Services, 25th ed. Bethseda, MD: AABB 2008.
- The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL. Joint Commission Resources, Inc, 2009.
- The Joint Commission, “National Patient Safety Goals (NPSG)”, IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.

Measure Algorithm:

PBM–01: Transfusion Consent

Numerator: Patients with a signed consent who received information about the risks, benefits and alternatives prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency

Denominator: Patients who received red blood cells, platelets or plasma



Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-02

Performance Measure Name: RBC Transfusion Indication

Description: The number of transfused red blood cell (RBC) units with a pre-transfusion hemoglobin (hgb) or hematocrit (hct) result and clinical indication documented from patients of all ages who received RBCs.

Rationale: Improvement of the safety and quality of care that a hospital provides includes the review of the use of blood and blood products. Despite current evidence and best practice guidelines, clinical practice regarding when to transfuse varies among physicians and institutions even though most would agree that blood products should only be given when the benefits outweigh the harm. Many advocate that transfusion decisions should be based on a clinical assessment and not on laboratory values alone to avoid inappropriate over-or-under transfusion. Measuring whether an "indication for transfusion" and a pre-transfusion laboratory value was documented may improve the utilization of blood components. In addition, implementing such a process may simplify the hospital's review for appropriateness of the transfusion when auditing records for accreditation and regulatory agencies. In a study by Friedman and Ebrahim, there was a significant correlation between red blood cell transfusions that lacked documentation of the clinical necessity for transfusion and justification of the transfusion.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of RBC units with pre-transfusion hemoglobin or hematocrit result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for RBCs*
- *Pre-transfusion Hematocrit*
- *Pre-transfusion Hemoglobin*
- *RBC ID*

Denominator Statement: Number of transfused red blood cell units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Tables 9.3 or 9.4 or a RBC transfusion documented from Blood Bank Records.
- The first six RBCs units transfused after hospital arrival

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*
- *RBC Unit Exclusions*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received RBCs.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Hospitals may want to use the data to further evaluate the process for determining the need for blood products based on the clinical indications and correlating it with the pre-transfusion value that was documented. This information may assist hospitals to determine if the patients were transfused appropriately or if efforts should be directed toward additional documentation efforts for monitoring blood product usage. Data may be grouped by service designation or by blood products to identify specific areas for staff review.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

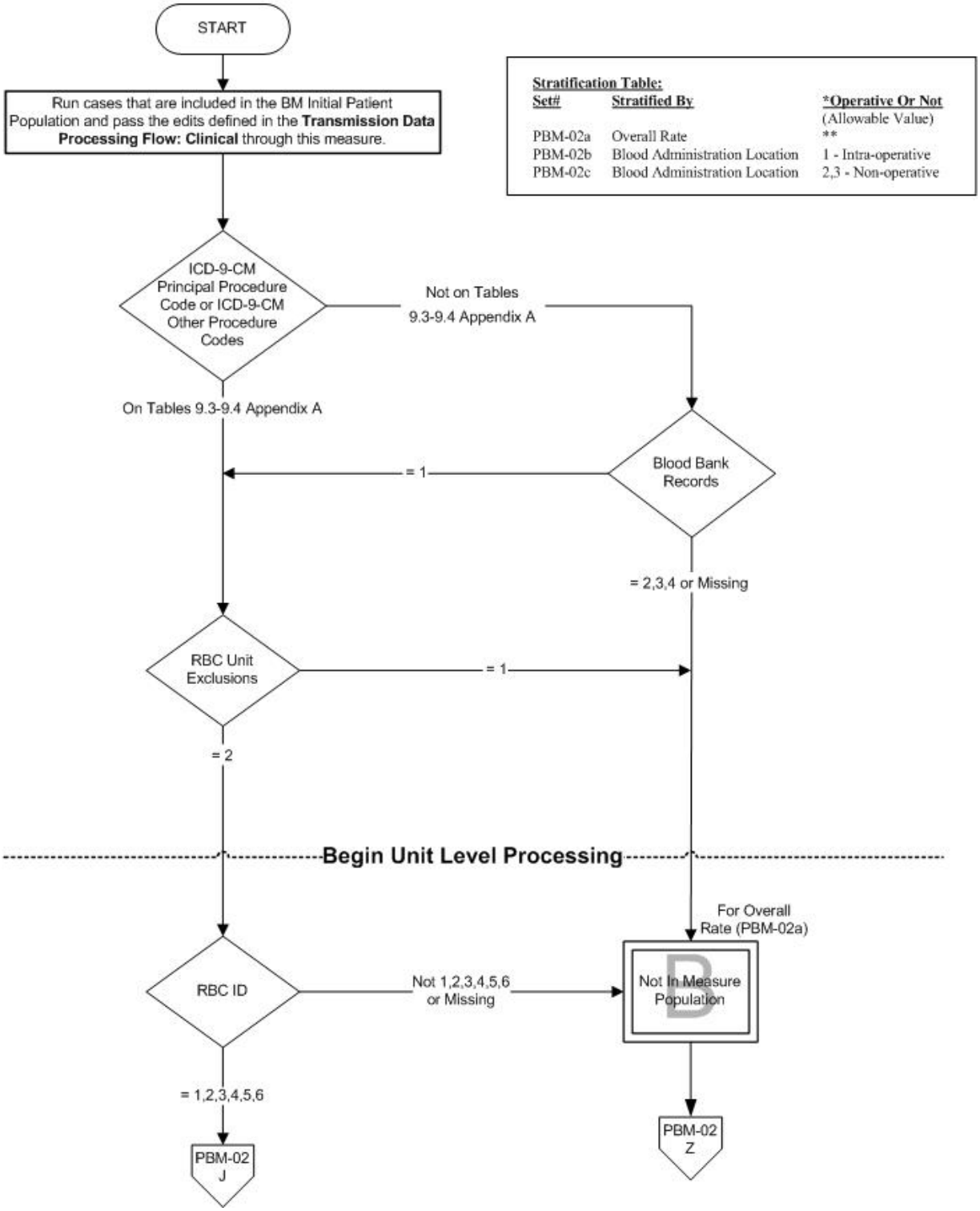
- Friedman MT, Ebrahim A. Adequacy of physician documentation of red blood cell transfusion and correlation with assessment of transfusion appropriateness. Arch Pathol Lab Med. 2006;130: 474-79.
- Corwin HL, Parsonnet KC, Gettinger A. RBC transfusion in the ICU: is there a reason? Chest. 1995;108: 767-771.
- Tobin SN, Campbell DA, Boyce NW. Durability of response to a targeted intervention to modify clinician transfusion practices in a major teaching hospital. MJA. 2001;174:445-448.
- Clinical practice guideline: Red blood cell transfusion in adult trauma and critical care. Crit Care Med 2009 Vol.37, No.12.

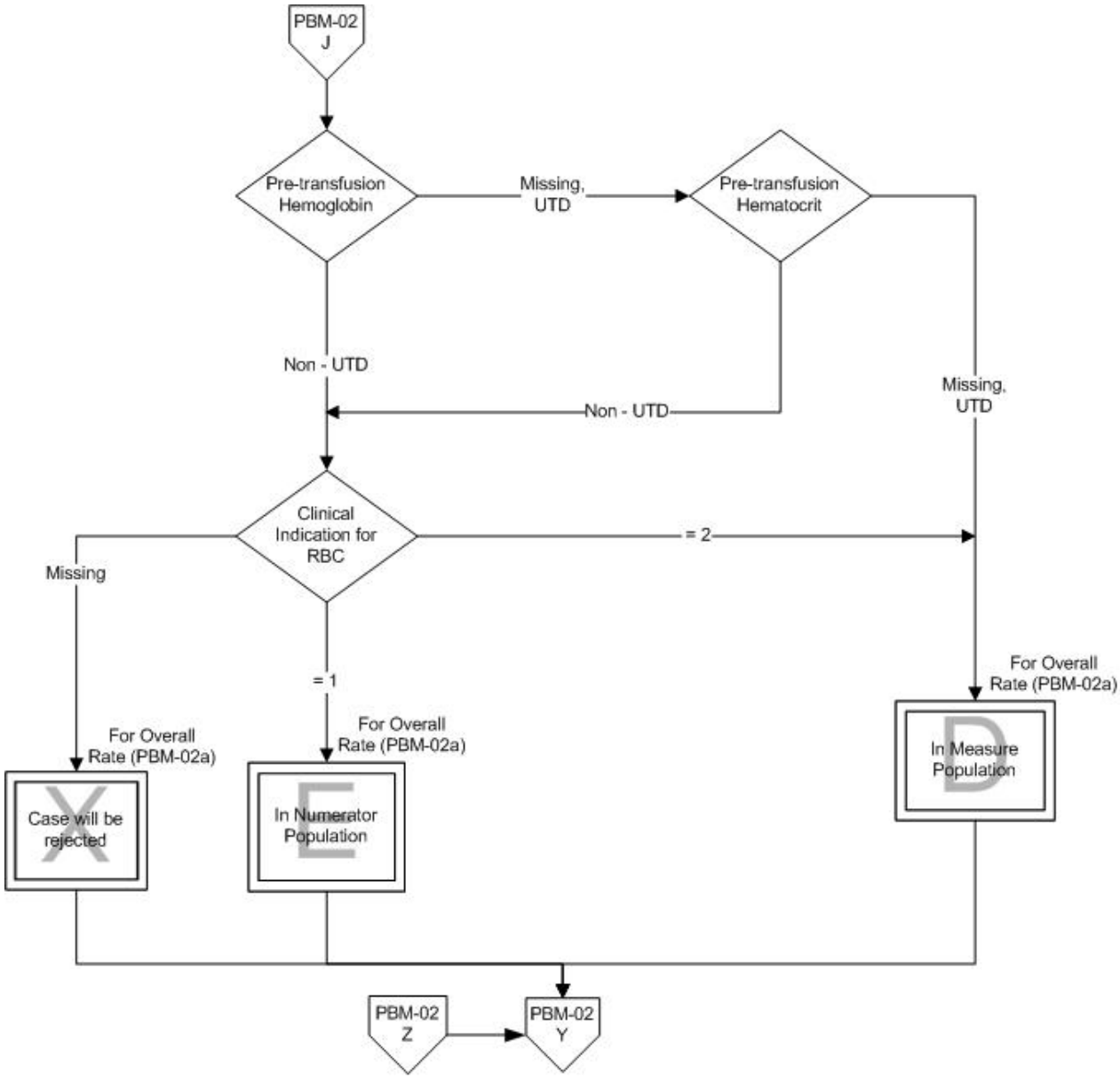
Measure Algorithm:

PBM–02: RBC Transfusion Indication

Numerator: Number of RBC units (bags) with pre-transfusion hemoglobin or hematocrit result and clinical indication documented

Denominator: Number of transfused red blood cell units evaluated





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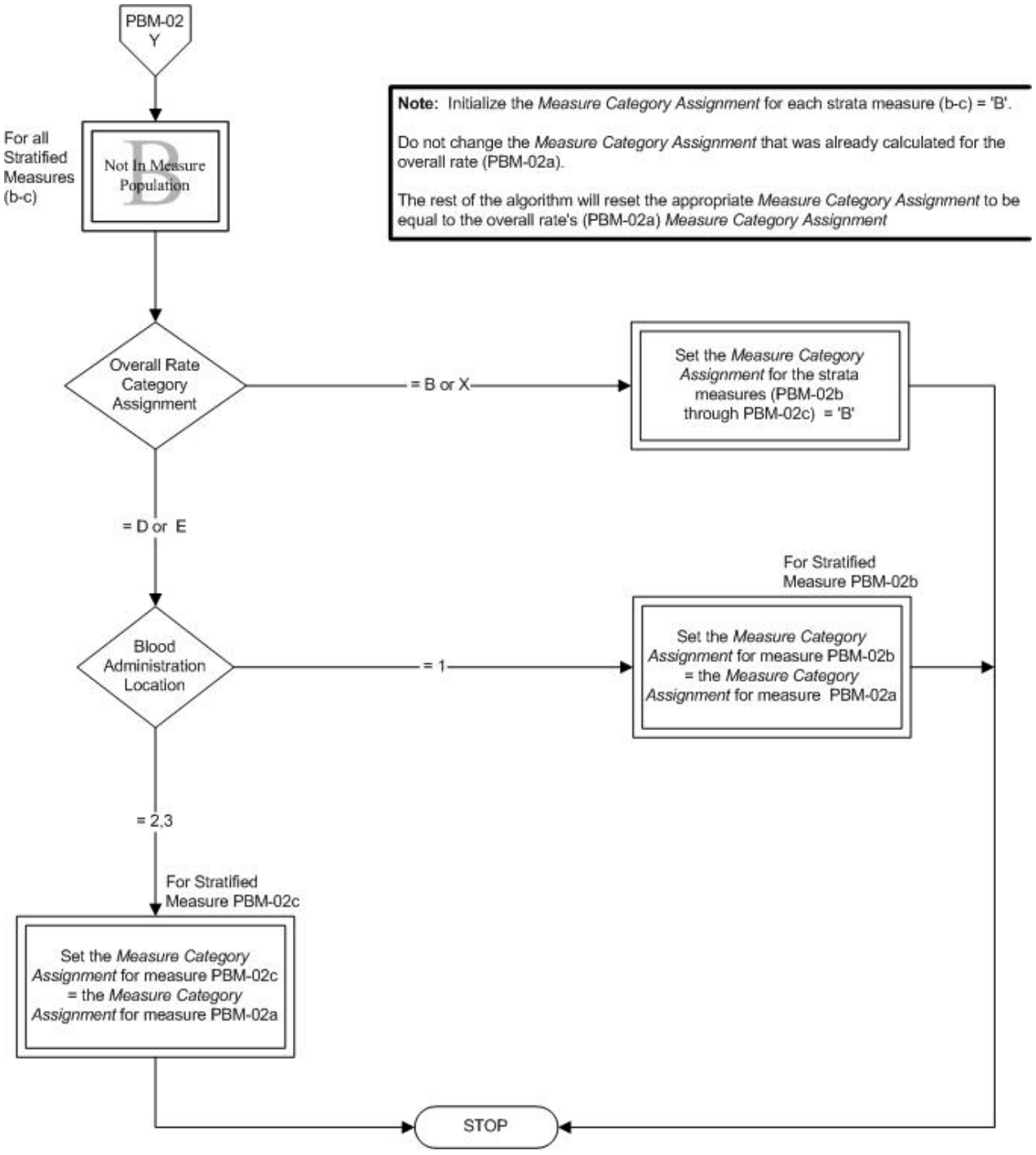


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-03

Performance Measure Name: Plasma Transfusion Indication

Description: The number of transfused plasma units with a pre-transfusion PT/INR result and clinical indication documented from patients of all ages who received plasma.

Rationale: The use of plasma has increased and is disproportionally high compared to other countries with similar levels of health care. Indications for transfusing plasma are very limited, and as a result, published studies often show unjustifiable use of plasma. According to the National Heart Lung and Blood Institute, plasma should be administered only to increase the level of clotting factors in patients with a demonstrated deficiency. If the prothrombin time (PT) and partial thromboplastin time (PTT) are < 1.5 times normal, a plasma transfusion is rarely needed. However, plasma is frequently transfused to patients with mild-to moderate elevations in PT despite numerous studies that have not shown a correlation between the risk of bleeding and mild-to moderate test results. In a study by Wahab et al, transfusion of plasma for mild abnormalities of coagulation values resulted in a partial normalization in a minority of patients, and failed to correct the PT in 99% of the patients. In a 2004 study by Hui, the need to correct prolonged international normalized ratios (INRs) for patients on warfarin emerged as the primary indication for plasma followed by massive transfusions.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of plasma units with pre-transfusion PT/INR result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for Plasma*
- *Plasma ID*
- *Pre-transfusion PT/INR Result*

Denominator Statement: Number of transfused plasma units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.6 or a plasma transfusion documented from Blood Bank Records
- The first three plasma units transfused from hospital arrival

Excluded Populations:

- Discharges with an ICD-9-CM Principal Diagnosis Code of trauma as defined in Appendix A, Table 9.7.

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Diagnosis Code*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received plasma.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Data from this measure may be used to review the type of invasive procedures or surgeries that use plasma in order to further evaluate appropriateness of use.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

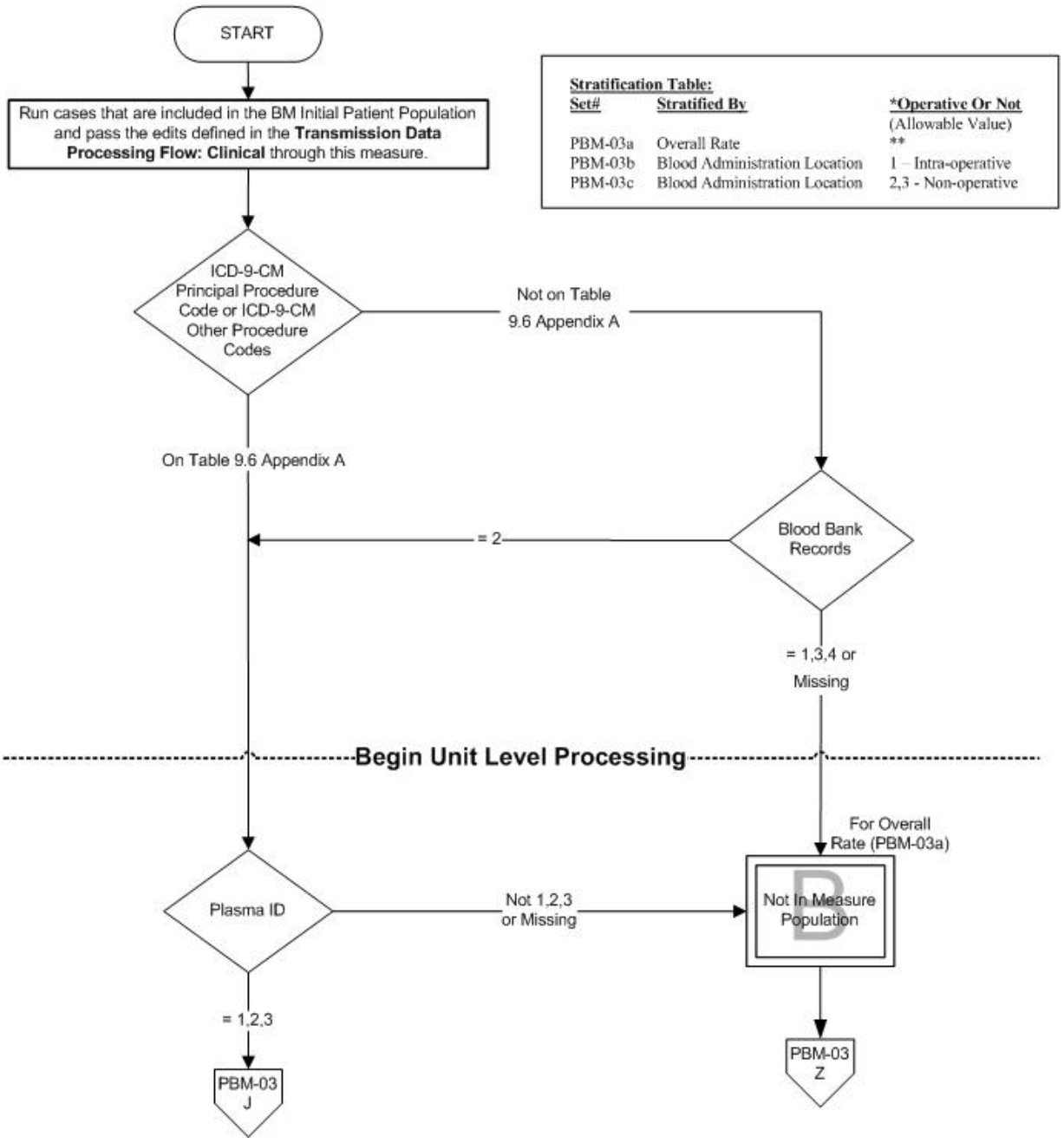
- Hui C, Williams I, Davis K. Clinical audit of the use of fresh-frozen plasma and platelets in a tertiary teaching hospital and the impact of a new transfusion request form. Int Med J. 2005;35:283-288.
- Wallis JP, Dzik S. Is fresh frozen plasma overtransfused in the United States? Transfusion. 2004;44:1674-75.
- Ardel-Wahab OI, Healy B, Dzik WH. Effect of fresh-frozen plasma transfusion on prothrombin time and bleeding in patients with mild coagulation abnormalities. Transfusion. 2006;46:1479-1285.
- Segal J, Dzik WH; Transfusion Medicine/Hemostasis Clinical Trials Network. Paucity of studies to support that abnormal coagulation test results predict bleeding in the setting of invasive procedures: an evidenced-based review. Transfusion. 2005;45:1413-25.

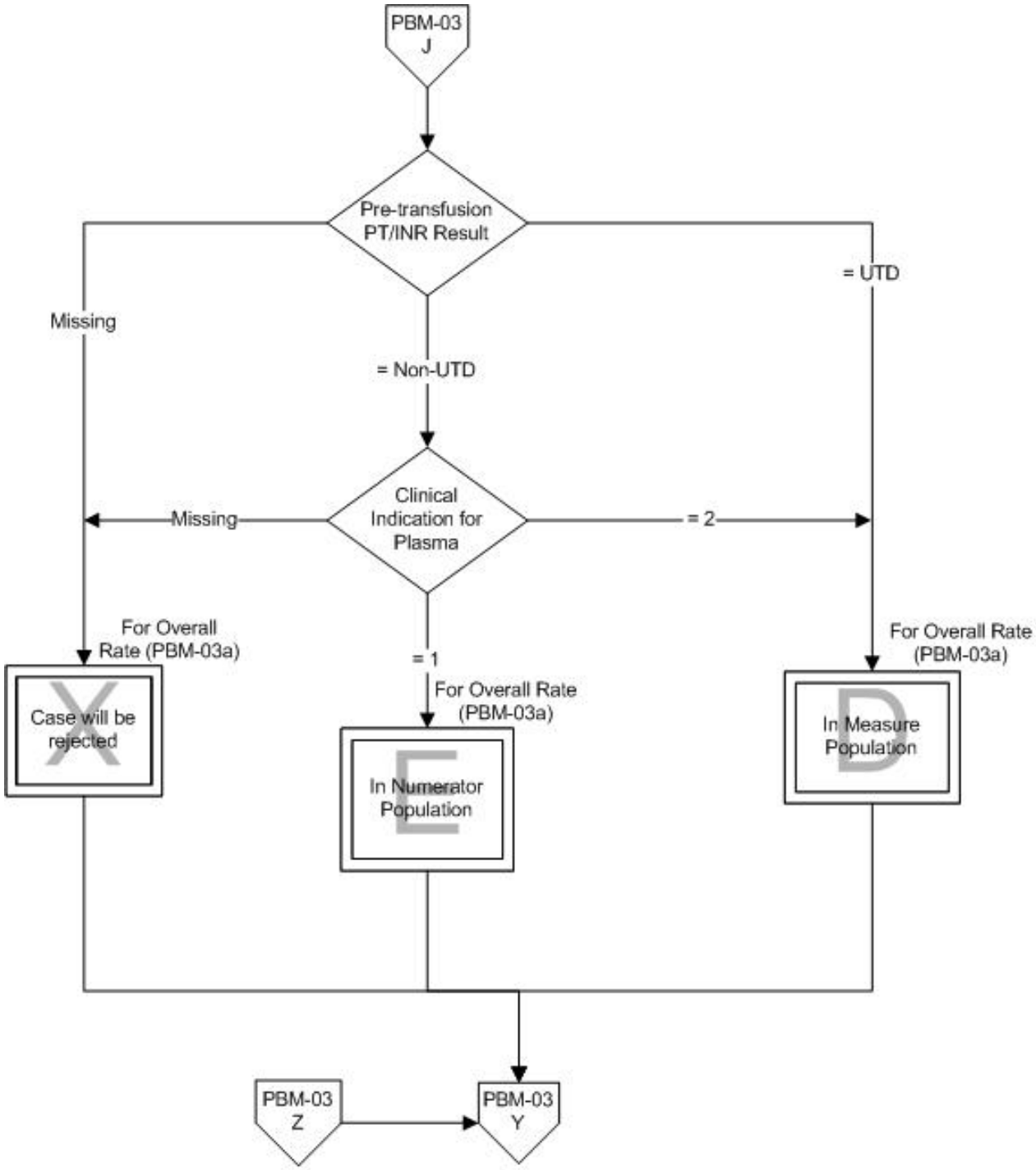
Measure Algorithm:

PBM–03: Plasma Transfusion Indication

Numerator: Number of plasma units with pre-transfusion PT/INR result and clinical indication documented

Denominator: Number of transfused plasma units evaluated





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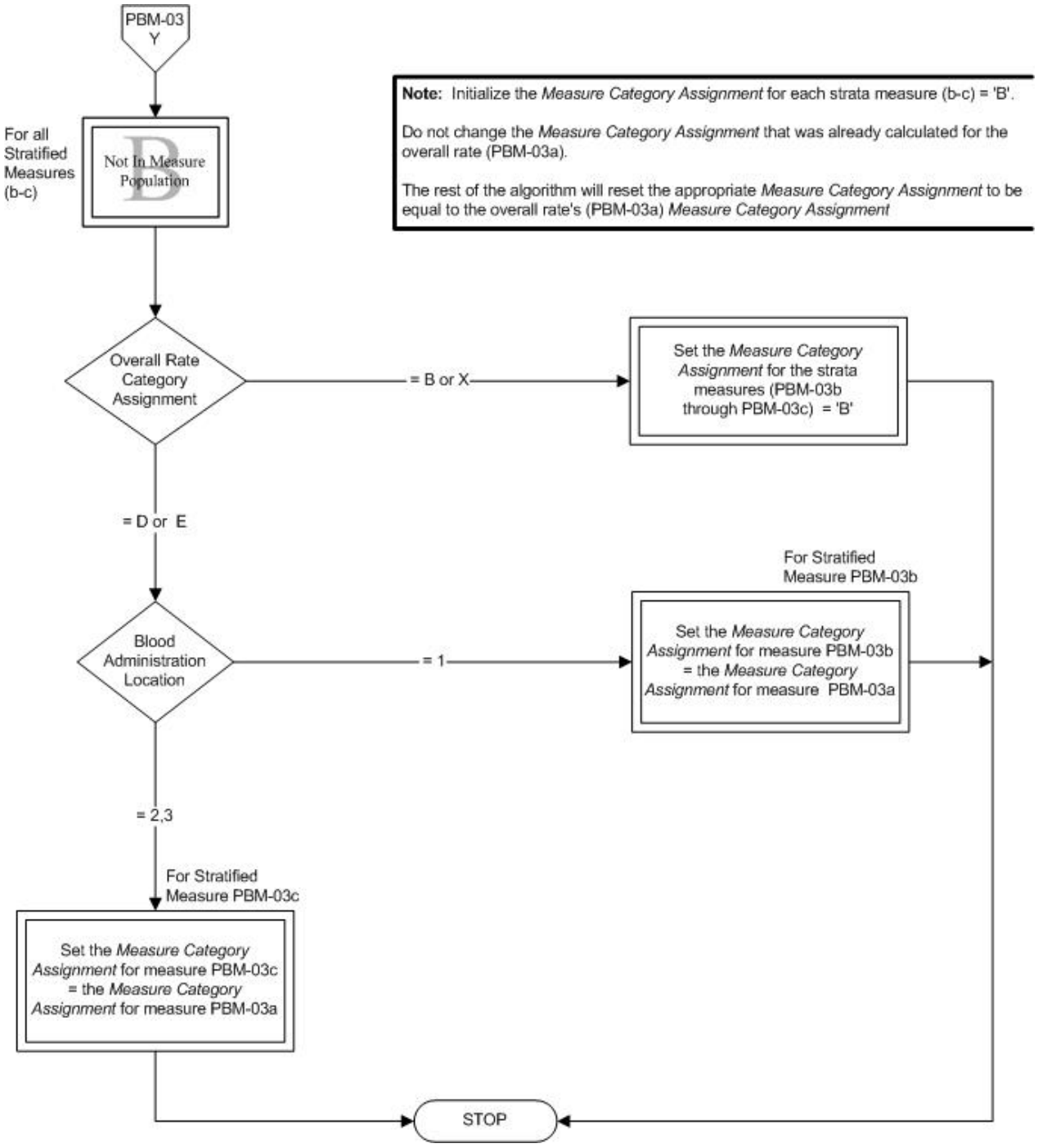


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-04

Performance Measure Name: Platelet Transfusion Indication

Description: The number of transfused platelet units with pre-transfusion platelet count and clinical indication documented from patients of all ages who received platelets.

Rationale: Platelets are transfused to treat or prevent bleeding associated with thrombocytopenia and/or platelet dysfunction. Platelets given therapeutically should help stop the bleeding, and if given prophylactically, post transfusion platelet counts should be obtained to monitor the response to determine the effectiveness of the transfusion. Repeated platelet transfusions can cause alloimmunization and cause platelet refractoriness to future transfusions. Multiple infectious risks are associated with platelet transfusions so patients should only be exposed to the least amount needed.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of platelet units with pre-transfusion platelet count result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for Platelets*
- *Platelet ID*
- *Pre-transfusion Platelet Count*

Denominator Statement: Number of transfused platelet units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.5 or a platelet transfusion documented from Blood Bank Records
- The first three platelet units transfused after hospital arrival

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Blood Administration Location*
- *Blood Bank Records*

- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received platelets.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Data from this measure may be used to evaluate the utilization and approriateness of platelets used by an organization.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

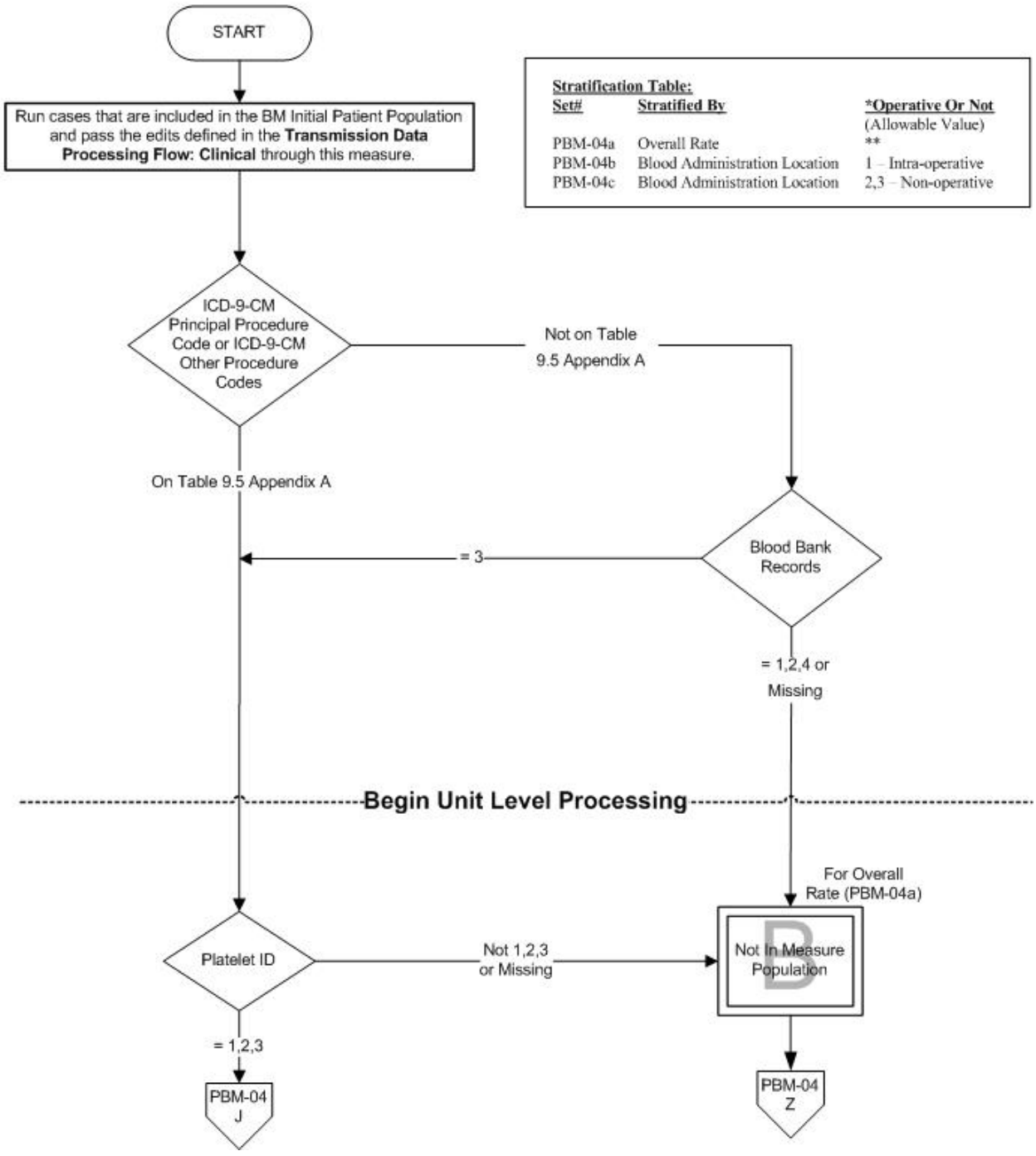
- Garrioch M, Sandbach J, Pirie E, Morrison A, Todd A, Green R. Reducing red cell transfusion by audit, education and a new guideline in a large teaching hospital. Transfusion Med. 2004;14:25-31.
- Petrides M. Red cell transfusion “trigger”: A review. Southern Med J. 2003; 96:664-667.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- BR J Haematol 1998, 101:609 - 617.

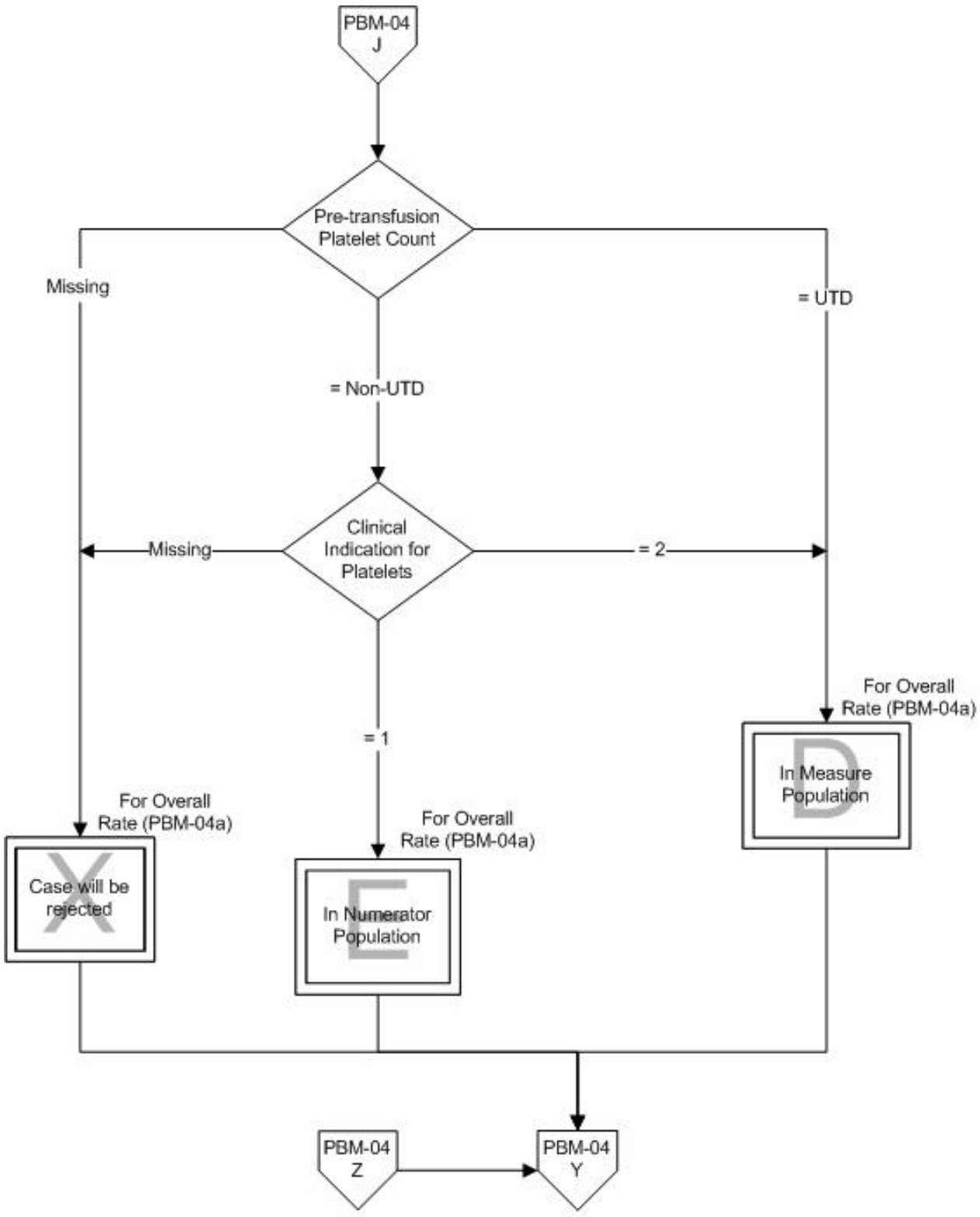
Measure Algorithm:

PBM–04: Platelet Transfusion Indication

Numerator: Number of platelet doses with pre-transfusion platelet count result and clinical indication documented

Denominator: Number of transfused platelet units evaluated





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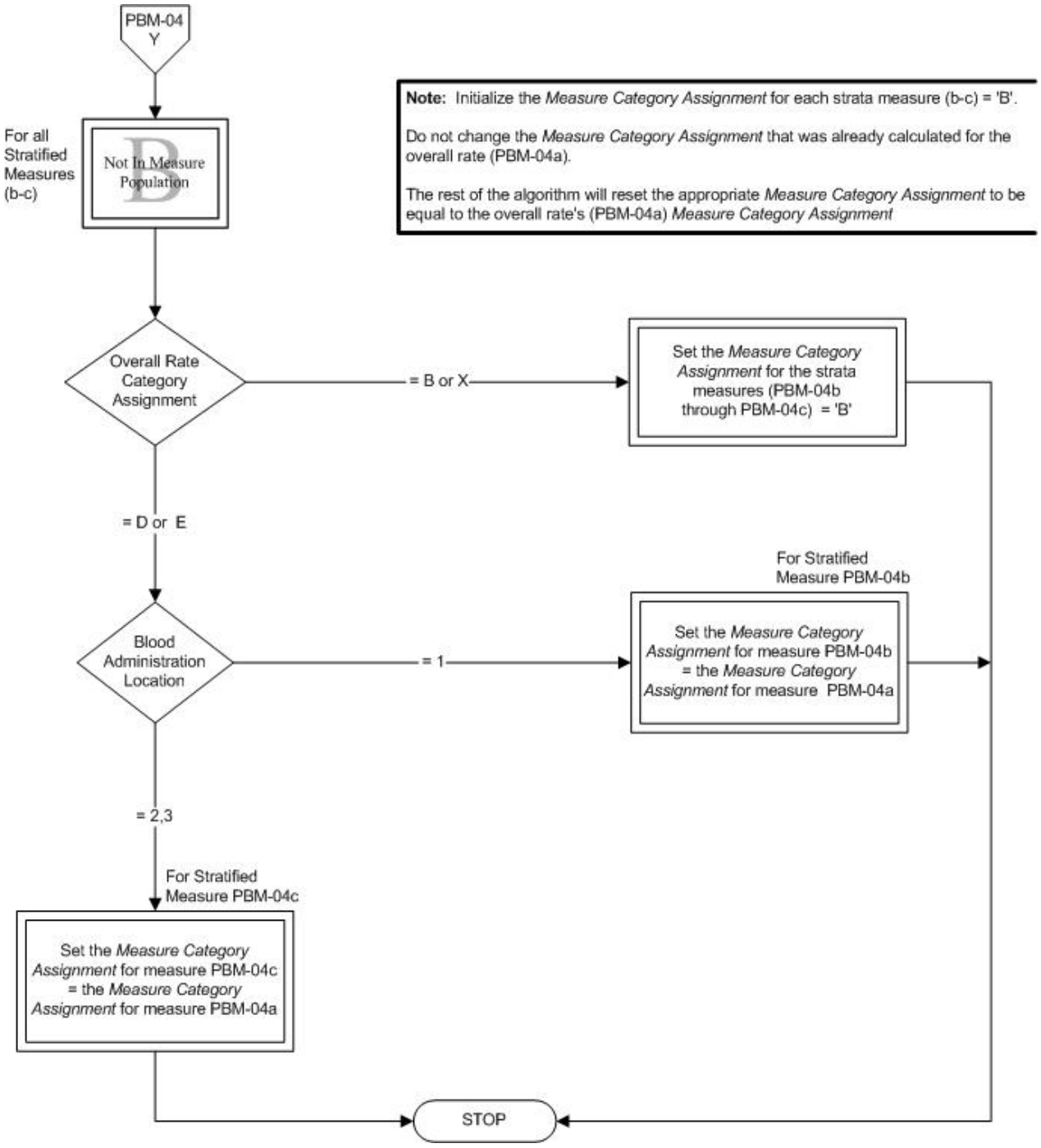


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-05

Performance Measure Name: Blood Administration Documentation

Description: The number of transfused red blood cells, plasma or platelet transfusion units/doses (bags) that had documentation of the following: patient identification and an order to transfuse (Blood ID Number) confirmed prior to the initiation of transfusion, transfusion start date and time, and blood pressure, pulse and temperature recorded at specific intervals.

Rationale: Since the majority of blood units are transfused in hospitals, specific policies and procedures have been developed by each hospital to address documentation of blood administration standards in accordance with their state and federal regulations. Though documentation components vary among organizations, identification of the patient and confirmation of the order to transfuse are common indicators used for all blood products since incomplete patient identification could result in an adverse outcome. Prior to administering blood or blood products, patient identification by two identifiers is required by numerous organizations including the AABB Standard 5.19.3, and the Joint Commission National Patient Safety Goal (NPSG) 1. In addition, numerous organizations require or advise that the licensed staff confirm that there is a transfusion order as directed by the AABB Standard 5.19.6 and the elements of performance for the Joint Commission NPSG.01.01.01.

Patient monitoring during the transfusion is an important component related to patient safety. The first 10 to 15 minutes of the transfusion are considered the most critical to assess for a potential transfusion reaction and close observation during this time is recommended in the AABB Primer. Monitoring of vital signs at baseline, during and at the completion of the transfusion in addition to observation are used to assess the patient's condition for any changes.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of units/doses (bags) with documentation for all of the following:

- patient identification and transfusion order (Blood ID Number) confirmed prior to the initiation of transfusion
- transfusion start date and time
- blood pressure, pulse and temperature recorded pre, during and post transfusion

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Blood ID Number*
- *Patient ID Verification*
- *Plasma ID*

- *Platelet ID*
- *RBC ID*
- *Transfusion Order*
- *Transfusion Start Date*
- *Transfusion Start Time*
- *Vital Sign Monitoring*

Denominator Statement: Number of transfused red blood cells, plasma or platelet units/doses (bags) evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.3-9.6 or a transfusion documented from Blood Bank Records

Excluded Populations:

- Units used in massive transfusion protocols
- Uncrossmatched units
- Units used to prime equipment

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*
- *RBC Unit Exclusions*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: The data from this measure may be used to evaluate the adherence to organizational policies and procedures for blood administration for each of the blood products. Data could be evaluated by unit or service in order to identify areas for staff education. The data could also be used during accreditation surveys to document the hospital's efforts to improve the accuracy of patient identification when administering blood related to the Joint Commission National Patient Safety Goal #1.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

- Whitsett CF, Robichaux MG. Assessment of blood administration procedures: problems identified by direct observation and administrative incident reporting. Transfusion. 2001;41:581-86.
- Saxena S, Ramer L, Shulman IA. A comprehensive assessment program to improve blood-administering practices using the FOCUS-PDCA model. Transfusion. 2004; 44:1350-56.
- Novis DA, Miller KA, Howanitz PJ, Renner SW, Walsh MK; College of American Pathologists. Audit of transfusion procedures in 660 hospitals. A College of American Pathologists Q–Probes study of patient identification and vital sign monitoring frequencies in 16494 transfusions. Arch Pathol Lab Med. 2003;127:541-8.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009.
- The Joint Commission, “National Patient Safety Goals (NPSG)”, IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.
- AABB Primer of Blood Administration. Revised August 2008. Bethseda, Maryland. [Available at http://www.aabb.org/Content/Professional_Development/Education_and_Training_Material/edtr (accessed November 2009).]

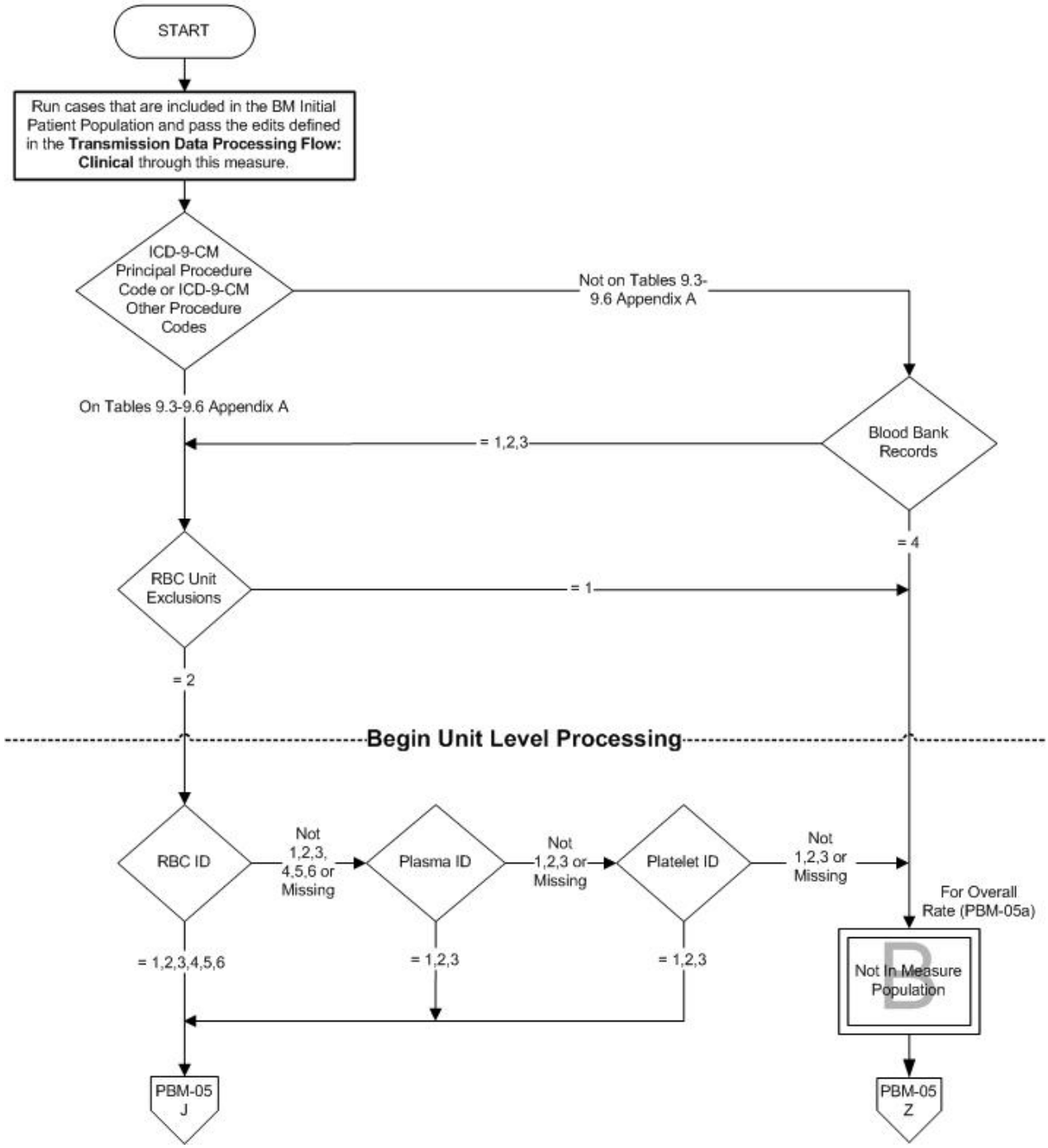
Measure Algorithm:

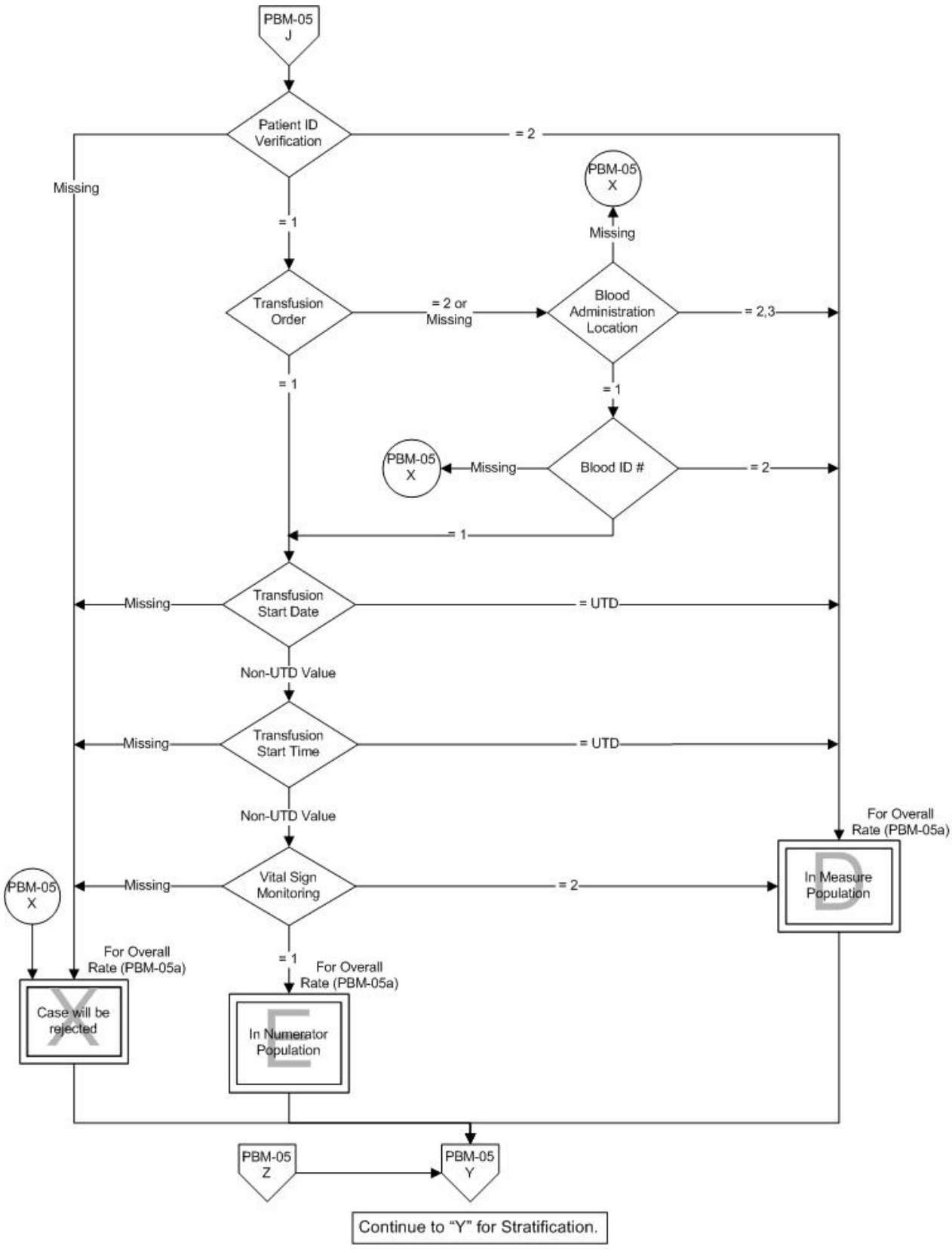
PBM–05: Blood Administration Documentation

Numerator: Number of blood transfusion units (bags) or doses with documentation for all of the following:

- patient identification (ID) and transfusion order (blood ID number) confirmed prior to the initiation of blood
- date and time of transfusion
- blood pressure, pulse and temperature recorded pre, during and post transfusion

Denominator: Number of transfused red blood cells, plasma and platelet units (bags) or doses evaluated

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Missing
PBM-05 X
= 1
Missing
Transfusion Order
= 2 or Missing
Blood Administration Location
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PBM-05 X
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Blood ID #
= 2
= 1
Transfusion Start Date
Missing
= UTD
Non-UTD Value
Transfusion Start Time
Missing
= UTD
Non-UTD Value
For Overall Rate (PBM-05a)
PBM-05 X
Vital Sign Monitoring
Missing
= 2
In Measure Population
D
For Overall Rate (PBM-05a)
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Case will be rejected
X
In Numerator Population
E
PBM-05 Z
PBM-05 Y
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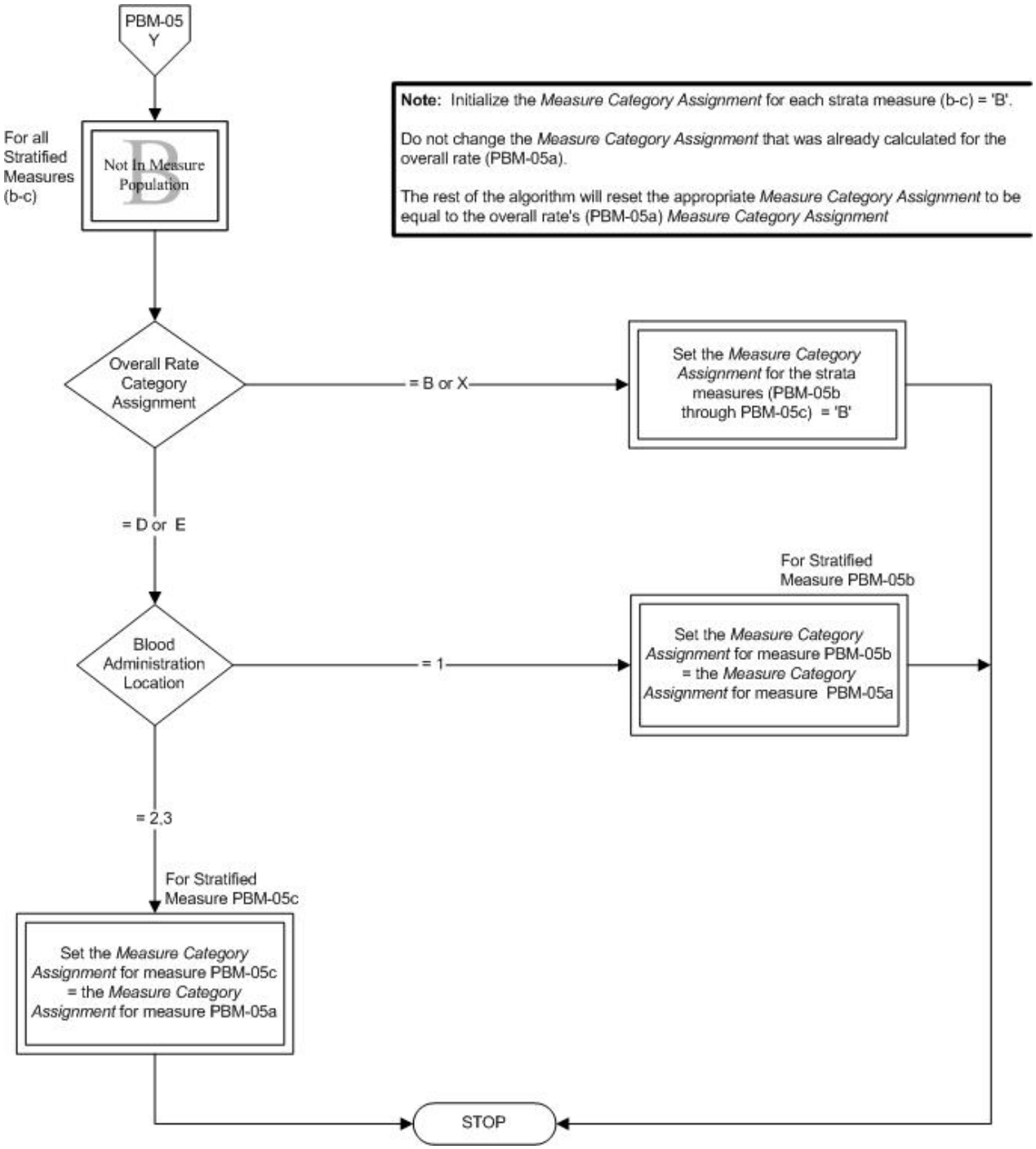

Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-06

Performance Measure Name: Preoperative Anemia Screening

Description: Selected elective orthopedic, cardiac and hysterectomy surgical patients with documentation of preoperative anemia screening date 14 – 45 days before surgery start date for procedures scheduled 14 or more days before surgery.

Rationale: Development of formal protocols for preoperative testing of hemoglobin (hgb) for potential high-blood loss elective surgeries could be used to identify and intervene for optimal management of blood resources. Preoperative anemia often goes unrecognized and untreated unless tests are ordered in advance of a planned surgery. Early recognition of anemia offers patients an opportunity to receive the most appropriate transfusion-sparing strategy, and avoid the risk of a potential transfusion. Researchers have shown that preoperative hgb and hematocrit can be used as predictors of outcome for specific types of patients such as cardiac artery bypass graft or orthopedic surgery. In a study by Salido, orthopedic patients with a preoperative hemoglobin <13 g/dL had four times the risk of transfusion than those with a hemoglobin level between 13 g/dL and 15 g/dL.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with preoperative anemia screening 14 - 45 days before Anesthesia Start Date

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Preoperative Anemia Screening Date*

Denominator Statement: Selected elective surgical patients

Included Populations:

- Discharges with an ICD-9-CM Principal Procedure Codes of selected surgeries as defined in Appendix A, Tables 2.2, 5.01, 5.02, 5.08, 5.11, 5.22, 5.23, 9.1 or 9.2.

Excluded Populations:

- Patients less than 18 years of age
- Patients with surgery scheduled less than 14 days before Anesthesia Start Date
- Patients not admitted from home

Data Elements:

- *Admission Date*
- *Admission From Home*
- *Birthdate*
- *Discharge Date*
- *ICD-9-CM Principal Procedure Code*
- *ICD-9-CM Principal Procedure Date*
- *Surgery Scheduled Timeframe*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: These data may be used to evaluate specific patient groups at high risk for a blood transfusion that did not have their pre-operative hemoglobin and/or transfusion testing completed and/or documented prior to surgery. The data could be further analyzed based on physician or type of procedure. Patients who are not included in the numerator could be tracked to see if there were any adverse outcomes due to the lack of preoperative anemia screening.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References: * Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.

- Salido JA, Martin LA, Gomez LA, et al. Preoperative hemoglobin levels and the need for transfusion after prosthetic hip and knee surgery; analysis of predictive factors. J Bone Joint Surg. 2002;84: 216-20.
- Rady MY, Ryan T, Starr NJ. Perioperative determinants of morbidity and mortality in elderly patients undergoing cardiac surgery. Crit Care Med. 1998;26: 225-235.
- Magovern JA, Sakert T, Magovern GJ et al. A model that predicts morbidity and mortality after coronary artery bypass graft surgery. J Am Coll Cardiol. 1996;28: 1147-1153.
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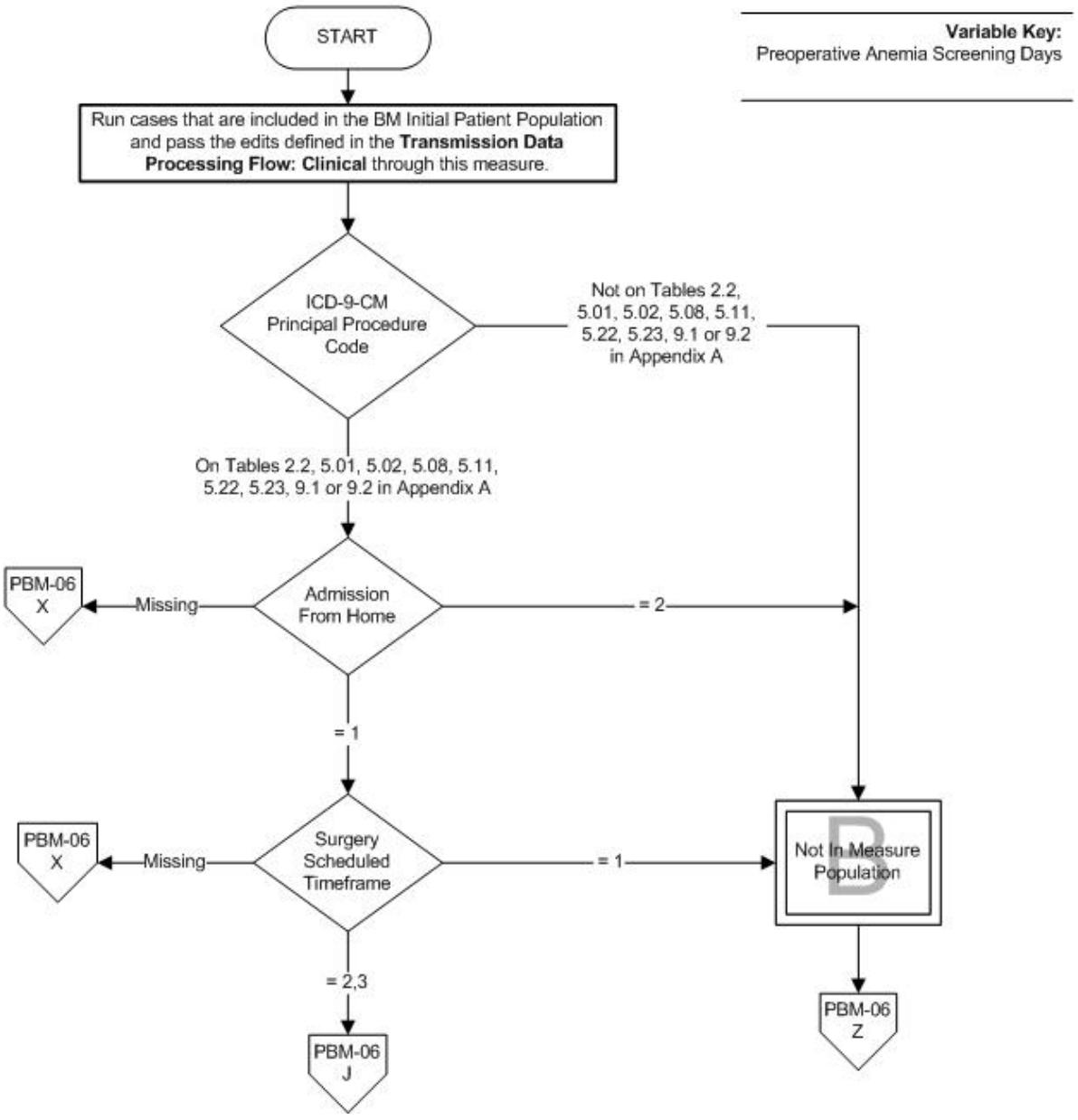
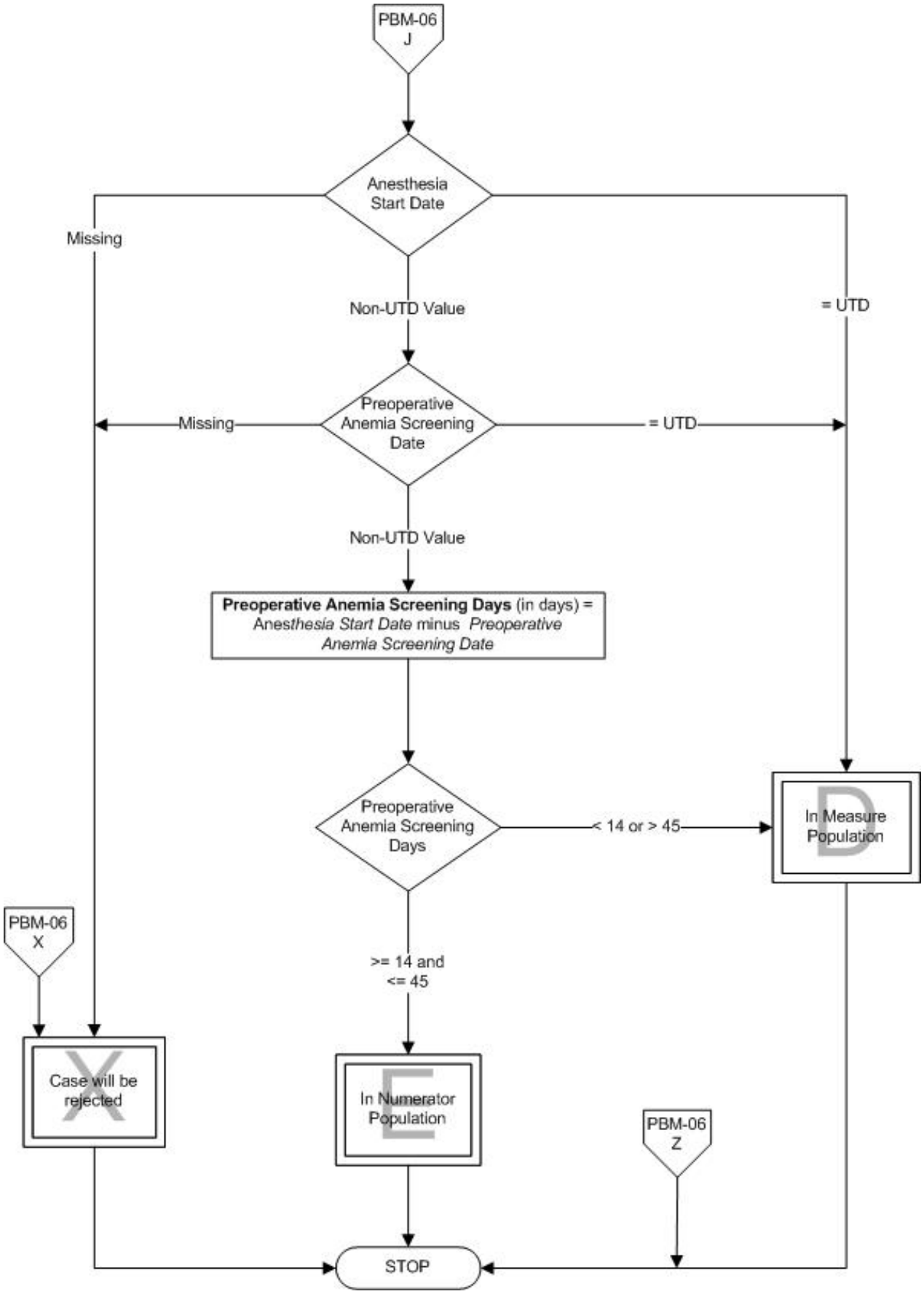
Measure Algorithm:

PBM–06: Preoperative Anemia Screening

Numerator: Patients with documentation of preoperative anemia screening 14 - 45 days before Anesthesia Start Date

Denominator: Selected elective surgical patients





Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-07

Performance Measure Name: Preoperative Blood Type Testing and Antibody Screening

Description: Selected elective orthopedic, cardiac and hysterectomy surgical patients who had preoperative blood type testing and antibody screening (type and screen or type and crossmatch) completed prior to surgery start time if ordered preoperatively.

Rationale: Hospitals need to ensure that sufficient compatible blood is available for each scheduled procedure. Since about 3% of specimens have a serologic finding that requires further investigation that may cause a delay in the availability of the blood, patient screening of ABO group and Rh type should be collected in sufficient time to complete all pretransfusion testing before surgery begins. According to the Joint Commission's Pre-publication National Patient Safety Goal UP.01.01.01 for 2010, a preprocedure verification process should be conducted to identify items that must be available for the procedure and use a standardized list to verify their availability. Documentation of any required blood products for the procedure is required. Development of formal protocols to ensure that patients have blood testing completed prior to surgery start time for potential high-blood loss elective surgeries may optimize management of blood resources and maximize patient safety.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with preoperative type and crossmatch or type and screen completed prior to surgery start time

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Preoperative Blood Type Testing*

Denominator Statement: Selected elective surgical patients

Included Populations:

- Discharges with an ICD-9-CM Principal Procedure Code of selected surgeries as defined in Appendix A, Tables 2.2, 5.01, 5.02, 5.08, 5.11, 5.22, 5.23, 9.1 or 9.2.

Excluded Populations:

- Patients less than 18 years of age
- Patients with type and screen or type and crossmatch ordered preoperatively

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Type Testing Ordered*
- *Discharge Date*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data collection sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: These data may be used to evaluate specific patient groups at high risk for a blood transfusion that did not have pre-operative transfusion testing completed and/or documented prior to surgery start time. The data could be further analyzed based on physician or type of procedure. Patients who are not included in the numerator could be tracked to see if there were any adverse outcomes due to the lack of preoperative testing.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References: * Saxena S, Nelson JM, Osby M, Shah M, Kempf R, Shulman IA. Ensuring timely completion of type and screen testing and the verification of ABO/Rh status for elective surgical patients. Arch Pathol Lab Med. 2007;131:576-81.

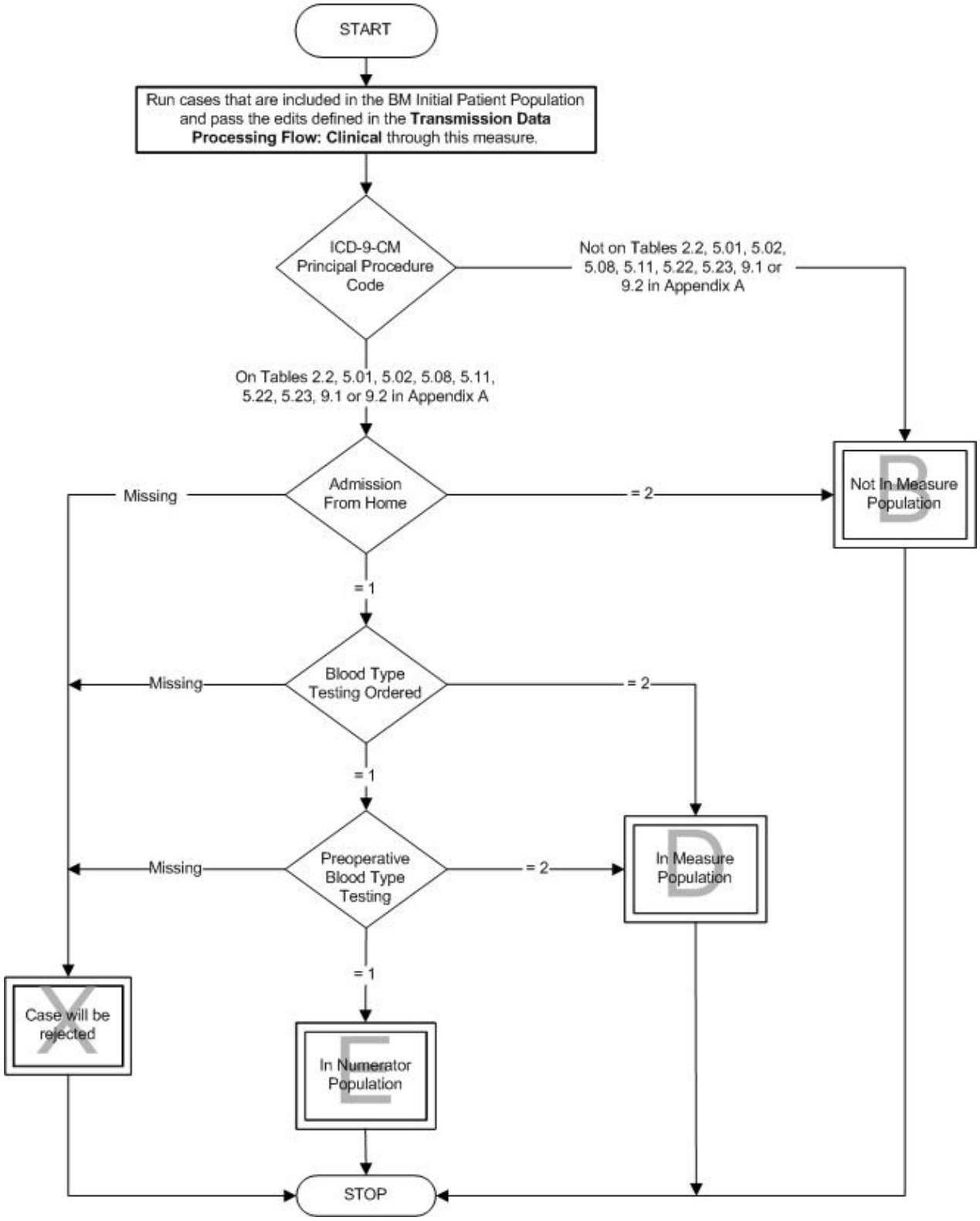
- Friedberg RC, Jones BA, Walsh MK. Type and screen completion for scheduled surgical procedures. A College of American Pathologists Q-Probes study of 8941 type and screen tests in 108 institutions. Arch Pathol Lab Med. 2003;127:533-40.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- Magovern JA, Sakert T, Magovern GJ et al. A model that predicts morbidity and mortality after coronary artery bypass graft surgery. J Am Coll Cardiol. 1996;28: 1147-1153.
- The Joint Commission 2010 National Patient Safety Goals, Oakbrook Terrace, IL [Available at http://www.jointcommission.org/NR/rdonlyres/868C9E07-037F-433D-8858-0D5FAA4322F2/0/RevisedChapter_HAP_NPSG_20090924.pdf (accessed January 27, 2010).]

Measure Algorithm:

PBM–07: Preoperative Blood Type Testing and Antibody Screening

Numerator: Patients with documentation of preoperative type and crossmatch or type and screen completed prior to Anesthesia Start Time

Denominator: Selected elective surgical patients



Related Topics

Data Element Name: *Admission From Home*

Collected For: PBM-06,

Definition: Patient was admitted for the pre-scheduled elective surgery procedure from home.

Suggested Data Collection Question: Was the patient admitted from home?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 Patient was admitted from home.

2 Patient was not admitted from home or unable to determine from medical record documentation.

Notes for Abstraction:

- Patients who have to stay overnight at a location other than their primary residence due to long distance travel for procedure are considered admitted from home.

Suggested Data Sources:

- Face sheet
- Nursing admission assessment
- Physician's notes
- Preop checklist

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Anesthesia Start Date*
Collected For:	PBM-06,
Definition:	The date the anesthesia for the procedure started.
Suggested Data Collection Question:	On what date did the anesthesia for the procedure start?
Format:	**Length:** 10 – MM-DD-YYYY (includes dashes) **Type:** Date **Occurs:** 1
Allowable Values:	MM-DD-YYYY MM = Month (01-12) DD = Day (01-31) YYYY = Year (2001-Current Year) Leave Blank if Unable to Determine
Notes for Abstraction:	If the Anesthesia Start Date cannot be determined from medical record documentation, enter UTD. When the date documented is obviously invalid (not a valid format/range [12-39-20xx] or after the Discharge Date or Anesthesia End Date) and no other documentation can be found that provides the correct information, the abstractor should select "UTD." Example: Patient expires on 02-12-20xx and documentation indicates the Anesthesia Start Date was 03-12-20xx. Other documentation in the medical record supports the date of death as being accurate, but no other documentation of the Anesthesia Start Date can be found. Since the Anesthesia Start Date is outside of the parameter for care (after the Discharge Date [death]) and no other documentation is found, the abstractor should leave blank. If the Anesthesia Start Date is incorrect (in error) but it is a valid date and the correct date can be supported with other documentation in the medical record, the correct date may be entered. If supporting documentation of the correct date cannot be found, the medical record must be abstracted as documented or at "face value." Examples: The anesthesia form is dated 12-10-2007, but other documentation in the medical record supports that the correct date was 12-10-2009. Enter the correct date of 12-10-2009 as the Anesthesia Start Date. An Anesthesia End Date of 11-20-20xx is documented but the Anesthesia Start Date is documented as 11-10-20xx. If no other documentation can be found to support another Anesthesia Start Date, then it must be abstracted as 11-10-20xx because the date is not considered invalid or outside the parameter of care.

Suggested Data Sources:

Other Suggested Sources:

- Intraoperative record
- Circulator record
- Post-anesthesia evaluation record
- Operating room notes

Additional Notes:

Suggested Data Sources:

Note: The anesthesia record is the priority data source for this data element, if a valid Anesthesia Start Date is found on the anesthesia record, use that date. If a valid date is not on the anesthesia record, other suggested data sources may be used in no particular order to determine the Anesthesia Start Date.

Priority Source:

- Anesthesia record

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Blood Administration Location*
Collected For:	PBM-02, PBM-03, PBM-04, PBM-05,
Definition:	The hospital setting (intraoperative or non-intraoperative) where the blood product began infusing.
Suggested Data Collection Question:	In what setting did the blood product begin infusing?
Format:	**Length:** 1 **Type:** Alphanumeric **Occurs:** 1-12

Allowable Values:

1 Intraoperative setting

2 Non-introperative setting

3 Unable to determine

Notes for Abstraction:

- Select setting for each unit transfused based on the physical location of the patient.
- Intraoperative setting is anytime during the operation.
- Non-intraoperative setting is any area outside of the operating room. For example, setting such as the intensive care unit, surgical floor or emergency room.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Nursing notes
- Nursing flow sheet
- Nursing admission assessment
- Progress notes
- Physician's notes
- Operative notes
- Operating room notes
- Operative report
- Procedure notes
- ICU notes
- PACU/recovery room record

Blood Administration Documentation Sheet

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Blood Bank Records*

Collected For: PBM-01, PBM-02, PBM-03, PBM-04, PBM-05,

Definition: Documentation that the patient received red blood cells (RBCs), plasma or platelets after hospital arrival.

Suggested Data Collection Question: Was there documentation that the patient received RBCs, plasma or platelets after hospital arrival?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1-12

Allowable Values:

Select all that apply: 1 RBCs

2 Plasma

3 Platelets

4 None of the above or unable to determine from medical record documentation

Notes for Abstraction:

- Include transfusions given in the emergency room or observation area.

Suggested Data Sources: Blood Bank Records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name: *Blood ID Number*

Collected For: PBM-05,

Definition: Documentation of the actual blood bank identification number in the intraoperative record for the unit that was transfused.

Suggested Data Collection Question: Was there documentation of a blood bank identification number for the unit or dose of blood transfused during surgery?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 There is documentation of a blood bank identification number for the unit that was transfused.

2 There is no documentation of a blood bank identification number for the unit that was transfused or unable to determine from medical record documentation.

Notes for Abstraction:

Suggested Data Sources:

- Anesthesia record
- Operative report

Blood administration record

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Blood Type Testing Ordered*

Collected For: PBM-07,

Definition: A type and screen and/or type and crossmatch was ordered preoperatively for the elective surgery.

Suggested Data Collection Question: Was a type and screen and/or type and crossmatch ordered preoperatively?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 A type and screen and/or type and crossmatch was ordered preoperatively.

2 A type and screen and/or type and crossmatch was not ordered preoperatively or unable to determine

Notes for Abstraction:

Suggested Data Sources:

- Physician orders
- Preop checklist

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for Plasma*

Collected For: PBM-03,

Definition: Documentation by the physician/advance practice nurse/physician assistant or (physician/APN/PA) of the clinical indication for the plasma transfusion unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused plasma unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused plasma unit.

2 There was no documentation of a clinical indication for the transfusion or unable to determine from the medical record.

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first four plasma transfusion units closest to hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING BLOOD:

- Anesthesia record
- Consultation notes
- Emergency department record
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for Platelets*

Collected For: PBM-04,

Definition: Documentation by the physician/advance practice nurse/physician assistant (physician/APN/PA) of the clinical indication for the transfused platelet unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused platelet unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused platelet unit.

2 There was no documentation of clinical indication for the platelet transfusion or unable to determine from the medical record

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first three units transfused after hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING PLASMA:

- Anesthesia record
- Consultation notes
- Emergency department record
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for RBCs*

Collected For: PBM-02,

Definition: Documentation by the physician/advance practice nurse/physician assistant (physician/APN/PA) of the clinical indication for the tranfused red blood cell (RBCs) unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused RBC unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 6

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused RBC unit.

2 There was no clinical indication documented by the physician/APN/PA for the transfused RBC unit or unable to determine from medical record documentation.

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first six RBC transfusion units after hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING RBCs:

- Anesthesia record
- Consultation notes
- Emergency department record
- Operative notes
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Education Addressed Risks, Benefits and Alternatives to Transfusion*
Collected For:	PBM-01,
Definition:	Documentation that information addressing risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion or the initial transfusion was deemed a medical emergency after hospital arrival.
Suggested Data Collection Question:	Was there documentation that information regarding risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion event or was the initial transfusion deemed a medical emergency after hospital arrival?
Format:	**Length:** 1 **Type:** Numeric **Occurs:** 1

Allowable Values:

1 Information addressing the risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion after hospital arrival.

2 Information addressing the risks, benefits and alternatives to transfusion was not given to the patient/caregiver prior to the initial transfusion after hospital arrival or unable to determine from medical record documentation.

Notes for Abstraction:

- Use only documentation provided in the medical record.
- If the patient refused information about risks, benefits and alternatives to transfusion, select “1.”
- The caregiver is defined as the patient’s family or any other person (e.g., guardian) who will be responsible for care of the patient.

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Nursing notes
- Progress notes
- Operative notes
- Admission forms
- Consent form
- Emergency department record
- Progress notes
- Nursing notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Patient ID Verification*

Collected For: PBM-05,

Definition: Documentation that two unique patient identifiers were checked during a two-person verification process (or the use of automated identification technology may be used in place of one of the individuals) prior to the administration of the transfusion unit/dose (bag).

Suggested Data Collection Question: Was there documentation that two unique patient identifiers were checked or automated identification was used in place of one person during the verification process prior to the administration of the blood transfusion unit/dose (bag)?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 12

Allowable Values:

1 There was documentation that two unique patient identifiers were checked during the two person verification process or an automated identification system was used in place of one of the individuals prior to the administration of the transfusion unit/dose (bag).

2 There was no documentation that two unique patient identifiers or automated identification were used during the two-person identification check prior to the administration of the transfusion unit/dose (bag) or unable to determine from medical record documentation.

Notes for Abstraction:

- *Patient ID Verification* must be associated with the blood product and RBC ID that was selected for abstraction.
- *Patient ID Verification* can be documented by the signature of two persons that attest that two unique patient identifiers were checked to verify the identification of the patient prior to the transfusion or the signature of one person and an automated identification device.
- Patient identifiers that could be used include; name, date of birth, patient identification number or unique identifier given at the time the crossmatch was drawn.
- The patient room number should not be used to identify the patient.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Nursing notes
- Progress notes
- Physician's notes
- Operative notes
- Operative report
- Procedure notes
- PACU/recovery room record

- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Plasma ID*

Collected For: PBM-03, PBM-05,

Definition: The number assigned to designate whether the plasma unit was the first, second or third unit transfused after hospital arrival.

Suggested Data Collection Question: What number was assigned to the plasma unit selected for abstraction?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 First Plasma Unit

2 Second Plasma Unit

3 Third Plasma Unit

Notes for Abstraction:

- The abstractor assigns a plasma identification (ID) number for each unit evaluated.
- Each allowable value is only used one time and is determined by the order in which it was administered.
- Abstract up to three plasma transfusion units per patient.
- Include plasma transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Platelet ID*

Collected For: PBM-04, PBM-05,

Definition: The number assigned to designate whether the platelet unit was the first, second or third unit that was transfused after hospital arrival.

Suggested Data Collection Question: What number was assigned to the platelet unit selected for abstraction?

Format:

Length: 2
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 First Platelet Unit

2 Second Platelet Unit

3 Third Platelet Unit

Notes for Abstraction:

- The abstractor assigns a platelet identification (ID) number for each unit evaluated.
- Each allowable value is only used one time and is determined by the order in which it was administered.
- Abstract up to three platelet units per patient
- Include platelet transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Hematocrit*

Collected For: PBM-02,

Definition: Documentation of the closest hematocrit (hct) completed prior to the RBC transfusion.

Suggested Data Collection Question: What was documented as the closest pre-transfusion hct prior to the RBC transfusion?

Format:

Length: 4
Type: Alphanumeric
Occurs: 1 - 6

Allowable Values:

Enter the patient's closest hematocrit result (number only, reported in percent) performed prior to each RBC transfusion.

UTD = Unable to Determine

- For abstraction, select either the pre-transfusion hematocrit or the hemoglobin result; both are not required.
- Select the result associated with the RBC ID selected for abstraction.
- When recording the allowable value for hematocrit, input 23.00 if the patient's hematocrit is 23%.

Notes for Abstraction:

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Hemoglobin*

Collected For: PBM-02,

Definition: Documentation of the closest hemoglobin (hgb) completed prior to the RBC transfusion.

Suggested Data Collection Question: What was documented as the closest pre-transfusion hgb prior to the RBC transfusion?

Format:

Length: 4
Type: Alphanumeric
Occurs: 1 - 6

Allowable Values:

Enter the patient's closest hemoglobin result reported in g/dL performed prior to transfusion.

UTD = Unable to Determine

- For abstraction, select either the pre-transfusion hematocrit or the hemoglobin result; both are not required.
- Select the hemoglobin result that is associated with the RBC ID selected for abstraction.
- If the hemoglobin result is 9.9 g/dL, enter 9.9.

Notes for Abstraction:

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion PT/INR Result*

Collected For: PBM-03,

Definition: Documentation of PT/INR result completed prior to the plasma transfusion.

Suggested Data Collection Question: What was the PT/INR result completed prior to the plasma transfusion.

Format:

Length: 1 - 5
Type: Alphanumeric
Occurs: 1 - 3

Allowable Values:

Enter the closest PT/INR result to the plasma transfusion.

UTD = Unable to determine

Notes for Abstraction:

- Enter the PT/INR result that is associated with the plasma ID selected for abstaction.
- An allowable value should be entered with one decimal. For example, a PT/INR of 1.5 should be entered as written. INR values over 10 should be entered as 10.00.

Suggested Data Sources:

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Platelet Count*

Collected For: PBM-04,

Definition: Documentation of the closest platelet count completed prior to the platelet transfusion.

Suggested Data Collection Question: What was the closest platelet count documented prior to the platelet transfusion?

Format:

Length: 1 - 5
Type: Alphanumeric
Occurs: 1 - 3

Allowable Values:

Enter the patient's closest platelet count result, in 10^9/µL performed prior to the platelet transfusion selected for abstraction.

UTD = Unable to Determine

Note:

- Select the platelet count result that is associated with the Platelet ID selected for abstraction.
- An allowable value for a platelet count result should be entered as '11.00' for a platelet count of 11,000.

Notes for Abstraction:

Suggested Data Sources:

- Anesthesia record
- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Preoperative Anemia Screening Date*

Collected For: PBM-06,

Definition: The date that preoperative anemia screening or a hemoglobin (hgb)or hematocrit (hct) result was completed.

Suggested Data Collection Question: What date was preoperative anemia screening or a hgb or hct result completed?

Format:

Length: 10 - MM-DD-YYYY (includes dashes)
Type: Date
Occurs: 1

Allowable Values:

MM-DD-YYYY

MM = Month (01-12)
DD = Day (01-31)
YYYY = Year (2001-Current Year)
UTD

Notes for Abstraction:

- Select the *Preoperative Anemia Screening Date* associated with the elective surgical procedure selected for abstraction.*Preoperative Transfusion Testing*.
- The medical record must be abstracted as documented (taken at "face value"). When the date documented is obviously in error (not a valid date/format) and no other documentation is found that provides this information, the abstractor should select UTD.
- Example: Documentation indicates the Preoperative Anemia Screening Date was 03-42-2008. No other documentation in the medical record provides a valid date. Since the Preoperative Anemia Screening Date is outside of the range listed in the Allowable Values for "Day," it is not a valid date, and the abstractor should select UTD.

Suggested Data Sources:

- Nursing notes
- Progress notes
- Preop checklist
- Pre-arrival laboratory reports

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Preoperative Blood Type Testing*

Collected For: PBM-07,

Definition: Documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time.

Suggested Data Collection Question: Was there documentation of a type and screen or type and crossmatch completed prior to anesthesia start time?

Format:

Length: 1
Type: Numeric
Occurs: 1

Allowable Values:

1 There is documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time.

2 There is no documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time or unable to determine from medical record documentation.

Notes for Abstraction:

- If type and screen and type and crossmatch were completed prior to the surgical procedure, select “1”.
- Anesthesia Start Time is the same as surgery start time.

Suggested Data Sources:

- Consultation notes
- History and physical
- Progress notes
- Preop checklist
- Pre-arrival laboratory reports

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *RBC ID*

Collected For: PBM-02, PBM-05,

Definition: The number assigned to designate whether the RBC transfusion was the first through the sixth RBC transfusion unit that was transfused after hospital arrival.

Suggested Data Collection Question: What RBC unit was selected for abstraction?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 6

Allowable Values:

1 First RBC Unit

2 Second RBC Unit

3 Third RBC Unit

4 Fourth RBC Unit

5 Fifth RBC Unit

6 Sixth RBC Unit

Notes for Abstraction:

- The abstractor assigns a RBC identification (ID) number for each unit evaluated.
- Each allowable value is used only one time and is determined by the order in which it was administered.
- Abstract up to six RBC transfusion units per patient.
- Include RBC transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Operative report
- Medication administration record (MAR)
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion

None	None

Data Element Name:	*RBC Unit Exclusions*
Collected For:	PBM-02, PBM-05,
Definition:	Red blood cell (RBC) units that are excluded from abstraction. The following RBC units excluded from abstraction are; units used for a massive transfusion protocol or documentation of hemorrhagic shock, uncrossmatched units given during an emergency situation and units used to prime equipment for treatment.
Suggested Data Collection Question:	Was this unit transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment?
Format:	**Length:** 1 **Type:** Alphanumeric **Occurs:** 1-6

Allowable Values:

1. There was documentation that this unit was transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment

1. There was no documentation that this unit was transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment or unable to determine from medical record documentation.

Notes for Abstraction:

- If the initial six units transfused are excluded due to the exclusion criteria, abstract the next six units that were tranfused. If the patient only received RBC units that are excluded, then no RBC units should be abstracted.

Suggested Data Sources:

- Anesthesia record
- Circulation record
- Emergency department record
- Laboratory report
- Nursing notes
- Nursing flow sheet
- Progress notes
- Physician orders
- Physician’s notes
- Operative notes
- Operating room notes
- Operative report
- Procedure notes
- ICU notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Surgery Scheduled Timeframe*

Collected For: PBM-06,

Definition: The elective surgery was scheduled in less than 14 days from the planned surgery start date.

Suggested Data Collection Question: Was the elective surgery scheduled in less than 14 days from the planned surgery?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 There was documentation that the elective surgery was scheduled in less than 14 days from the planned surgery.

2 There was no documentation that the elective surgery was scheduled in less than 14 days from the planned surgery or unable to determine from medical record documentation.

Notes for Abstraction:

Suggested Data Sources:

- Preop checklist

Preoperative paperwork

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Transfusion Consent*

Collected For: PBM-01,

Definition: Documentation of a signed consent **prior** to the first transfusion of RBCs, platelets or plasma.

Suggested Data Collection Question: Was there documentation of a signed consent **prior** to the first blood transfusion?

Format:

Length: 1
Type: Numeric
Occurs: 1

Allowable Values:

1 There was documentation of a signed consent prior to the first blood transfusion.

2 The first blood transfusion was deemed a medical emergency.

3 There was no documentation of a blood transfusion consent prior to the first blood transfusion or unable to determine from medical record documentation.

Notes for Abstraction:

- The consent may be signed by the patient or caregiver.
- If organizations require a consent prior to every transfusion, then review the record for the first transfusion to answer this data element.
- For hospitals that use a general consent for treatment that includes transfusions, select “Yes”.
- If a patient receives chronic transfusions and a previous consent is acceptable for a defined timeframe within the institution, select “1” if the consent is valid.

Suggested Data Sources:

- Emergency department record
- History and physical
- Nursing notes
- Progress notes
- Operative notes
- Consent form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Transfusion Order*

Collected For: PBM-05,

Definition: An order to transfuse was written by the physician/advance practice nurse/physician assistant (physician/APN/PA) **prior** to the initiation of the transfusion.

Suggested Data Collection Question: Was there documentation of an order to transfuse **prior** to the transfusion?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 12

Allowable Values:

1 There was documentation of an order to transfuse prior to transfusion.

2 There was no documentation of an order to transfuse prior to transfusion or unable to determine from medical record documentation.

Notes for Abstraction:

- A verbal or telephone order that was written prior to the transfusion is acceptable.
- The Transfusion Order must be associated with the blood product unit ID that was selected for abstraction.
- Note: Transfusion Order may apply to more than one unit/dose (bag). For example: An order written to "Transfuse two doses of platelets" would apply to both bags that were administered.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE ORDER TO TRANSFUSE:

- Anesthesia record
- Consultation notes
- Emergency department record
- Operative notes
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Transfusion Start Date*
Collected For:	PBM-05,
Definition:	The date that the blood transfusion unit/dose (bag) was administered.
Suggested Data Collection Question:	What is the date that the blood transfusion unit/dose (bag) was administered?
Format:	**Length:** 10 – MM-DD-YYYY (includes dashes) **Type:** Date **Occurs:** 1 - 12
Allowable Values:	MM-DD-YYYY MM = Month (01-12) DD = Day (01-31) YYYY = Year (2001-Current Year) UTD
Notes for Abstraction:	• Abstract the Transfusion Date associated with the Transfusion Start Time of the unit/dose (bag) from the blood product ID selected for abstraction. • Some of the dates of the transfusion units may be the same date. Record a transfusion date for each unit abstracted up to three units for plasma or platelets or up to six units for RBCs. • The medical record must be abstracted as documented (taken at "face value"). When the date documented is obviously in error (not a valid date/format) and no other documentation is found that provides this information, the abstractor should select UTD. Example: Documentation indicates the Transfusion Start Date was 03-42-2008. No other documentation in the medical record provides a valid date. Since the Transfusion Start Date is outside of the range listed in the Allowable Values for "Day," it is not a valid date and the abstractor should select UTD.
Suggested Data Sources:	• Anesthesia record • Emergency department record • Nursing notes • Progress notes • Operative notes • Blood administration record
Additional Notes:	

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Transfusion Start Time*
Collected For:	PBM-05,
Definition:	The start time (military time) of the unit/dose (bag) of RBCs, plasma or platelets that was administered.
Suggested Data Collection Question:	What was the start time of the blood unit/dose (bag) administration?
Format:	**Length:** 5 - HH:MM (with or without colon) or UTD **Type:** Time **Occurs:** 1 - 12

Allowable Values:

Select the Transfusion Start Time associated with the Transfusion Start Date of the unit/dose (bag) from the associated blood product ID being abstracted.

HH = Hour (00-23)
MM = Minutes (00-59)
UTD = Unable to Determine

Notes for Abstraction:

Time must be recorded in military time format. With the exception of Midnight and Noon:

- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour

Examples:
Midnight - 00:00 Noon - 12:00
5:31 am - 05:31 5:31pm - 17:31
11:59 am - 11:59 11:59pm - 23:59

- For times that include “seconds,” remove the seconds and record the time as is. Example: 15:00:35 would be recorded as 15:00
- If more than one Transfusion Start Time is documented, use the earliest time documented.
- The medical record must be abstracted as documented (taken at “face value”). When the time documented is obviously in error (not a valid format/range) and no other documentation is found that provides this information, the abstractor should select “UTD.”
- Example: Documentation indicates the Transfusion Start Time was 3300. Since the Transfusion Start Time is outside of the range in the Allowable Values for “Hour,” it is not a valid time and the abstractor should select “UTD.”

Suggested Data Sources:

- Anesthesia record

- Emergency department record
- Nursing notes
- Operative notes
- Operative report
- Blood administration form

Additional Notes:

Select the Transfusion Start Time associated with the Transfusion Start Date of the unit/dose (bag) from the blood product ID identified for abstraction.

Time must be recorded in military time format.
With the exception of Midnight and Noon:

- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour.

The medical record must be abstracted as documented (taken at "face value"). When the time documented is obviously in error (not a valid format/range) and no other documentation is found that provides this information, the abstractor should select "UTD."

Example:
Documentation indicates the Transfusion Start Time was 3300. Since the Transfusion Start Time is outside of the range in the Allowable Values for "Hour," it is not a valid time and the abstractor should select "UTD."

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Vital Sign Monitoring*
Collected For:	PBM-05,
Definition:	Documentation of blood pressure (BP), pulse and temperature monitored at specific intervals for the transfusion. The intervals are: • Pre-transfusion, within 15 minutes of the initiation of the transfusion and within one hour of transfusion completion
Suggested Data Collection Question:	Was there documentation of BP and temperature monitored for all of the specified intervals for the transfusion?
Format:	**Length:** 2 **Type:** Numeric **Occurs:** 1 -12
Allowable Values:	**1** There was documentation for all of the BP, pulse and temperature monitoring intervals for the transfusion. **2** There was no documentation for all of the blood pressure, pulse and temperature monitoring intervals for the transfusion or unable to determine from medical record documentation.
Notes for Abstraction:	• All vital signs must be recorded at the following times: pre-transfusion, within 15 minutes of the initiation of the transfusion and within one hour of transfusion completion. To select "1", all recordings must be documented. • The pre-transfusion BP, pulse and temperature must be within one hour of the Transfusion Start Time. Vitals documented at the start of the transfusion are considered “within one hour of transfusion initiation". • For blood that may be transfused within 15 minutes, select "1" if the pre-transfusion and the within one hour of transfusion completion vitals are documented. • Vitals documented at the completion of the transfusion are considered “within one hour of transfusion completion". • The "unit" or "dose" information for the Vital Sign Monitoring data element must be associated with the blood product ID that was selected for abstraction.
Suggested Data Sources:	• Anesthesia record • Consultation notes • Emergency department record • Nursing notes • Progress notes • Operative notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 2.2 Left Ventricular Assistive Device (LVAD) and Heart Transplant		
Code	ICD-9-CM Description	Shortened Description
33.6	Combined heart-lung transplantation	COMB HEART/LUNG TRANSPLA
37.51	Heart transplantation	HEART TRANSPLANTATION
37.52	Implantation of total replacement heart system	IMPLANT TOT REP HRT SYS
37.53	Replacement or repair of thoracic unit of total replacement heart system	REPL/REP THORAC UNIT HRT
37.54	Replacement or repair of other implantable component of total replacement heart system	REPL/REP OTH TOT HRT SYS
37.62	Insertion of non-implantable heart assist system	INS NON-IMPL HRT ASSIST
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of heart assist system	REMOVE HEART ASSIST SYS
37.65	Implant of external heart assist system	IMP EXT HRT ASSIST SYST
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.68	Insertion of percutaneous external heart assist device	PERCUTAN HRT ASSIST SYST

Table 5.01 Coronary Artery Bypass Graft (CABG)		
Code	ICD-9-CM Description	Shortened Description
36.10	Aortocoronary bypass for heart revascularization, not otherwise specified	AORTOCORONARY BYPASS NOS
36.11	(Aorto)coronary bypass of one coronary artery	(AORTO)COR BYPAS-1 COR ART
36.12	(Aorto)coronary bypass of two coronary arteries	(AORTO)COR BYPAS-2 COR ART
36.13	(Aorto)coronary bypass of three coronary arteries	(AORTO)COR BYPAS-3 COR ART
36.14	(Aorto)coronary bypass of four coronary arteries	(AORT)COR BYPAS-4+ COR ART
36.15	Single internal mammary-coronary artery bypass	1 INT MAM-COR ART BYPASS
36.16	Double internal mammary-coronary artery bypass	2 INT MAM-COR ART BYPASS
36.17	Abdominal-coronary artery bypass	ABD-CORON ARTERY BYPASS
36.19	Other bypass anastomosis for heart revascularization	HRT REVAS BYPS ANAS NEC

Table 5.02 Other Cardiac Surgery		
Code	ICD-9-CM Description	Shortened Description
35.10	Open heart valvuloplasty, without replacement, unspecified valve	OPEN VALVULOPLASTY NOS
35.11	Open heart valvuloplasty of aortic valve without replacement	OPN AORTIC VALVULOPLASTY
35.12	Open heart valvuloplasty of mitral valve without replacement	OPN MITRAL VALVULOPLASTY
35.13	Open heart valvuloplasty of pulmonary valve without replacement	OPN PULMON VALVULOPLASTY
35.14	Open heart valvuloplasty of tricuspid valve without	OPN TRICUS

	replacement	VALVULOPLASTY
35.20	Replacement of unspecified heart valve	REPLACE HEART VALVE NOS
35.21	Replacement of aortic valve with tissue graft	REPLACE AORT VALV-TISSUE
35.22	Other replacement of aortic valve	REPLACE AORTIC VALVE NEC
35.23	Replacement of mitral valve with tissue graft	REPLACE MITR VALV-TISSUE
35.24	Other replacement of mitral valve	REPLACE MITRAL VALVE NEC
35.25	Replacement of pulmonary valve with tissue graft	REPLACE PULM VALV-TISSUE
35.26	Other replacement of pulmonary valve	REPLACE PULMON VALVE NEC
35.27	Replacement of tricuspid valve with tissue graft	REPLACE TRIC VALV-TISSUE
35.28	Other replacement of tricuspid valve	REPLACE TRICUSP VALV NEC
35.31	Operations on papillary muscle	PAPILLARY MUSCLE OPS
35.32	Operations on chordae tendineae	CHORDAE TENDINEAE OPS
35.33	Annuloplasty	ANNULOPLASTY
35.34	Infundibulectomy	INFUNDIBULECTOMY
35.35	Operations on trabeculae carneae cordis	TRABECUL CARNEAE CORD OP
35.39	Operations on other structures adjacent to valves of heart	TISS ADJ TO VALV OPS NEC
35.42	Creation of septal defect in heart	CREATE SEPTAL DEFECT
35.50	Repair of unspecified septal defect of heart with prosthesis	PROSTH REP HRT SEPTA NOS
35.51	Repair of atrial septal defect with prosthesis, open technique	PROS REP ATRIAL DEF-OPN
35.53	Repair of ventricular septal defect with prosthesis, open technique	PROS REP VENTRIC DEF-OPN
35.54	Repair of endocardial defect with prosthesis	PROS REP ENDOCAR CUSHION
35.60	Repair of unspecified septal defect with tissue graft	GRFT REPAIR HRT SEPT NOS
35.61	Repair of atrial septal defect with tissue graft	GRAFT REPAIR ATRIAL DEF
35.62	Repair of ventricular septal defect with tissue graft	GRAFT REPAIR VENTRIC DEF
35.63	Repair of endocardial cushion defect with tissue graft	GRFT REP ENDOCAR CUSHION
35.70	Other and unspecified repair of unspecified septal defect of heart	HEART SEPTA REPAIR NOS
35.72	Other and unspecified repair of ventricular septal defect	VENTR SEPTA DEF REP NEC
35.73	Other and unspecified repair of endocardial cushion defect	ENDOCAR CUSHION REP NEC
35.81	Total repair of tetralogy of Fallot	TOT REPAIR TETRAL FALLOT
35.82	Total repair of total anomalous pulmonary venous connection	TOTAL REPAIR OF TAPVC
35.83	Total repair of truncus arteriosus	TOT REP TRUNCUS ARTERIOS
35.84	Total correction of transposition of great vessels, not elsewhere classified	TOT COR TRANSPOS GRT VES
35.91	Interatrial transposition of venous return	INTERAT VEN RETRN TRANSP

35.92	Creation of conduit between right ventricle and pulmonary artery	CONDUIT RT VENT-PUL ART
35.93	Creation of conduit between left ventricle and aorta	CONDUIT LEFT VENTR-AORTA
35.94	Creation of conduit between atrium and pulmonary artery	CONDUIT ARTIUM-PULM ART
35.98	Other operations on septa of heart	OTHER HEART SEPTA OPS
35.99	Other operations on valves of heart	OTHER HEART VALVE OPS

Table 5.08 Vascular Surgery

Code	ICD-9-CM Description	Shortened Description
38.14	Endarterectomy, aorta	ENDARTERECTOMY OF AORTA
38.16	Endarterectomy, abdominal arteries	ABDOMINAL ENDARTERECTOMY
38.18	Endarterectomy, lower limb arteries	LOWER LIMB ENDARTEREC T
38.34	Resection of vessel with anastomosis, aorta	AORTA RESECTION & ANAST
38.36	Resection of vessel with anastomosis, abdominal arteries	ABD VESSEL RESECT/ANAST
38.37	Resection of vessel with anastomosis, abdominal veins	ABD VEIN RESECT & ANAST
38.44	Resection of vessel with replacement, aorta, abdominal	RESECT ABDM
38.48	Resection of vessel with replacement, lower limb arteries	LEG ARTERY RESEC W REPLA
38.49	Resection of vessel with replacement, lower limb veins	LEG VEIN RESECT W REPLAC
38.64	Other excision of vessels, aorta, abdominal	EXCISION OF AORTA
39.25	Aorta-iliac-femoral bypass	AORTA-ILIAC-FEMOR BYPASS
39.26	Other intra-abdominal vascular shunt or bypass	INTRA-ABDOMIN SHUNT NEC
39.29	Other (peripheral) vascular shunt or bypass	VASC SHUNT & BYPASS NEC

Table 5.11 Cardiac Surgery

Code	ICD-9-CM Description	Shortened Description
35.10	Open heart valvuloplasty without replacement, unspecified valve	OPEN VALVULOPLASTY NOS
35.11	Open heart valvuloplasty of aortic valve without replacement	OPN AORTIC VALVULOPLASTY
35.12	Open heart valvuloplasty of mitral valve without replacement	OPNMITRAL VALVULOPLASTY
35.13	Open heart valvuloplasty of pulmonary valve without replacement	OPN PULMON VALVULOPLASTY
35.14	Open heart valvuloplasty of tricuspid valve without replacement	OPN TRICUS VALVULOPLASTY
35.20	Replacement of unspecified heart valve	REPLACE HEART VALVE NOS
35.21	Replacement of aortic valve with tissue graft	REPLACE AORT VALVE-TISSUE
35.22	Other replacement of aortic valve	REPLACE AORT VALVE NEC

35.23	Replacement of mitral valve with tissue graft	REPLACE MITR VALVE-TISSUE
35.24	Other replacement of mitral valve	REPLACE MITRAL VALVE NEC
35.25	Replacement of pulmonary valve with tissue graft	REPLACE PULM VALV-TISSUE
35.26	Other replacement of pulmonary valve	REPLACE PULMON VALVE NEC
35.27	Replacement of tricuspid valve with tissue graft	REPLACE TRICUSP VALV NEC
35.28	Other replacement of tricuspid valve	REPLACE TRICUSP VALV NEC
35.31	Operations on papillary muscle	PAPILLARY MUSCLE OPS
35.32	Operations on chordae tendineae	CHORDAE TENDINEAE OPS
35.33	Annuloplasty	ANNULOPLASTY
35.34	Infundibulectomy	INFUNDIBULECTOMY
35.35	Operations of trabeculae carneae cordis	TRABECUL CARNEAE CORD OP
35.39	Operations on other structures adjacent to valves of heart	TISS ADJ TO VALV OPS NEC
35.42	Creation of septal defect in heart	CREATE SEPTAL DEFECT
35.50	Repair of unspecified septal defect of heart with prosthesis	PROSTH REP HRT SEPTA NOS
35.51	Repair of atrial septal defect with prosthesis, open technique	PROS REP ATRIAL DEF-OPN
35.53	Repair of ventricular septal defect with prosthesis, open technique	PROS REP VENTRIC DEF-OPN
35.54	Repair of endocardial cushion defect with prosthesis	PROS REP ENDOCAR CUSHION
35.60	Repair of unspecified septal defect of heart with tissue graft	GRFT REPAIR HRT SEPT NOS
35.61	Repair of atrial septal defect with tissue graft	GRAFT REPAIR ATRIAL DEF
35.62	Repair of ventricular septal defect with tissue graft	GRAFT REPAIR VENTRIC DEF
35.63	Repair of endocardial cushion defect with tissue graft	GRFT REP ENDOCAR CUSHION
35.70	Other and unspecified repair of unspecified septal defect of heart	HEART SEPTA REPAIR NOS
35.71	Other and unspecified repair of atrial septal defect	ATRIA SEPTA DEF REP NEC
35.72	Other and unspecified repair of ventricular septal defect	VENTR SEPTA DEF REP NEC
35.73	Other and unspecified repair of endocardial cushion defect	ENDOCAR CUSHION REP NEC
35.81	Total repair of tetralogy of Fallot	TOT REPAIR TETRAL FALLOT
35.82	Total repair of total anomalous pulmonary venous connection	TOTAL REPAIR OF TAPVC
35.83	Total repair of truncus arteriosus	TOT REP TRUNCUS ARTERIOS

Table 5.11 Cardiac Surgery (cont.)		
Code	ICD-9-CM Description	Shortened Description

35.84	Total connection of transposition of great vessels, not elsewhere classified	TOT COR TRANSPOS GRT VES
35.91	Interatrial transposition of venous return	INTERAT VEN RETRN TRANSP
35.92	Creation of conduit between right ventricle and pulmonary artery	CONDUIT RT VENT-PUL ART
35.93	Creation of conduit between left ventricle and aorta	CONDUIT LEFT VENTR-AORTA
35.94	Creation of conduit between atrium and pulmonary artery	CONDUIT ARTIUM-PULM ART
35.98	Other operations on septa of heart	OTHER HEART SEPTA OPS
35.99	Other operations on valves of heart	OTHER HEART VALVE OPS
36.03	Open chest coronary artery angioplasty	OPEN CORONRY ANGIOPLASTY
36.10	Aortocoronary bypass for heart revascularization, not otherwise specified	AORTOCORONARY BYPASS NOS
36.11	Aortocoronary bypass of one coronary artery	AORTOCOR BYPASS-1 COR ART
36.12	Aortocoronary bypass of two coronary arteries	AORTOCOR BYPASS-2 COR ART
36.13	Aortocoronary bypass of three coronary arteries	AORTOCOR BYPASS-3 COR ART
36.14	Aortocoronary bypass of four or more coronary arteries	AORTOCOR BYPASS-4+ COR ART
36.15	Single internal mammary-coronary artery bypass	1 INT MAM-COR ART BYPASS
36.16	Double internal mammary-coronary artery bypass	2 INT MAM-COR ART BYPASS
36.17	Abdominal-coronary artery bypass	ABD-CORON ARTERY BYPASS
36.19	Other bypass anastomosis for heart revascularization	HRT REVAS BYPS ANAS NEC
36.31	Open chest transmyocardial revascularization	OPEN CHEST TRANS REVASC
36.32	Other transmyocardial revascularization	OTH TRANSMYO REVASCULAR
36.39	Other heart revascularization	OTH REVASCULAR
36.91	Repair of aneurysm of coronary vessel	CORON VESS ANEURYSM REP
36.99	Other operations on vessels of heart	HEART VESSEL OP NEC
37.10	Incision of heart, not otherwise specified	INCISION OF HEART NOS
37.11	Cardiotomy	CARDIOTOMY
37.31	Pericardiectomy	PERICARDIECTOMY
37.32	Excision of aneurysm of heart	HEART ANEURYSM EXCISION
37.33	Excision or destruction of other lesion or tissue of heart, open approach	EXC/DEST HRT LESION OPEN
37.35	Partial ventriculectomy	PARTIAL VENTRICULECTOMY
37.41	Implantation of prosthetic cardiac support device around the heart	IMPL CARDIAC SUPPORT DEV
37.49	Other repair of heart and pericardium	HEART/PERICARD REPR NEC
37.51	Heart transplantation	HEART TRANSPLANTATION

37.52	Implantation of total replacement heart system	IMPLANT TOT REP HRT SYS
37.53	Replacement or repair of thoracic unit of total replacement heart system	REPL/REP THORAC UNIT HRT
37.54	Replacement or repair of other implants component of total replacement heart system	REPL/REP OTH TOT HRT SYS
37.62	Insertion of non-implantable heart assist system	INS NON-IMPL HRT ASSIST
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of heart assist system	REMOVE HEART ASSIST SYS
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.67	Implantation of cardiomyostimulation system	IMP CARDIOMYOSTIMUL SYS

Table 5.22 Elective Hip Replacement

Code	ICD-9-CM Description	Shortened Description
00.70	Revision of hip replacement, both acetabular and femoral components	REV HIP REPL-ACETAB/FEM
00.71	Revision of hip replacement, acetabular component	REV HIP REPL-ACETAB COMP
00.72	Revision of hip replacement, femoral component	REV HIP REPL-FEM COMP
00.73	Revision of hip replacement, acetabular liner and/or femoral head only	REV HIP REPL-LINER/HEAD
00.77	Hip bearing surface, ceramic-on-polyethylene	HIP SURFACE, CERMC/POLY
00.85	Resurfacing hip, total, acetabulum and femoral head	RESRF HIP,TOTAL-ACET/FEM
00.86	Resurfacing hip, partial, femoral head	RESRF HIP,PART-FEM HEAD
00.87	Resurfacing hip, partial, acetabulum	RESRF HIP,PART-ACETABLUM
81.51	Total hip replacement	TOTAL HIP REPLACEMENT
81.52	Partial hip replacement	PARTIAL HIP REPLACEMENT
81.53	Revision of hip replacement	REVISE HIP REPLACEMENT

Table 5.23 Elective Total Knee Replacement

Code	ICD-9-CM Description	Shortened Description
00.80	Revision of knee replacement, total (all components)	REV KNEE REPLACEMT-TOTAL
00.81	Revision of knee replacement, tibial component	REV KNEE REPL-TIBIA COMP
00.82	Revision of knee replacement, femoral component	REV KNEE REPL-FEMUR COMP
00.83	Revision of knee replacement, patellar component	REV KNEE REPLACE-PATELLA
00.84	Revision of total knee replacement, tibial insert (liner)	REV KNEE REPL-TIBIA LIN
81.54	Total knee replacement	TOTAL KNEE REPLACEMENT
81.55	Revision of knee replacement	REVISE KNEE REPLACEMENT

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 9.1 Elective Cardiac Surgery (Selected Codes from Table 5.25)		
Code	ICD-9-CM Description	Shortened Description
35.71	Other and unspecified repair of atrial septal defect	ATRIA SEPTA DEF REP NEC
36.03	Open chest coronary artery angioplasty	OPEN CORONRY ANGIOPLASTY
36.31	Open chest transmyocardial revascularization	OPEN CHEST TRANS REVASC
36.32	Other transmyocardial revascularization	OTH TRANSMYO REVASCULAR
36.39	Other heart revascularization	OTH HEART REVASCULAR
36.91	Repair of aneurysm of coronary vessel	CORON VESS ANEURYSM REP
36.99	Other operations on vessels of heart	HEART VESSEL OP NEC
37.10	Incision of heart, not otherwise specified	INCISION OF HEART NOS
37.11	Cardiotomy	CARDIOTOMY
37.32	Excision of aneurysm of heart	HEART ANEURYSM EXCISION
37.33	Excision or destruction of other lesion or tissue of heart, open approach	EXC/DEST HRT LESION OPEN
37.35	Partial ventriculectomy	PARTIAL VENTRICULECTOMY
37.36	Excision or destruction of left atrial appendage (LAA)	EXC LEFT ATRIAL APPENDAG
37.41	Implantation of prosthetic cardiac support device around the heart	IMPL CARDIAC SUPPORT DEV
37.49	Other repair of heart and pericardium	HEART/PERICARD REPR NEC
37.51	Heart transplantation	HEART TRANSPLANTATION
37.52	Implantation of total internal biventricular heart replacement system	IMP TOT INT BI HT RP SYS
37.53	Replacement or repair of thoracic unit of (total) replacement heart system	REPL/REP THR UNT TOT HRT
37.54	Replacement or repair of other implantable component of (total) replacement heart system	REPL/REP OTH TOT HRT SYS
37.55	Removal of internal biventricular heart replacement system	REM INT BIVENT HRT SYS
37.60	Implantation or insertion of biventricular external heart assist system	IMP BIVN EXT HRT AST SYS
37.62	Insertion of temporary non-implantable extracorporeal circulatory assist device	INSRT NON-IMPL CIRC DEV
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of external heart assist system(s) or device(s)	REMVE EXT HRT ASSIST SYS
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.67	Implantation of cardiomyostimulation system	IMP CARDIOMYOSTIMUL SYS

Table 9.2 Elective Gynecological		
Code	ICD-9-CM Description	Shortened Description
68.31	Other incision and excision of uterus, subtotal abdominal hysterectomy, other incision and excision of uterus, laparoscopic supracervical hysterectomy [LSH]	Lap scervic hysterectomy
68.39	Other incision and excision of uterus, subtotal abdominal hysterectomy, other incision and excision of uterus, other and unspecified subtotal	Subtotl abd hyst NEC/NOS

	abdominal hysterectomy	
68.41	Other incision and excision of uterus, total abdominal hysterectomy, laparoscopic total abdominal hysterectomy	Lap total abdominal hyst
68.49	Other incision and excision of uterus, total abdominal hysterectomy, other and unspecified total abdominal hysterectomy	Total abd hyst NEC/NOS
68.51	Vaginal hysterectomy, laparoscopically assisted vaginal hysterectomy [LAVH]	Lap ast vag hysterectomy
68.59	Vaginal hysterectomy, other and unspecified vaginal hysterectomy	Vag hysterectomy NEC/NOS
68.61	Radical abdominal hysterectomy, laparoscopic radical abdominal hysterectomy	Lap radical abdomnl hyst
68.69	Radical abdominal hysterectomy, other and unspecified radical abdominal hysterectomy	Radical abd hyst NEC/NOS
68.71	Radical vaginal hysterectomy, laparoscopic radical vaginal hysterectomy [LRVH]	Lap radical vaginal hyst
68.79	Radical vaginal hysterectomy, other and unspecified radical vaginal hysterectomy	Radical vag hyst NEC/NOS
68.9	Other and unspecified hysterectomy	Hysterectomy NEC/NOS

Table 9.3 Previously Donated Autologous Transfusion

Code	ICD-9-CM Description	Shortened Description
99.02	Other nonoperative procedures, transfusion of blood and blood components, transfusion of previously collected autologous blood	TRANSFUS PREV AUTO BLOOD

Table 9.4 Packed Red Blood Cell Transfusion

Code	ICD-9-CM Description	Shortened Description
99.04	Other nonoperative procedures, transfusion of blood and blood components, transfusion of packed cells	PACKED CELL TRANSFUSION

Table 9.5 Platelet Transfusion

Code	ICD-9-CM Description	Shortened Description
99.05	Other nonoperative procedures, transfusion of blood and blood components, transfusion of platelets	PLATELET TRANSFUSION

Table 9.6 Plasma Transfusion

Code	ICD-9-CM Description	Shortened Description
99.07	Other nonoperative procedures, transfusion of blood and blood components, transfusion of other serum	SERUM TRANSFUSION NEC

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 9.7 Trauma		
Code	ICD-9-CM Description	Shortened Description
800	Fracture of vault of skull	CLOSED SKULL VAULT FX
801	Fracture of base of skull	CLOS SKULL BASE FRACTURE
802	Fracture of face bones	NASAL BONE FX-CLOSED
803	Other and unqualified skull fractures	CLOSE SKULL FRACTURE NEC
804	Multiple fractures involving skull or face with other bones	CL SKUL FX W OTH BONE FX
805	Fracture of vertebral column without mention of spinal cord injury	FX CERVICAL VERT NOS-CL
806	Fracture of vertebral column with spinal cord injury	C1-C4 FX-CL/CORD INJ NOS
807	Fracture of rib(s), sternum, larynx, and trachea	FRACTURE RIB NOS-CLOSED
808	Fracture of pelvis	FRACTURE ACETABULUM-CLOS
809	III-defined fractures of bones of trunk	FRACTURE TRUNK BONE-CLOS
810	Fracture of clavicle	FX CLAVICLE NOS-CLOSED
811	Fracture of scapula	FX SCAPULA NOS-CLOSED
812	Fracture of humerus	FX UP END HUMERUS NOS-CL
813	Fracture of radius and ulna	FX UPPER FOREARM NOS-CL
814	Fracture of carpal bones(s)	FX CARPAL BONE NOS-CLOSE
815	Fracture of metacarpal bones(s)	FX METACARPAL NOS-CLOSED
816	Fracture of one or more phalanges of hands	FX PHALANX, HAND NOS-CL
817	Multiple fractures of hand bones	MULTIPLE FX HAND-CLOSED
818	III-defined fractures of upper limb	FX ARM MULT/NOS-CLOSED
819	Multiple fractures involving both upper limbs, and upper limb with rib(s) and sternum	FX ARMS W RIB/STERNUM-CL
820	Fracture of neck of femur	FX FEMUR INTRCAPS NOS-CL
821	Fracture of other and unspecified parts of femur	FX FEMUR NOS-CLOSED
822	Fracture of patella	FRACTURE PATELLA-CLOSED
823	Fracture of tibia and fibula	FX UPPER END TIBIA-CLOSE
824	Fracture of ankle	FX MEDIAL MALLEOLUS-CLOS
825	Fracture of one or more tarsal and metatarsal bones	FRACTURE CALCANEUS-CLOSE
826	Fracture of one or more phalanges of foot	FX PHALANX, FOOT-CLOSED
827	Other, multiple, and ill-defined fractures of lower limb	FX LOWER LIMB NEC-CLOSED
828	Multiple fractures involving both lower limbs, lower with upper limb, and lower limb(s) with rib(s) and sternum	FX LEGS W ARM/RIB-CLOSED
829	Fracture of unspecified bones	FRACTURE NOS-CLOSED
830	Dislocation of jaw	DISLOCATION JAW-CLOSED
831	Dislocation of shoulder	DISLOC SHOULDER NOS-

		CLOS
832	Dislocation of elbow	DISLOCAT ELBOW NOS-CLOSE
833	Dislocation of wrist	DISLOC WRIST NOS-CLOSED
834	Dislocation of finger	DISL FINGER NOS-CLOSED
835	Dislocation of hip	DISLOCAT HIP NOS-CLOSED
836	Dislocation of knee	TEAR MED MENISC KNEE-CUR
837	Dislocation of ankle	DISLOCATION ANKLE-CLOSED
838	Dislocation of foot	DISLOCAT FOOT NOS-CLOSED
839	Other, multiple, and ill-defined dislocations	DISLOC CERV VERT NOS-CL
840	Sprains and strains of shoulder and upper arm	SPRAIN ACROMIOCLAVICULAR
841	Sprains and strains of elbow and forearm	SPRAIN RADIAL COLLAT LIG
842	Sprains and strains of wrist and hand	SPRAIN OF WRIST NOS
843	Sprains and strains of hip and thigh	SPRAIN ILIOFEMORAL
844	Sprains and strains of knee and leg	SPRAIN LATERAL COLL LIG
845	Sprains and strains of ankle and foot	SPRAIN OF ANKLE NOS
846	Sprains and strains of sacroiliac region	SPRAIN LUMBOSACRAL
847	Sprains and strains of other and unspecified parts of back	SPRAIN OF NECK
848	Other and ill-defined sprains and strains	SPRAIN OF NASAL SEPTUM
850	Concussion	CONCUSSION W/O COMA
851	Cerebral laceration and contusion	CEREBRAL CORTX CONTUSION
852	Subarachnoid, subdural, and extradural hemorrhage, following injury	TRAUM SUBARACHNOID HEM
853	Other and unspecified intracranial hemorrhage following injury	TRAUMATIC BRAIN HEM NEC
854	Intracranial injury of other and unspecified nature	BRAIN INJURY NEC
860	Traumatic pneumothorax and hemothorax	TRAUM PNEUMOTHORAX-CLOSE
861	Injury to heart and lung	HEART INJURY NOS-CLOSED
862	Injury to other and unspecified intrathoracic organs	DIAPHRAGM INJURY-CLOSED
863	Injury to gastrointestinal tract	STOMACH INJURY-CLOSED
864	Injury to liver	LIVER INJURY NOS-CLOSED
865	Injury to spleen	SPLEEN INJURY NOS-CLOSED
866	Injury to kidney	KIDNEY INJURY NOS-CLOSED
867	Injury to pelvic organs	BLADDER/URETHRA INJ-CLOS
868	Injury to other intra-abdominal organs	INTRA-ABDOM INJ NOS-CLOS
869	Internal injury to unspecified or ill-defined organs	INTERNAL INJ NOS-CLOSED
870	Open wound of ocular adnexa	LAC EYELID SKN/PERIOCULR
871	Open wound of eyeball	OCULAR LAC W/O PROLAPSE
872	Open wound of ear	OPN WOUND EXTERN EAR

		NOS
873	Other open wound of head	OPEN WOUND OF SCALP
874	Open wound of neck	OPN WND LARYNX W TRACHEA
875	Open wound of chest (wall)	OPEN WOUND OF CHEST
876	Open wound of back	OPEN WOUND OF BACK
877	Open wound of buttock	OPEN WOUND OF BUTTOCK
878	Open wound of genital organs (external), including traumatic amputation	OPEN WOUND OF PENIS
879	Open wound of other and unspecified sites, except limbs	OPEN WOUND OF BREAST
880	Open wound of shoulder and upper arm	OPEN WOUND OF SHOULDER
881	Open would of elbow, forearm, and wrist	OPEN WOUND OF FOREARM
882	Open wound of hand except finger(s) alone	OPEN WOUND OF HAND
883	Open wound of finger(s)	OPEN WOUND OF FINGER
884	Multiple and unspecified open wound of upper limb	OPEN WOUND ARM MULT/NOS
885	Traumatic amputation of thumb (complete) (partial)	AMPUTATION THUMB
886	Traumatic amputation of other finger(s) (complete) (partial)	AMPUTATION FINGER
887	Traumatic amputation of arm and hand (complete) (partial)	AMPUT BELOW ELB, UNILAT
890	Open wound of hip and thigh	OPEN WOUND OF HIP/THIGH
891	Open wound of knee, leg [except thigh], and ankle	OPEN WND KNEE/LEG/ANKLE
892	Open wound of foot except toe(s) alone	OPEN WOUND OF FOOT
893	Open wound of toe(s)	OPEN WOUND OF TOE
894	Multiple and unspecified open wound of lower limb	OPEN WOUND OF LEG NEC
895	Traumatic amputation of toe(s) (complete) (partial)	AMPUTATION TOE
896	Traumatic amputation of foot (complete) (partial)	AMPUTATION FOOT, UNILAT
897	Traumatic amputation of leg(s) (complete) (partial)	AMPUT BELOW KNEE, UNILAT
900	Injury to blood vessels of head and neck	INJUR CAROTID ARTERY NOS
901	Injury to blood vessels of thorax	INJURY THORACIC AORTA
902	Injury to blood vessels of abdomen and pelvis	INJURY ABDOMINAL AORTA
903	Injury to blood vessels of upper extremity	INJ AXILLARY VESSEL NOS
904	Injury to blood vessels of lower extremity and unspecified sites	INJ COMMON FEMORAL ARTER
905	Late effects of musculoskeletal and connective tissue injuries	LATE EFFEC SKULL/FACE FX
906	Late effects of injuries to skin and subcutaneous tissues	LT EFF OPN WND HEAD/TRNK
907	Late effects of injuries to the nervous system	LT EFF INTRACRANIAL INJ
908	Late effects of other and unspecified injuries	LATE EFF INT INJUR CHEST
909	Late effects of other and unspecified external causes	LATE EFF DRUG POISONING
910	Superficial injury of face, neck, and scalp except eye	ABRASION HEAD
911	Superficial injury of trunk	ABRASION TRUNK
912	Superficial injury of shoulder and upper arm	ABRASION SHOULDER/ARM

913	Superficial injury of elbow, forearm, and wrist	ABRASION FOREARM
914	Superficial injury of hand(s) except finger(s) alone	ABRASION HAND
915	Superficial injury of finger(s)	ABRASION FINGER
916	Superficial injury of hip, thigh, leg, and ankle	ABRASION HIP & LEG
917	Superficial injury of foot and toe(s)	ABRASION FOOT & TOE
918	Superficial injury of eye and adnexa	SUPERFIC INJ PERIOCULAR
919	Superficial injury of other, multiple, and unspecified sites	ABRASION NEC
920	Contusion of face, scalp, and neck except eye(s)	CONTUSION FACE/SCALP/NCK
921	Contusion of eye and adnexa	BLACK EYE NOS
922	Contusion of trunk	CONTUSION OF BREAST
923	Contusion of upper limb	CONTUSION SHOULDER REG
924	Contusion of lower limb and of other and unspecified sites	CONTUSION OF THIGH
925	Crushing injury of face, scalp, and neck	
926	Crushing injury of trunk	CRUSH INJ EXT GENITALIA
927	Crushing injury of upper limb	CRUSH INJ SHOULDER REG
928	Crushing injury of lower limb	CRUSHING INJURY THIGH
929	Crushing injury of multiple and unspecified sites	CRUSH INJ MULT SITE NEC
930	Foreign body on external eye	CORNEAL FOREIGN BODY
931	Foreign body in ear	FOREIGN BODY IN EAR
932	Foreign body in nose	FOREIGN BODY IN NOSE
933	Foreign body in pharynx and larynx	FOREIGN BODY IN PHARYNX
934	Foreign body in trachea, bronchus, and lung	FOREIGN BODY IN TRACHEA
935	Foreign body in mouth, esophagus, and stomach	FOREIGN BODY IN MOUTH
936	Foreign body in intestine and colon	FB IN INTESTINE & COLON
937	Foreign body in anus and rectum	FOREIGN BODY ANUS/RECTUM
938	Foreign body in digestive system, unspecified	FOREIGN BODY GI NOS
939	Foreign body in genitourinary tract	FB BLADDER & URETHRA
940	Burn confined to eye and adnexa	CHEMICAL BURN PERIOCULAR
941	Burn of face, head, and neck	BURN NOS HEAD-UNSPEC
942	Burn of trunk	BURN NOS TRUNK-UNSPEC
943	Burn of upper limb, except wrist and hand	BURN NOS ARM-UNSPEC
944	Burn of wrist(s) and hand(s)	BURN NOS HAND-UNSPEC
945	Burn of lower limb(s)	BURN NOS LEG-UNSPEC
946	Burns of multiple specified sites	BURN NOS MULTIPLE SITE
947	Burn of internal organs	BURN OF MOUTH & PHARYNX
948	Burns classified according to extent of body surface involved	BDY BRN < 10%/3D DEG NOS
949	Burn, unspecified	BURN NOS
950	Injury to optic nerve and pathways	OPTIC NERVE INJURY
951	Injury to other cranial nerve(s)	INJURY OCULOMOTOR NERVE
952	Spinal cord injury without evidence of spinal bone injury	C1-C4 SPIN CORD INJ NOS

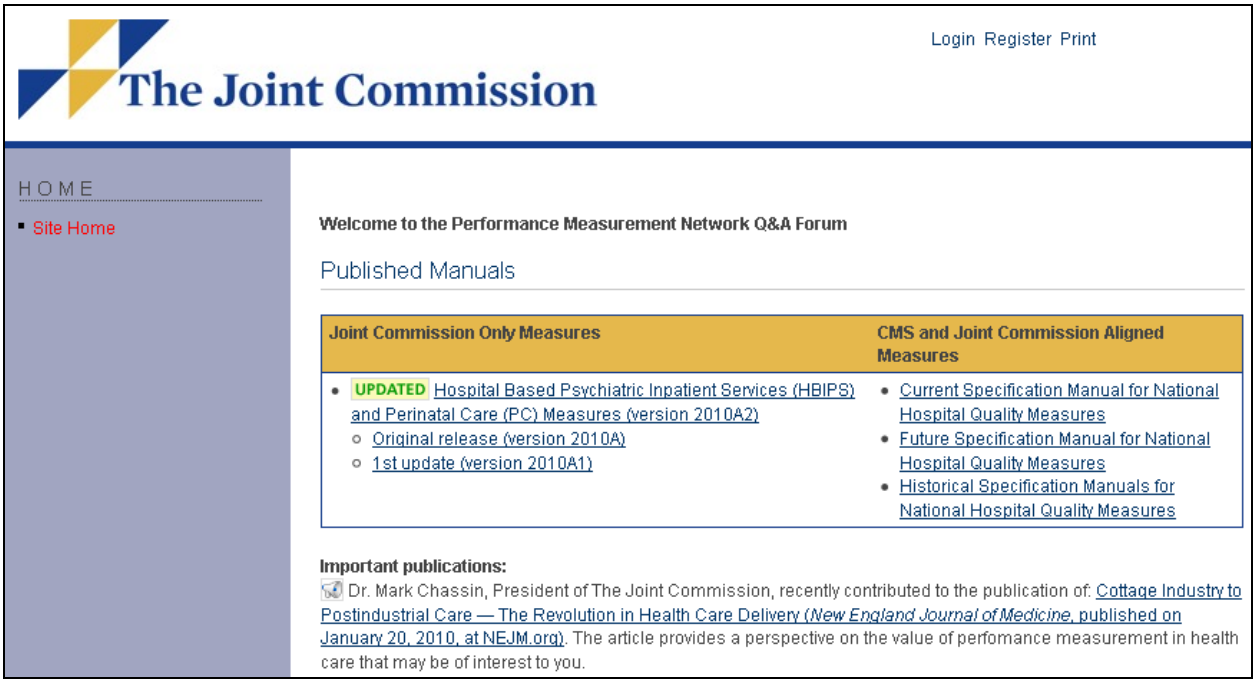
953	Injury to nerve roots and spinal plexus	CERVICAL ROOT INJURY
954	Injury to other nerve(s) of trunk, excluding shoulder and pelvic girdles	INJ CERV SYMPATH NERVE
955	Injury to peripheral nerve(s) of shoulder girdle and upper limb	INJURY AXILLARY NERVE
956	Injury to peripheral nerve(s), of pelvic girdle and lower limb	INJURY SCIATIC NERVE
957	Injury to other and unspecified nerves	INJ SUPERF NERV HEAD/NCK
958	Certain early complications of trauma	AIR EMBOLISM
959	Injury, other and unspecified	
960	Poisoning by antibiotics	POISONING-PENICILLINS
961	Poisoning by other anti-infectives	POISONING-SULFONAMIDES
962	Poisoning by hormones and synthetic substitutes	POIS-CORTICOSTEROIDS
963	Poisoning by primarily systemic agents	POIS-ANTIALLRG/ANTIEMET
964	Poisoning by agents primarily affecting blood constituents	POISONING-IRON/COMPOUNDS
965	Poisoning by analgesics, antipyretics, and antirheumatics	POISONING-OPIUM NOS
966	Poisoning by anticonvulsants and anti-Parkinsonism drugs	POISON-OXAZOLIDINE DERIV
967	Poisoning by sedatives and hypnotics	POISONING-BARBITURATES
968	Poisoning by other central nervous system depressants and anesthetics	POIS-CNS MUSCLE DEPRESS
969	Poisoning by psychotropic agents	POISON-ANTIDEPRESNT NOS
970	Poisoning by central nervous system stimulants	POISONING-ANALEPTICS
971	Poisoning by drugs primarily affecting the autonomic nervous system	POIS-PARASYMPATHOMIMETIC
972	Poisoning by agents primarily affecting the cardiovascular system	POIS-CARD RHYTHM REGULAT
973	Poisoning by agents primarily affecting the gastrointestinal system	POIS-ANTACID/ANTIGASTRIC
974	Poisoning by water, mineral, and uric acid metabolism drugs	POIS-MERCURIAL DIURETICS
975	Poisoning by agents primarily acting on the smooth and skeletal muscles and respiratory system	POISONING-OXYTOCIC AGENT
976	Poisoning by agents primarily affecting skin and mucous membrane, ophthalmological, otorhinolaryngological, and dental drugs	POIS-LOCAL ANTI-INFECT
977	Poisoning by other and unspecified drugs and medicinal substances	POISONING-DIETETICS
978	Poisoning by bacterial vaccines	POISONING-BCG VACCINE
979	Poisoning by other vaccines and biological substances	POISON-SMALLPOX VACCINE
980	Toxic effect of alcohol	TOXIC EFF ETHYL ALCOHOL
981	Toxic effect of petroleum products	TOXIC EFF PETROLEUM PROD
982	Toxic effect of solvents other than petroleum-based	TOXIC EFFECT BENZENE
983	Toxic effect of corrosive aromatics, acids, and caustic alkalis	TOX EFF CORROSIVE AROMAT

984	Toxic effect of lead and its compounds (including fumes)	TX EFF INORG LEAD COMPND
985	Toxic effect of other metals	TOXIC EFFECT MERCURY
986	Toxic effect of carbon monoxide	TOX EFF CARBON MONOXIDE
987	Toxic effect of other gases, fumes, or vapors	TOXIC EFF LIQ PETROL GAS
988	Toxic effect of noxious substances eaten as food	TOXIC EFF FISH/SHELLFISH
989	Toxic effect of other substances, chiefly nonmedicinal as to source	TOXIC EFFECT CYANIDES
990	Effects of radiation, unspecified	EFFECTS RADIATION NOS
991	Effects of reduced temperature	FROSTBITE OF FACE
992	Effects of heat and light	HEAT STROKE & SUNSTROKE
993	Effects of air pressure	BAROTRAUMA, OTITIC
994	Effects of other external causes	EFFECTS OF LIGHTNING
995	Certain adverse effects not elsewhere classified	ANAPHYLACTIC SHOCK
996	Complications peculiar to certain specified procedures	MALFUNC CARD DEV/GRF NOS
997	Complications affecting specified body systems, not elsewhere classified	NERVOUS SYST COMPLC NOS
998	Other complications of procedures, not elsewhere classified	POSTOPERATIVE SHOCK
999	Complications of medical care, not elsewhere classified	GENERALIZED VACCINIA

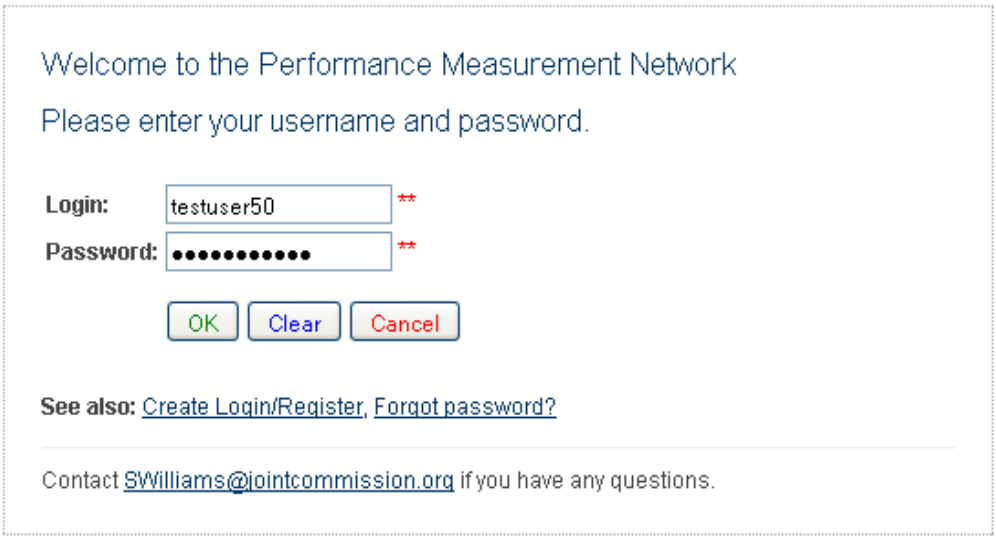
Navigating the Blood Management Project
Data Collection Tool

How to Log In and Get Started

1) Once you have registered and received your confirmation to submit data for the Blood Management Project, you may access the project website at: http://manual.jointcommission.org
2) Click on "Login" in the upper right hand corner.



3) Enter your Login and Password and click "ok".



Navigating the Blood Management Project
Data Collection Tool

4) Welcome to the Performance Measurement Network. Select the "Blood Mgmt Project" link from the left hand navigation bar.

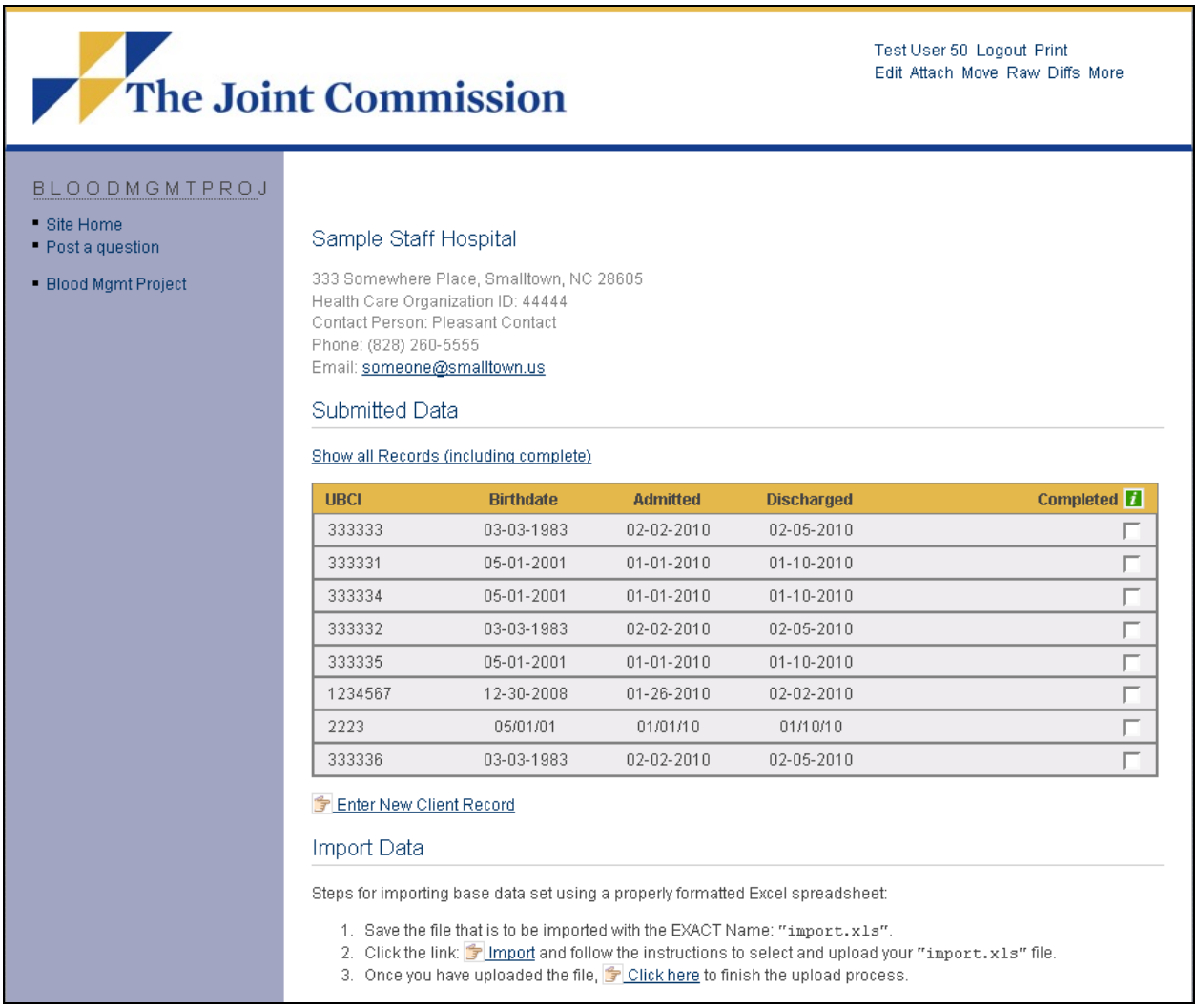
5) You are now on the Blood Management Project Page. You will see your hospitals(s) listed here. In the Project Help section, you will find a link to the measure specifications, an example of the import file template, and other material intended to assist you with your participation in this project. Please click on the hospital name to enter blood management data.

Navigating the Blood Management Project
Data Collection Tool

6) You are now on your hospital page. From this page, you can:

- update your hospital demographic information
- enter new records
- import new records
- view and update existing records
- add RBC, Plasma and Platelet events
- mark records as "complete"
- review records that have been completed
- view import attachments

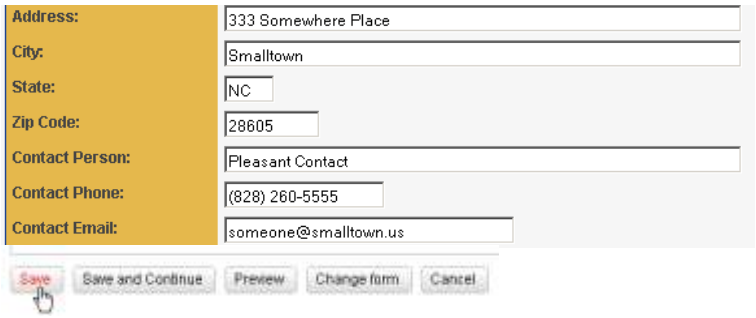
Each function will be discussed in detail below.



Navigating the Blood Management Project
Data Collection Tool
Updating your Hospital Demographic Information

a) To update your hospital's demographic information, click the "Edit" link, Fill out the form that appears, and click the "Save" button at the bottom of the form.

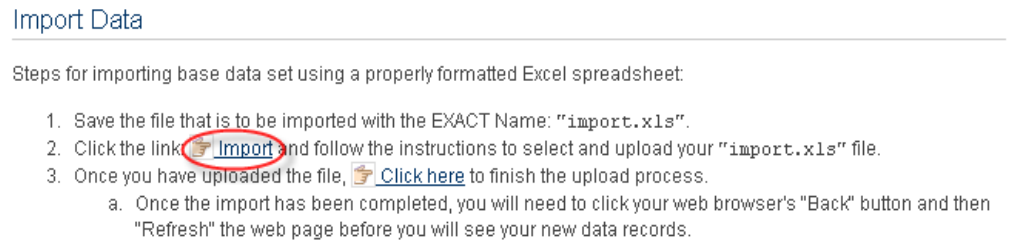
You will be directed to the Edit form, and you can change your hospital's contact details here. Click "Save" to save your changes, or "Cancel" to exit without saving.



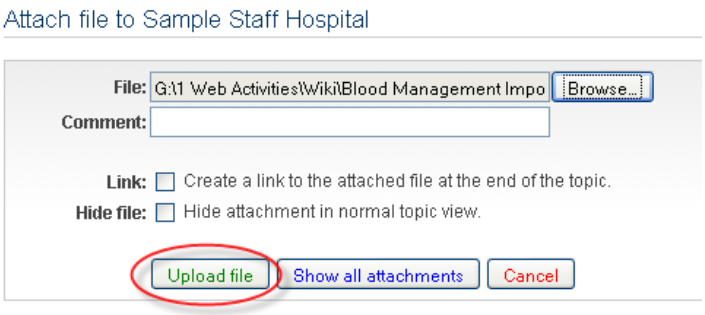
Navigating the Blood Management Project
Data Collection Tool

Importing Records

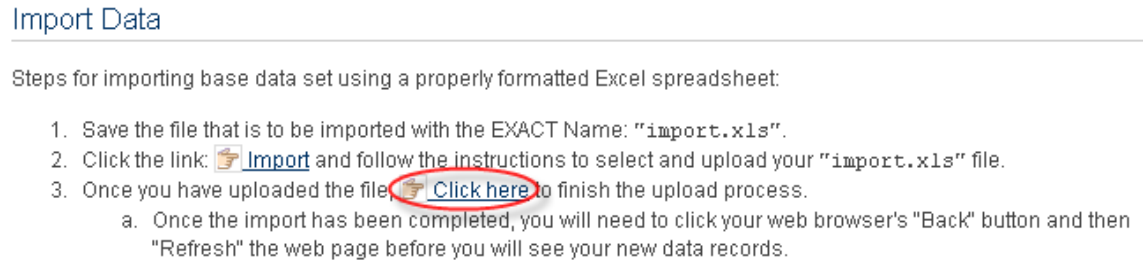
a) To import data, click on the "Import" link on your hospital home page. The template for this import file can be found on the project home page.



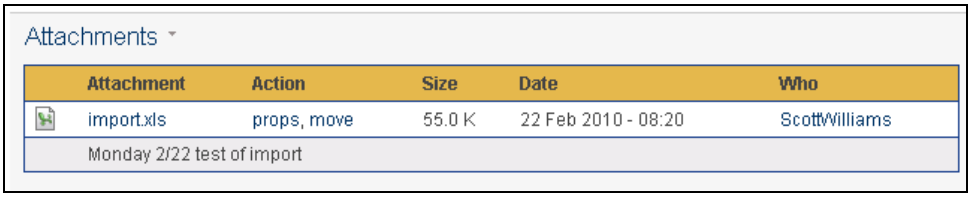
b) Click on "browse" to find and select your import file (which must be named "import.xls"), and click on "Upload File". You do not need to check the checkboxes, but <u>you may want to add a comment to keep track of your imports (e.g., April 2010 discharges; 51 records)</u>



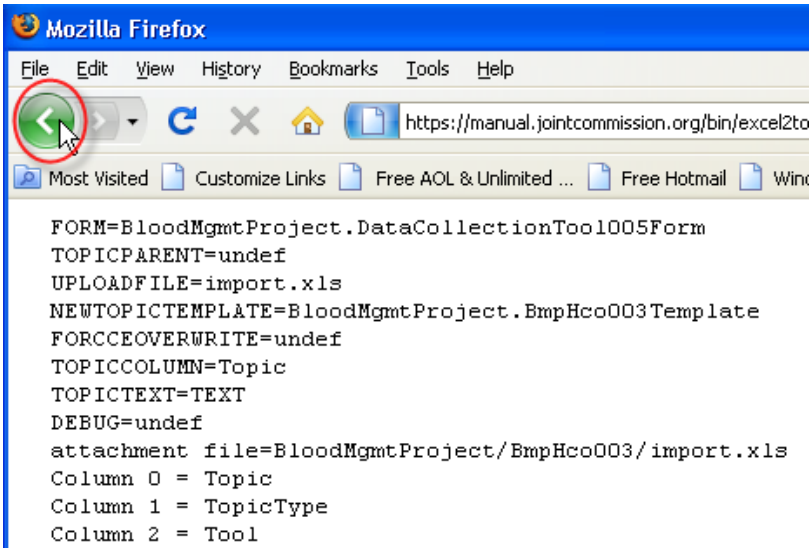
c) Once you have uploaded your file, you will need to click on the "Click here" link to finish the upload process. You'll then need to click your browser's "Back" button and "Refresh" your hospital page.



d) You may notice a form at the bottom of your hospital page. It displays the most recently imported file. This area will only be used to verify that your import was successful (note the date, time and comments to ensure that it represents the file you imported.



e) Your uploaded records are shown here (in a rather unappealing format!) and you will need to click on your browser's "Back" button to return to your hospital home page.



f) You are now back on your hospital's home page. Please click on your browser's "Refresh" button to view the records you just imported. Your records have been imported, but you will not be able to see them until the page is refreshed (or you navigate away from it and then back to it).

g) Your uploaded files should now viewable in the "Submitted Data" section of your hospital home page.

Navigating the Blood Management Project
Data Collection Tool

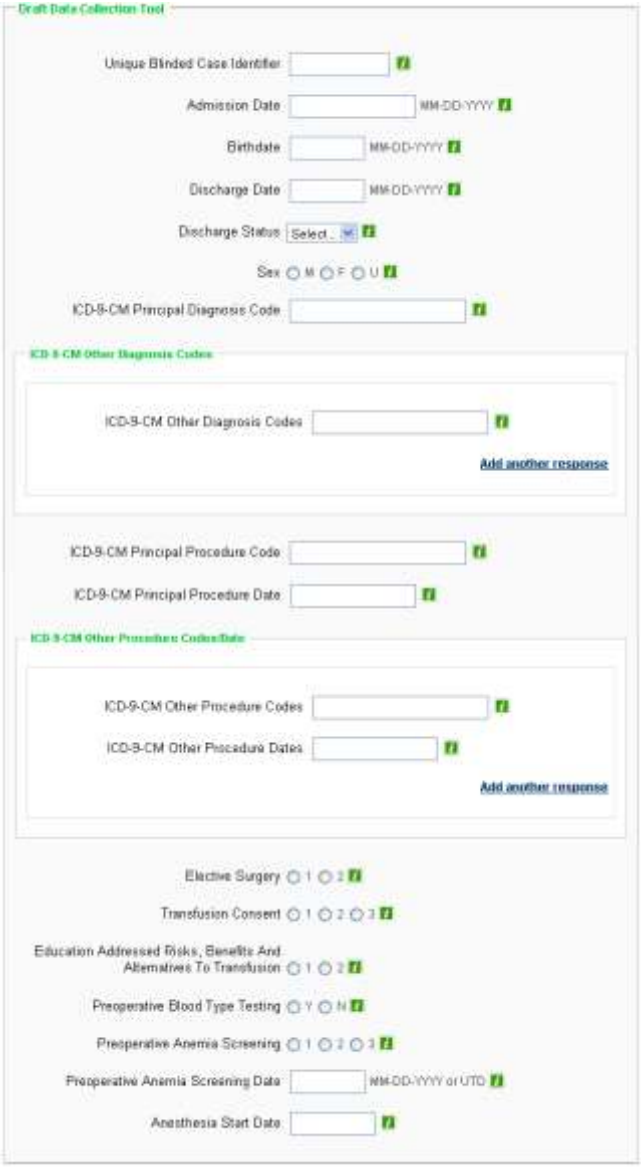
Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

Navigating the Blood Management Project
Data Collection Tool
Enter New Records (without using the file import

a) To enter a new record, click on the "Enter New Client Record" link (right below the data record table).

b) You are now viewing the data collection tool for Blood Management. Enter data for the client record. Note: hovering over the green "i" next to a data element will show you the question and allowable values associated with that data element as well as a link to the data element page.



c) Once you have completed data entry for this record, click on "Save Data Record".

Navigating the Blood Management Project
Data Collection Tool
To View and Update Existing Records

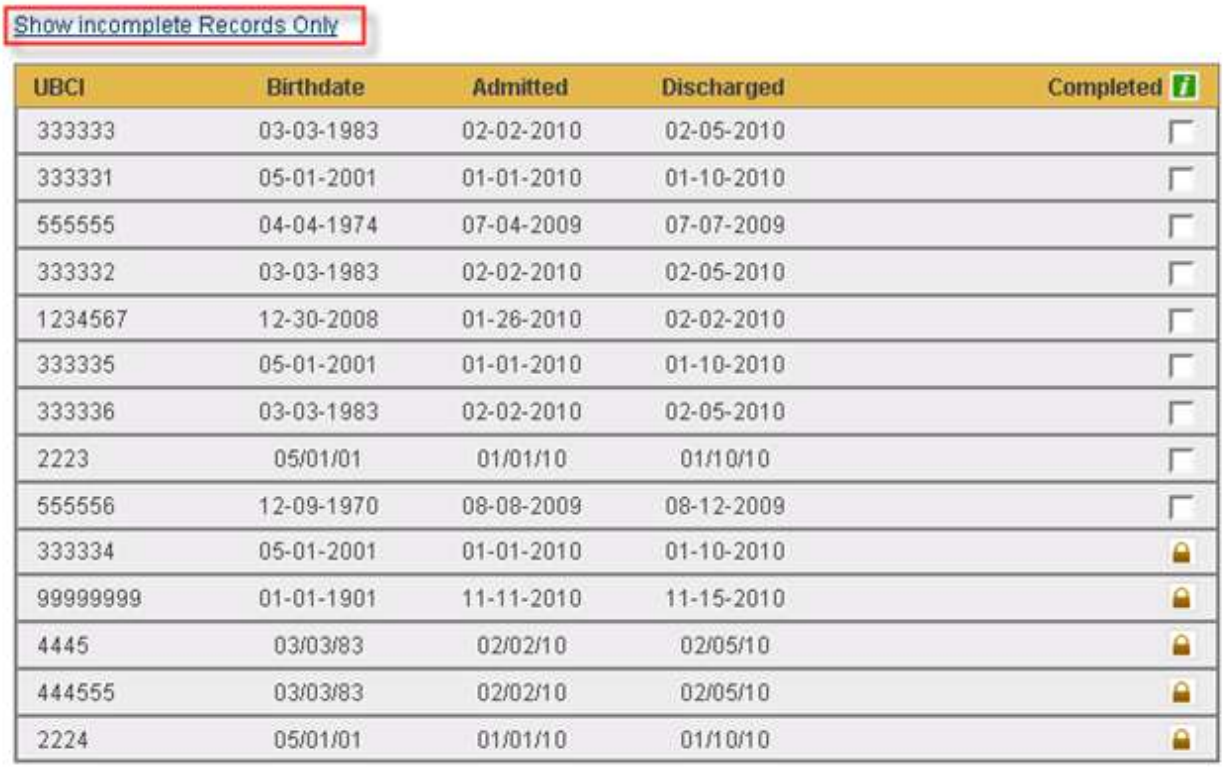
a) There are two ways to view the list of submitted records. The default view is of all incomplete records. If you would like to view all records, including completed (locked) records, click the link "Show all Records (including complete)".

View of the default setting showing a list of only incomplete records:

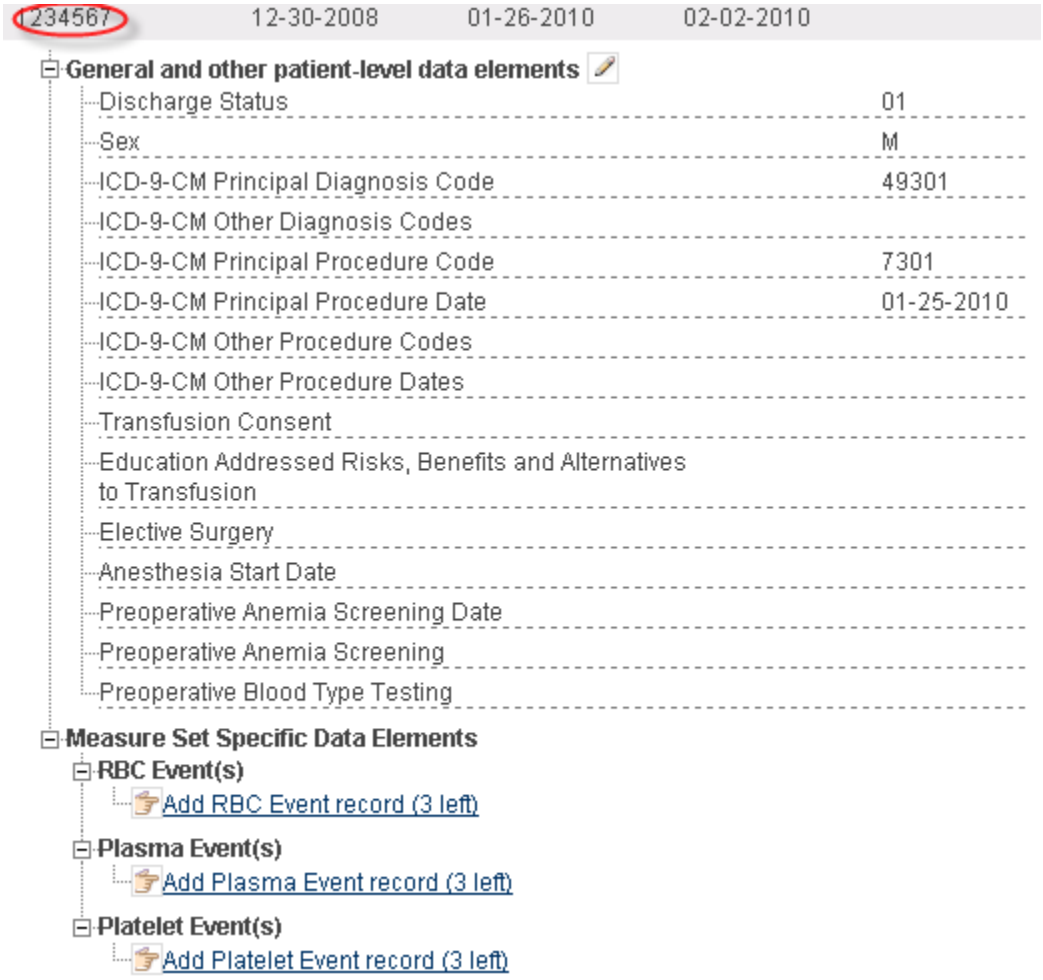
Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

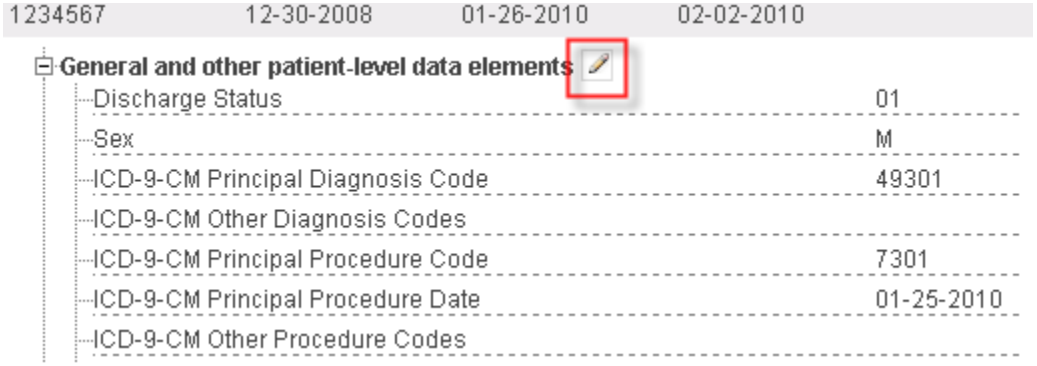
View of alternate setting showing list of all records (both incomplete and complete). To return the default setting, click the link "Show Incomplete Records Only"



b) To view or update data in an existing record, click on the UBCI number. This will create a drop down that includes all of the information for that client record. You can contract the drop down by clicking on the "-"or expand by clicking on the "+" before the different sections.

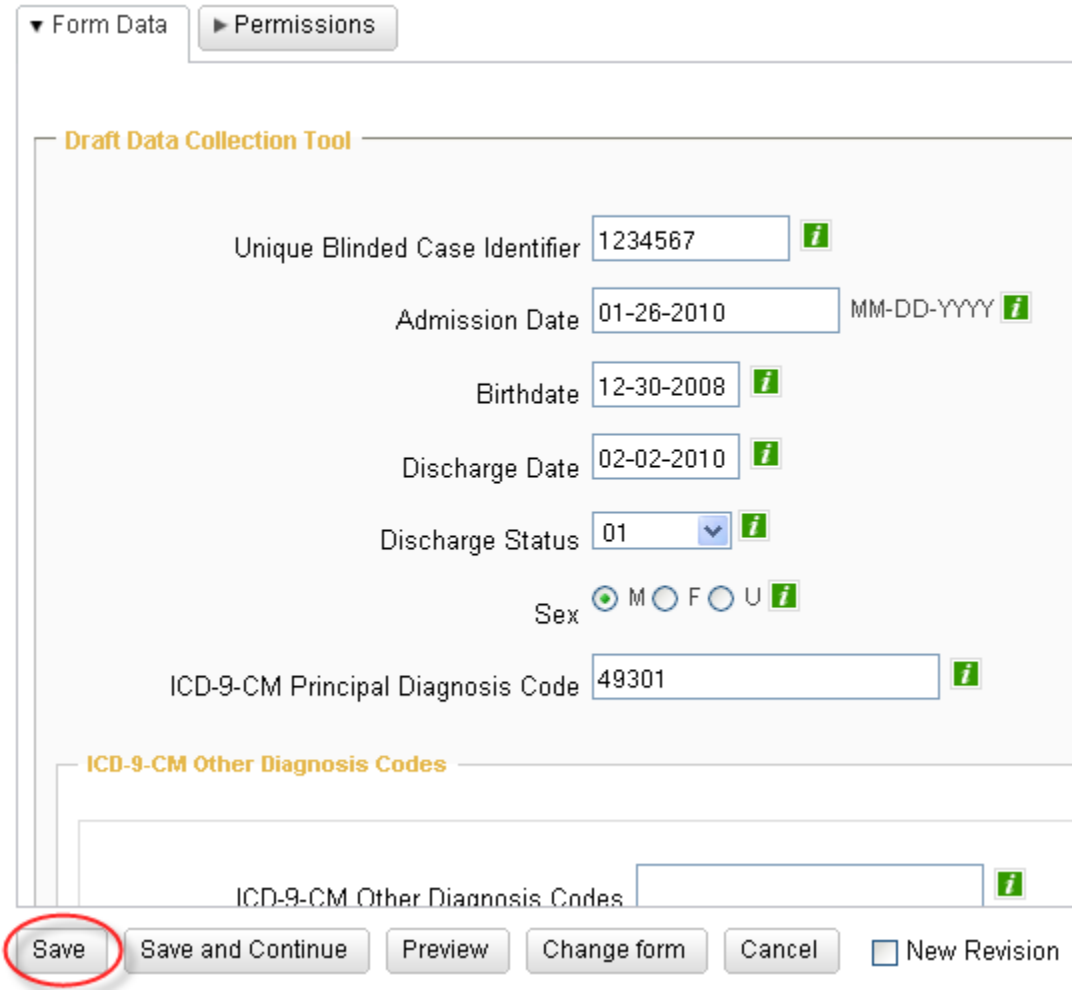


c) To edit the "General and other patient-level data elements", click on the pencil icon.



d) Make changes to the "General and other patient-level data elements" and click "Save" when you are done.

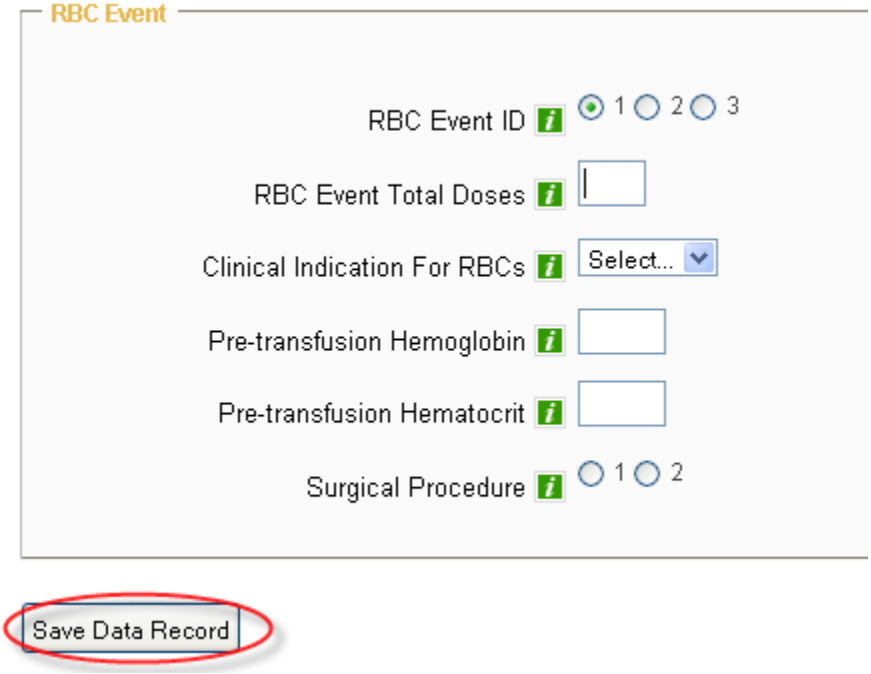
Navigating the Blood Management Project
Data Collection Tool



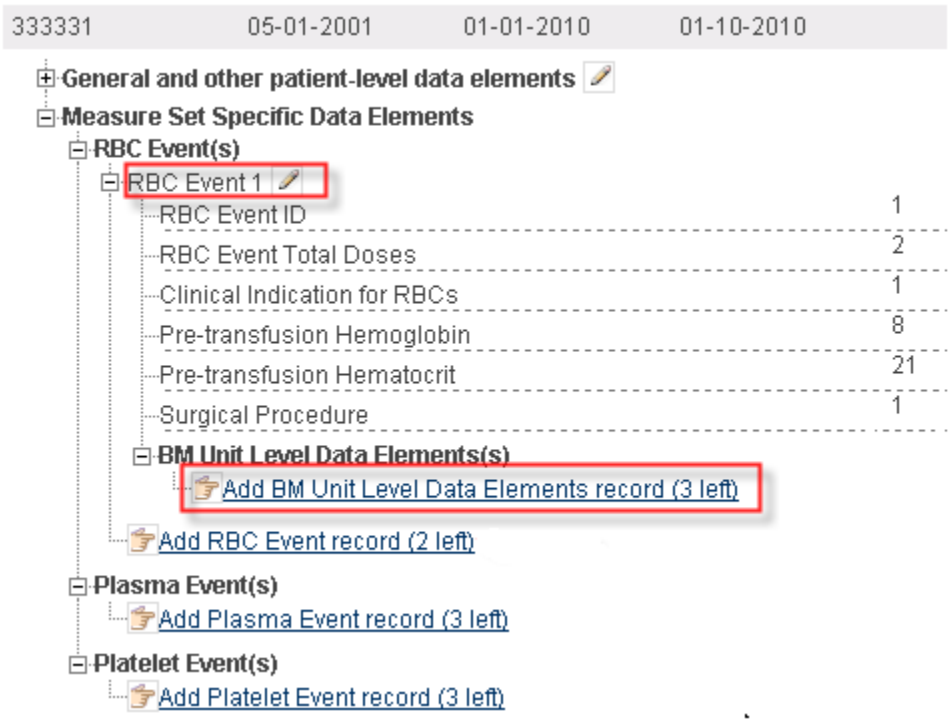
Navigating the Blood Management Project
Data Collection Tool
Add RBC Events and BM Unit Level Data Elements

a) To add a RBC event (NOTE: you can add up to three RBC events), click on the "Add RBC Event Record" Link.

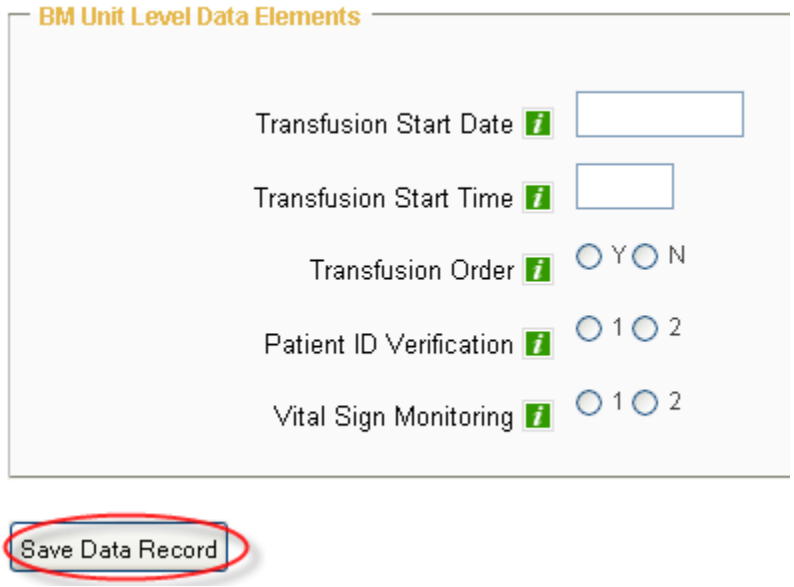
b) Enter data for RBC Event 1 and click "Save Data Record"



c) Data for "RBC Event 1" is now included with this client record. To edit the RBC Event data that you just entered, click on the pencil icon next to the event. To add unit level data for RBC Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)

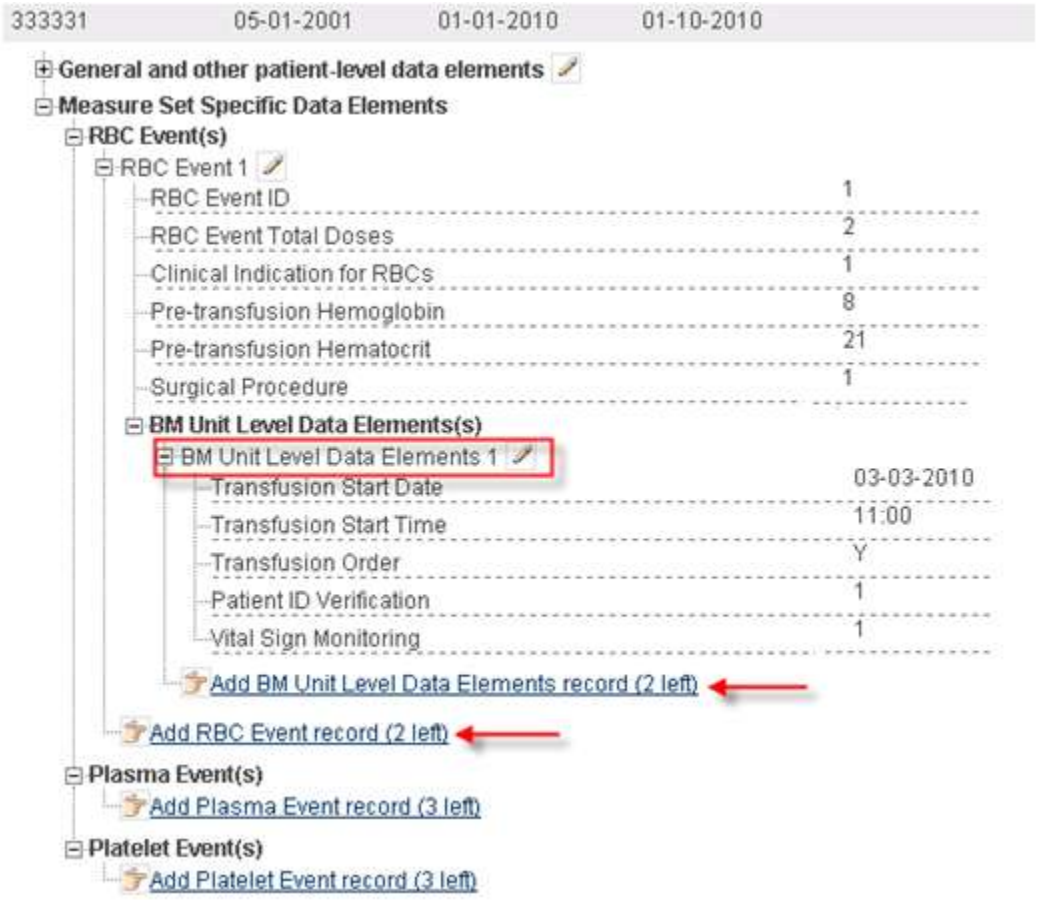


d) Enter data for the BM Unit Level Record for RBC Event 1 and click "Save Data Record"



e) Data for "BM Unit 1" for "RBC Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for RBC Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another RBC Event, click on "Add RBC Event Record".

Navigating the Blood Management Project Data Collection Tool

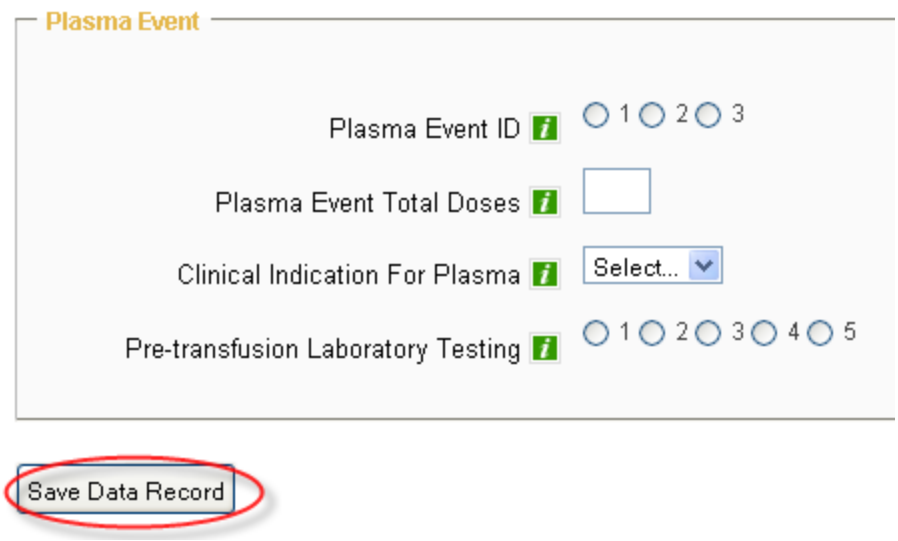


Navigating the Blood Management Project Data Collection Tool

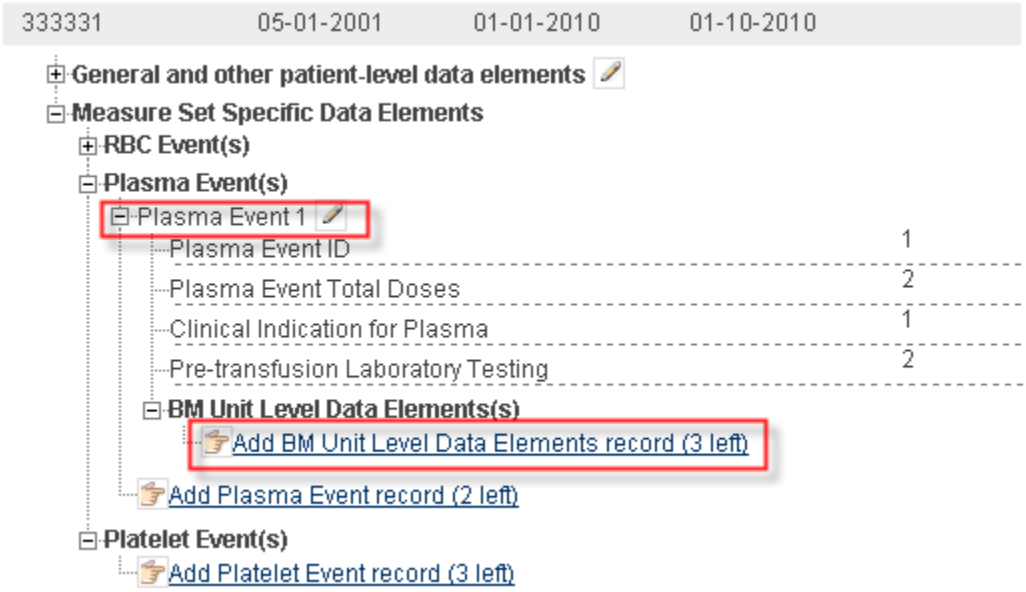
Add Plasma Events and BM Unit Level Data Elements

a) To add a Plasma event, click on the "Add Plasma Event Record" Link

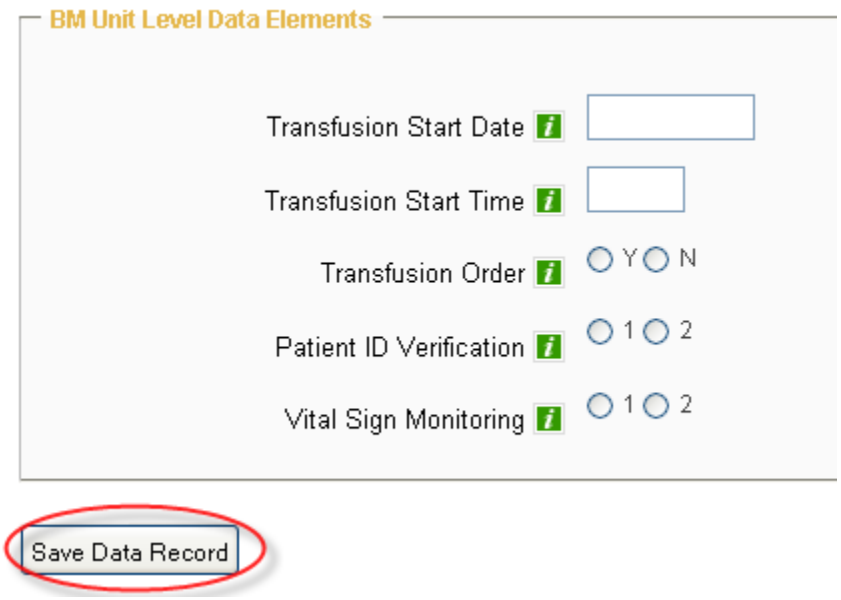
b) Enter data for Plasma Event 1 and click "Save Data Record"



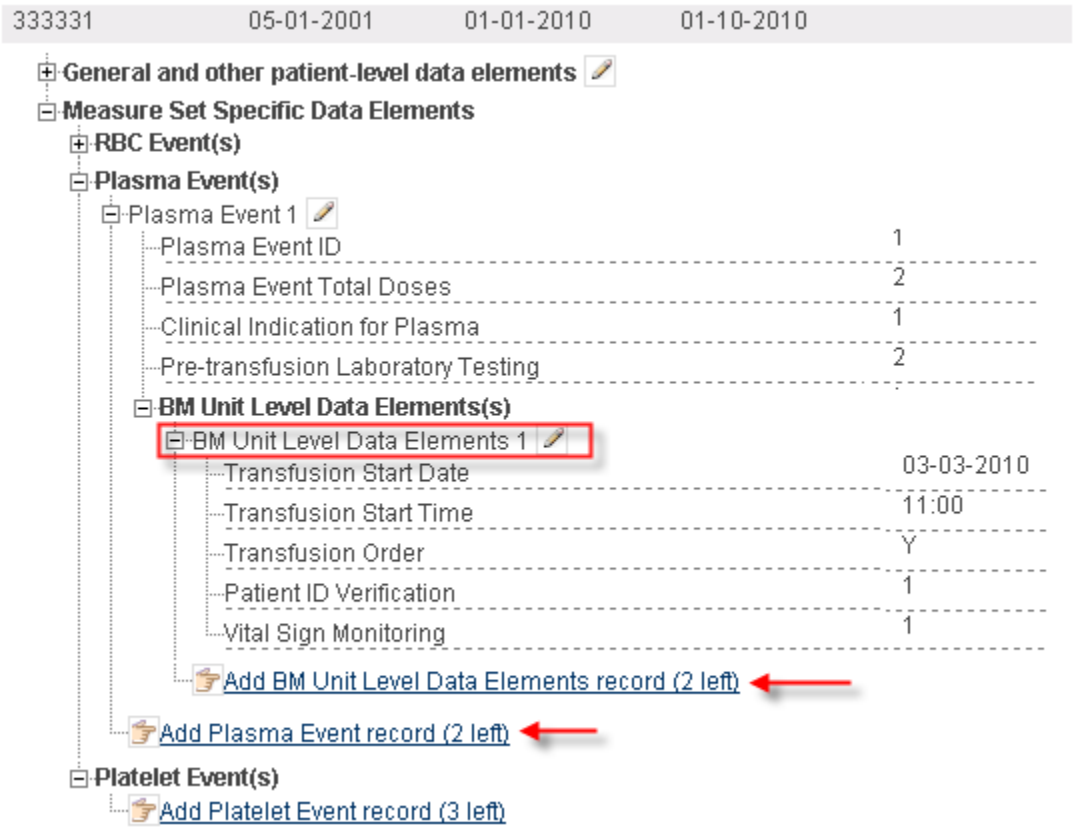
c) Data for "Plasma Event 1" is now included with this client record. To edit the Plasma Event data that you just entered, click on the pencil icon next to the event. To add unit level data for Plasma Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)



d) Enter data for the BM Unit Level Record for Plasma Event 1 and click "Save Data Record"



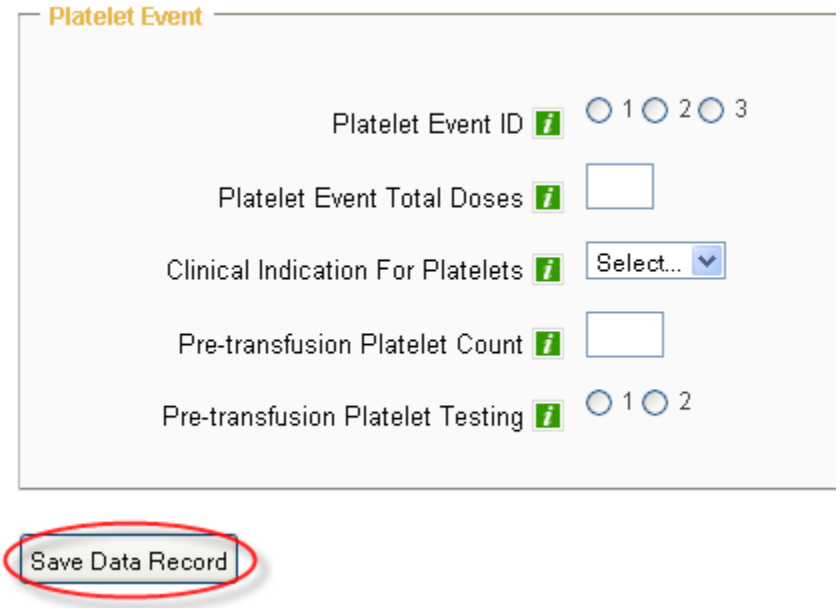
e) Data for "BM Unit Level 1" for "Plasma Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for Plasma Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another Plasma Event, click on "Add Plasma Event Record".



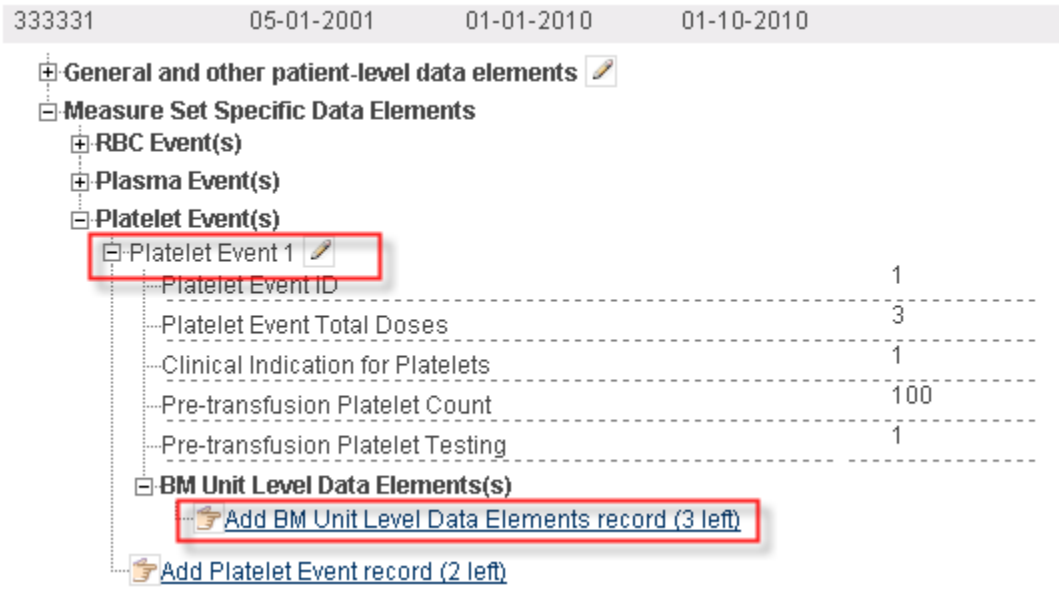
Navigating the Blood Management Project
Data Collection Tool
Add Platelet Events and BM Unit Level Data Elements

a) To add a Platelet event, click on the "Add Platelet Event Record" Link

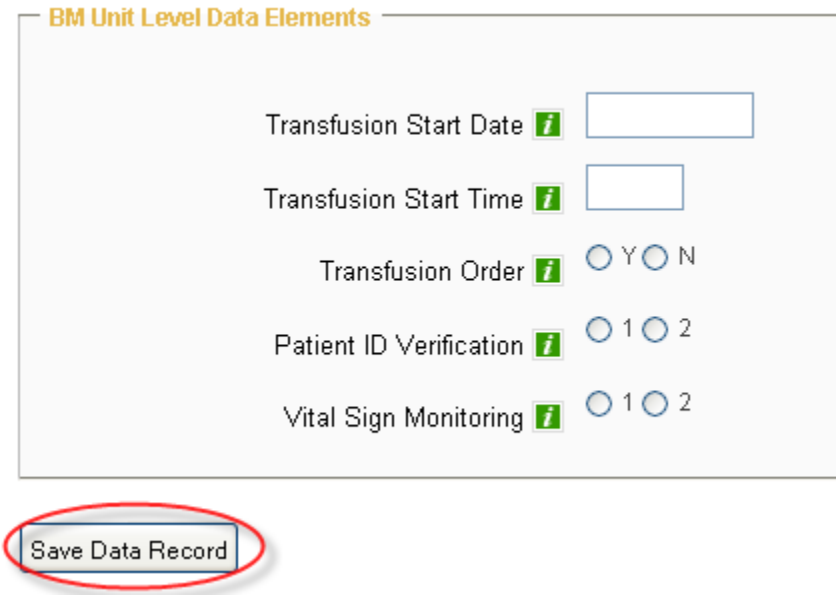
b) Enter data for Platelet Event 1 and click "Save Data Record"



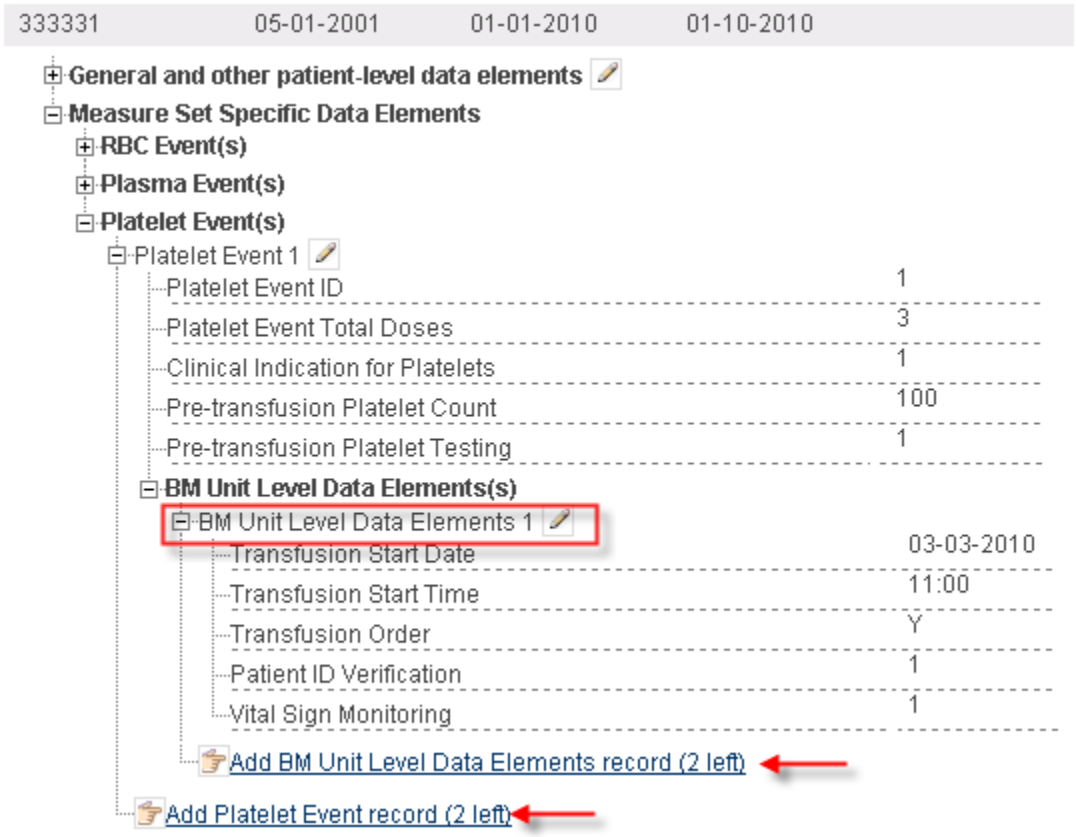
c) Data for "Platelet Event 1" is now included with this client record. To edit the Platelet Event data that you just entered, click on the pencil icon next to the event. To add unit level data for Platelet Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)



d) Enter data for the BM Unit Level Record for Platelet Event 1 and click "Save Data Record"



e) Data for "BM Unit Level 1" for "Platelet Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for Platelet Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another Platelet Event, click on "Add Platelet Event Record".



Marking Records As "Complete"

a) Once you are done entering and editing data for a record, you will need to mark the record as complete. **Please note: Once you check the box for a record under "Complete" you are BOTH marking the record as complete AND locking that record for any further editing**. When you click on the checkbox, the record will "disappear" from view. Do not be alarmed. The default view of the table is to only show incomplete records. To view the record you just completed, click on the link to "Show all Records (including complete)"

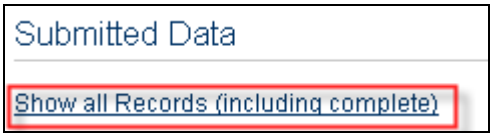

Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

Navigating the Blood Management Project
Data Collection Tool

Reviewing Records That Have Been Completed

a) To review a record that has been marked complete, switch the view on your hospital home page by clicking on the "Show all Records (including complete)" link.

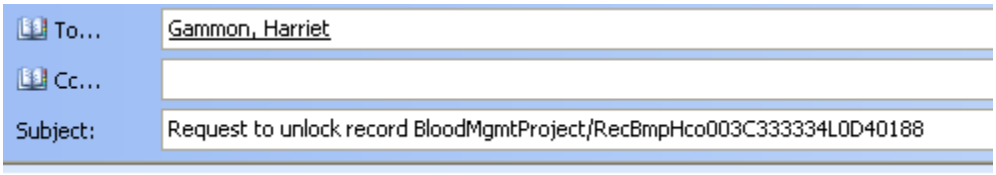


b) In this view you can see all records both complete and incomplete. Completed records are now LOCKED and can not be edited.

Show incomplete Records Only

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐
333334	05-01-2001	01-01-2010	01-10-2010	🔒
99999999	01-01-1901	11-11-2010	11-15-2010	🔒
4445	03/03/83	02/02/10	02/05/10	🔒
444555	03/03/83	02/02/10	02/05/10	🔒
2224	05/01/01	01/01/10	01/10/10	🔒

b) If, for any reason, you need to unlock a record, you will need to send an e-mail to the project leader, Harriet Gammon. To send your e-mail request, click on the "lock" icon, and an e-mail form should appear. It will be addressed to Harriet, and the subject line will contain a reference to the specific record.



c) In your e-mail, please briefly explain why the record needs to be unlocked (e.g., Accidentally clicked the "Complete" checkbox).

PATIENT BLOOD MANAGEMENT PERFORMANCE MEASURES PROJECT - Technical Advisory Panel

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Lynne Uhl, MD
Beth Israel Deaconess Medical Center
Boston, MA

Jeffrey Wagner, BSN, RN
Puget Sound Blood Center
Seattle, WA

Rosalyn Yomtovian, MD
Department of Veterans Affairs, Louis Stokes Medical Center
Case Western Reserve University School of Medicine
Cleveland, OH

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 1547 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Preoperative Blood Type Testing and Antibody Screening
De.2 **Brief description of measure:** Percentage of selected orthopedic, cardiac and hysterectomy elective surgical patients = 18 years with preoperative blood type testing and antibody screening (type and screen or type and crossmatch) ordered and completed prior to anesthesia start time.
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** PBM-07 is a part of the Patient Blood Management (PBM) measure set: PBM-01 (Transfusion Consent), PBM-02 (RBC Transfusion Indication), PBM-03 (Plasma Transfusion Indication), PBM-04 (Platelet Transfusion Indication), PBM-05 (Blood Administration Documentation), PBM-06 (Preoperative Anemia Screening)
De.4 **National Priority Partners Priority Area:** Care coordination, Safety De.5 **IOM Quality Domain**: Patient-centered, Efficiency, Safety, Timeliness De.6 **Consumer Care Need:** Getting better

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	NQF Staff
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Agreement will be signed and submitted prior to or at the time of measure submission	**A** Y☐ N☐

A.4 Measure Steward Agreement attached:	
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	**B** Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement Accreditation	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. **D.1Testing:** Yes, fully developed and tested **D.2 Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 Demonstrated High Impact Aspect of Healthcare: Frequently performed procedure, Leading cause of morbidity/mortality, Patient/societal consequences of poor quality **1a.2** **1a.3 Summary of Evidence of High Impact:** Laboratory specimens for a type and screen (T&S) or type & crossmatch (TCM) are not always completed by the time the surgery begins which puts the patient at risk of dying if the blood is urgently needed. Studies have shown that up to 7% of T&S specimens may not be tested completely till after surgery has begun. Hospitals need to ensure that sufficient compatible blood is available for each scheduled procedure since about 3% of specimens have a serologic finding that requires further investigation that may cause a delay in the availability of the blood. **1a.4 Citations for Evidence of High Impact:** Friedberg RC, Jones BA, Walsh MK. Type and screen completion for scheduled surgical procedures. A College of American Pathologists Q-Probes study of 8941 type and screen tests in 108 institutions. Arch Pathol Lab Med. 2003;127:533-40. Chiganti S, Regan F. Are changes in admission practices for elective surgery posing a transfusion threat to patients? Transfus Med 2002;12:353-6. Goodnough LT, Viele M, Fontaine M, Chua L, Ferrar A, et al. Quality management in the transfusion service:case studies in process improvement. Transfus Med 2010 [Epub ahead of print]	**1a** C☐ P☐ M☐ N☐

The Joint Commission 2010 National Patient Safety Goals, Oakbrook Terrace, IL [Available at http://www.jointcommission.org/NR/rdonlyres/868C9E07-037F-433D-8858-0D5FAA4322F2/0/RevisedChapter_HAP_NPSG_20090924.pdf (accessed January 27, 2010).
Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
Moore SB, Reisner RK, Losasso TJ, Brockman SK. Morning admission to the hospital for surgery the same day. A practical problem for the blood bank. Transfusion 1987;27:359-61.

1b. Opportunity for Improvement

1b.1 **Benefits (improvements in quality) envisioned by use of this measure:** Beginning an elective surgery without confirming the availability of a patient's specific blood unit type when it was ordered should be an important patient safety concern for all hospitals and patients. This measure will highlight the need for hospitals to examine their processes and begin to monitor whether the laboratory specimens are completed by the start of surgery. As a result of monitoring, we anticipate that the number of specimens not completed will decrease which will improve patient safety if a blood transfusion is needed.

1b.2 **Summary of data demonstrating performance gap (variation or overall poor performance) across providers:**
Studies related to the timely completion of T&S and verification of ABO/Rh Status for elective surgery patients were minimal. One study showed that nearly 35% had a T&S collected on the day of surgery and about one fourth were not completed till after surgery has begun. One facility found that in 21 (7%) of 309 patients scheduled for elective surgery, the T & S sample had not even been tested before surgery. Hospitals need to ensure that sufficient compatible blood is available for each scheduled procedure since about 3% of specimens have a serologic finding that requires further investigation that may cause a delay in the availability of the blood.

1b.3 **Citations for data on performance gap:**
Saxena S, Nelson JM, Osby M, et al. Ensuring timely completion of type and screen testing and the verification of ABO/Rh status for elective surgical patients. Arch Pathol Lab Med 2007;131:576-81.
Friedberg RC, Jones BA, Walsh MK. Type and screen completion for scheduled surgical procedures. A College of American Pathologists Q-Probes study of 8941 type and screen tests in 108 institutions. Arch Pathol Lab Med. 2003;127:533-40.
Chiganti S, Regan F. Are changes in admission practices for elective surgery posing a transfusion threat to patients? Transfus Med 2002;12:353-6.
Goodnough LT, Viele M, Fontaine M, Chua L, Ferrar A, et al. Quality management in the transfusion service:case studies in process improvement. Transfus Med 2010 [Epub ahead of print]
The Joint Commission 2010 National Patient Safety Goals, Oakbrook Terrace, IL [Available at http://www.jointcommission.org/NR/rdonlyres/868C9E07-037F-433D-8858-0D5FAA4322F2/0/RevisedChapter_HAP_NPSG_20090924.pdf (accessed January 27, 2010).
Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
Moore SB, Reisner RK, Losasso TJ, Brockman SK. Morning admission to the hospital for surgery the same day. A practical problem for the blood bank. Transfusion 1987;27:359-61.

1b.4 **Summary of Data on disparities by population group:**
Not found

1b.5 **Citations for data on Disparities:**
Not found

1b
C☐
P☐
M☐
N☐

1c. Outcome or Evidence to Support Measure Focus

1c.1 **Relationship to Outcomes** (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Patient screening of ABO group and Rh type should be collected in sufficient time to complete all pretransfusion testing before surgery begins to prevent adverse outcomes. Development of formal protocols to ensure that patients have blood testing completed prior to surgery start time for potential high-blood loss elective surgeries may optimize management of blood resources and maximize patient safety.

1c
C☐
P☐
M☐
N☐

1c.2-3. Type of Evidence: Observational study, Expert opinion

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
Over 234 million operations are performed annually across the globe with a rate of major complications of 3 - 17%. Data suggest that at least half of all surgical complications are avoidable. Data of the exact number of patients who had adverse events due to the lack of patient specific blood is unknown; however, several strategies have been suggested that would reduce patients at risk. Implementation of a surgical safety checklist was shown to reduce morbidity and mortality in a global population. One of the elements of the list was a check of the risk of blood loss of at least 500 ml (or 7ml/kg of body weight, in children), and whether there was appropriate access and fluids available.

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom*)**:**
NA

1c.6 Method for rating evidence: NA

1c.7 Summary of Controversy/Contradictory Evidence: Not found

1c.8 Citations for Evidence (*other than guidelines*)**:** Hayes AB, Weiser TG, Berry WR, Lipsitz SR, Breizat AD, et al. Safe Surgery Saves Lives Study Group. A surgical safety checklist to reduce morbidity and mortality in a global population. N Engl J Med 2009;360:491-9.
Weiser TG, Regenbogen SE, Thompson KD, et al. As estimation of the global volume of surgery: a modeling strategy based on available data. Lancet 2008;372:139-44.
Chigani S, Regan F. Are changes in admission practices for elective surgery posing a transfusion threat to patients? Transfusion Med 2002;12:353-356.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number*)**:**
Not available

1c.10 Clinical Practice Guideline Citation: NA
1c.11 National Guideline Clearinghouse or other URL: NA

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom*)**:**
NA

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*:
NA

1c.14 Rationale for using this guideline over others:
NA

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	

S.1 Do you have a web page where current detailed measure specifications can be obtained?
S.2 If yes, provide web page URL:

2a. Precisely Specified

2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome***):**
Patients with preoperative type and screen (T&S) or type and crossmatch (TCM) completed prior to surgery start time

2a.2 Numerator Time Window (*The time period in which cases are eligible for inclusion in the numerator***):**
Episode of care

2a.3 Numerator Details (*All information required to collect/calculate the numerator, including all codes, logic, and definitions***):**
The units in the numerator are a subset of the denominator units. The following data element is collected for the numerator: Preoperative Blood Type Testing. Detailed descriptions are provided in attachment for Section 2a.30.

2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured***):**
Selected elective surgical patients

2a.5 Target population gender: Female, Male
2a.6 Target population age range: Greater than 18 years of age

2a.7 Denominator Time Window (*The time period in which cases are eligible for inclusion in the denominator***):**
Episode of care

2a.8 Denominator Details (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions***):**
Admission Date
Admission From Home
Birthdate
Blood Type Testing Ordered
Discharge Date
ICD-9-CM Principal Procedure Code
Detailed descriptions are provided in attachment for Section 2a.29

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population***):** Patients without an order to T & S or TCM
Patients not admitted from home

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
To exclude cases from the measure that did not have blood type testing ordered, abstractors would review the data element ´Blood Type Testing Ordered´ and select allowable value "2" which is equal to "No type and screen or type and crossmatch tests were ordered preoperatively or unable to determine (UTD)".
To exclude cases that had surgery performed emergently or were not scheduled as an elective procedure, abstractors would review the Data Element ´Admission From Home´ and select allowable value "2" which is equal to "There is no documentation that the patient was admitted from home or UTD".

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
This measure could be stratified according to ICD-9-CM Procedure Codes for Cardiac, Orthopedic and Hysterectomy. Algorithms are provided in the attachment for Section 2a.30.

2a.12-13 Risk Adjustment Type: No risk adjustment necessary

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual*

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models, statistical models, or other aspects of model or method):

2a.15-17 **Detailed risk model available Web page URL or attachment:**

2a.18-19 **Type of Score:** Rate/proportion
2a.20 **Interpretation of Score:** Better quality = Higher score
2a.21 **Calculation Algorithm (***Describe the calculation of the measure as a flowchart or series of steps***):**
Algorithms are provided in the attachment for Section 2a.30.

2a.22 **Describe the method for discriminating performance** *(e.g., significance testing)*:
During the six-month pilot, the distribution of the hospital rates was reviewed over time.

2a.23 **Sampling (Survey) Methodology** *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
For pilot testing, hospitals were requested to submit 10 cases of patients discharged from the designated six months for each of the three types of surgeries. Post pilot, the sample size will be based on the number of surgeries per discharge month or quarter.
Hospitals that choose to sample have the option of sampling quarterly or monthly. A hospital may choose to use a larger sample size than required. Hospitals with an initial population size less than the minimum number of cases per quarter/month for the measure, cannot apply sampling to the measure.

2a.24 **Data Source (***Check the source(s) for which the measure is specified and tested)*
Paper medical record/flow-sheet, Electronic administrative data/claims, Lab data

2a.25 **Data source/data collection instrument (***Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
The Joint Commission developed a web-based data collection tool that was used by hospitals and for reliability testing during the pilot test. When the measures are made part of The Joint Commission's ORYX data collection and reporting program, the data would be collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy of the data collection tool with the specifications

2a.26-28 **Data source/data collection instrument reference web page URL or attachment:** Attachment The_Patient Blood_Management_Tool [1]-634278859306190018.pdf

2a.29-31 **Data dictionary/code table web page URL or attachment:** Attachment PBMSpecifications-634279419562439246.pdf

2a.32-35 **Level of Measurement/Analysis** (*Check the level(s) for which the measure is specified and tested)*
Facility/Agency, Can be measured at all levels

2a.36-37 **Care Settings (***Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 **Clinical Services** (*Healthcare services being measured, check all that apply*)
Clinicians: PA/NP/Advanced Practice Nurse, Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 **Data/sample** *(description of data/sample and size)*: A sample of 194 medical records were reabstracted at 12 randomly selected pilot hospitals July through September 2010.

2b.2 **Analytic Method** *(type of reliability & rationale, method for testing)*:
Hospitals for reliability testing were randomly selected based on multiple characteristics, including region (west, south, north central, northeast), hospital type (teaching/non-teaching, rural/urban), and bed size (0-99, 100-199, 200-299, 300+). The objectives of the reliability site visits included: evaluation of the

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reliability of the individual measures and associated data elements, assessment of data collection effort including abstraction time and estimated cost, assessment of measure specifications including definitions, abstraction guidelines, etc. and assessment of sampling strategies. To prepare for the reliability site visits, the data collection tool that was used by the pilot hospitals was enhanced and tested. During the reliability site visit, Joint Commission staff re-abstracted a sub-set of records that had been previously submitted by the hospital into the enhanced data collection tool without knowing the measure specific data values that the hospital had submitted. When reabstraction was completed for each record, the results from the hospital and Joint Commission staff were compared and differences adjudicated in the program. Focus group interviews were conducted at each hospital and findings were discussed with each hospital to understand what aspects could be improved. A comparison of calculated indicator rates using data originally abstracted by hospitals and the data that were reabstracted by The Joint Commission staff was adjudicated on each measure and the individual data elements. Statistical analysis utilized Kappa scores and p values.

2b.3 **Testing Results** *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
The number of originally abstracted denominator cases was 115 with a computed original measure rate of 90.4%. The number of re-abstracted denominator cases was 112 with a re-abstracted measure rate of 86.6%. The absolute difference was 3.8% with a Kappa score of 0.739. The match rate for 145 cases for the individual data element was: Preoperative Blood Type Testing 96.6%. Measure specifications have been revised to strengthen and provide additional clarity to the data element definitions and abstraction guidelines.

2c. Validity testing

2c.1 **Data/sample** *(description of data/sample and size)*: Face validity was tested by a total of 63 hospitals of various sizes and geographic locations across the country that represented over 300 individuals during August and May 2009. Measure specifications were sent to the test hospitals for review. In addition, on-site focus interviews were conducted at five hospitals. Criterion validity was evaluated during the reliability site visits mentioned above as well as through an online survey that the participating hospitals completed.

2c.2 **Analytic Method** *(type of validity & rationale, method for testing)*:
The measure information form and the data dictionary were evaluated for face validity. The following parts of the measure information form were evaluated: numerator statement, numerator inclusions, numerator exclusions, denominator statement, denominator inclusions, denominator exclusions and an overall understanding of the measure information form. Each area was scored utilizing a five-point Likert scale. For each data element, the hospitals were asked to comment on the clarity and understanding of the abstraction guidelines and data definitions. In addition, the data dictionary was reviewed for overall understanding, usefulness and clarity utilizing a five-point Likert scale. Qualitative analysis was performed on measure feedback received during the focus group interviews and from the online surveys.

2c.3 **Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
A total of 58 hospitals completed the face validity evaluation and rated the overall understanding of the numerator and denominator statements an average 4.1% that ranked the measure 8th out of the 10 measures. Modifications to improve the understanding and clarity of the measure specifications were made prior to pilot testing based on feedback received from the hospitals during the face validity evaluation. Analysis of the online survey revealed 80% (47/59) of the pilot hospitals recommended moving the measure forward to the pilot test with suggested modifications.

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2d. Exclusions Justified

2d.1 **Summary of Evidence supporting exclusion(s):**

2d.2 **Citations for Evidence:**

2d.3 **Data/sample** *(description of data/sample and size)*:

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2d.4 Analytic Method *(type analysis & rationale)*: **2d.5 Testing Results** *(e.g., frequency, variability, sensitivity analyses)*:	
2e. Risk Adjustment for Outcomes/ Resource Use Measures **2e.1 Data/sample** *(description of data/sample and size)*: **2e.2 Analytic Method** *(type of risk adjustment, analysis, & rationale)*: **2e.3 Testing Results** *(risk model performance metrics)*: **2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:**	**2e** C☐ P☐ M☐ N☐ NA☐
2f. Identification of Meaningful Differences in Performance **2f.1 Data/sample from Testing or Current Use** *(description of data/sample and size)*: A random sample of patients > 18 years of age was selected from the eligible measure population of select elective surgical inpatient discharges from 7/1/09 – 12/31/09 for measurement purposes. **2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*: Z-scores were used to determine hospital measure rates that were significantly different from the overall average. **2f.3 Provide Measure Scores from Testing or Current Use** *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*: Mean Rate for All Hospitals = 87.4% Overall Rate for All Hospitals = 92.4% Standard Deviation = 21.8% Median Rate for All Hospitals = 98.1% Min. = 0.0% Max. = 100% Lower Quartile = 86.5% Upper Quartile = 100% Z< -2* = 2 Z< 2** = 0	**2f** C☐ P☐ M☐ N☐
2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: **2g.2 Analytic Method** *(type of analysis & rationale)*: **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*:	**2g** C☐ P☐ M☐ N☐ NA☐
2h. Disparities in Care **2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**	**2h** C☐ P☐ M☐ N☐ NA☐

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	**2** **C☐** **P☐** **M☐** **N☐**
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information 3a.1 **Current Use:** Not in use but testing completed 3a.2 **Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:** We intend to incorporate these Patient Blood Management Measures into our ORYX initiative with associated public reporting on Quality Check when there is a national call for these measures. 3a.3 **If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** The specifications will be posted on the Joint Commission website for public use in 2011. **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) 3a.4 **Data/sample** *(description of data/sample and size)***:** 3a.5 **Methods** *(e.g., focus group, survey, QI project)***:** 3a.6 **Results** *(qualitative and/or quantitative results and conclusions)***:**	**3a** **C☐** **P☐** **M☐** **N☐**
3b/3c. Relation to other NQF-endorsed measures 3b.1 **NQF # and Title of similar or related measures:**	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): 3b.2 **Are the measure specifications harmonized? If not, why?**	**3b** **C☐** **P☐** **M☐** **N☐** **NA☐**
3c. Distinctive or Additive Value 3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** 5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:**	**3c** **C☐** **P☐** **M☐** **N☐** **NA☐**

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** **C☐** **P☐** **M☐** **N☐**
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	**Eval Rating**
4a. Data Generated as a Byproduct of Care Processes **4a.1-2 How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	**4a** **C☐** **P☐** **M☐** **N☐**
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) No **4b.2 If not, specify the near-term path to achieve electronic capture by most providers.** The project will begin Phase III in January 2011 to retool the specifications for retrieval from an electronic health record.	**4b** **C☐** **P☐** **M☐** **N☐**
4c. Exclusions **4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No **4c.2 If yes, provide justification.**	**4c** **C☐** **P☐** **M☐** **N☐** **NA☐**
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** None noted during testing	**4d** **C☐** **P☐** **M☐** **N☐**
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** Preoperative testing may be performed at many hospitals, but documentation of the testing results was lacking in the medical record and especially if the patient lived outside the hospital area. Improved care coordination and documentation between inpatient and outpatient facilities is needed in addition to interfaces between the laboratory systems and the medical record to improve the information flow. There was also some difficulty in determining whether the blood type testing time was the completed time or the collected time in the medical record. Additional information with more explicit instructions to ensure that the correct time is abstracted was added. Since this measure only had one data element to abstract, the abstraction time was minimal and may	**4e** **C☐** **P☐** **M☐** **N☐**

decrease when testing information is more assessable and clearly labeled as the result time. During the 12 reliability site visits, two Joint Commission staff also found that the abstraction time varied widely based on the method of record retrieval (e.g., paper record, scanned record or electronic information) at each hospital. The timing and frequency of data collection will remain monthly or quarterly as it does for the other Joint Commission measure sets. Maintaining patient confidentially was not an issue during the pilot test, since blinded hospital and patient identifiers are used on all data received by The Joint Commission staff for data quality reviews. 4e.2 **Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** The majority of hospitals already have processes in place to abstract measures that identify the initial population with ICD-9-CM procedure codes and the majority of the codes are already being abstracted for the Surgical Care Improvement Project measures. This measure includes only patients with a principal procedure code for the selected elective surgeries, so less charts would be needed because most records would be eligible for the measure. There are no Joint Commission fees to abstract the measures. 4e.3 **Evidence for costs:** 4e.4 **Business case documentation:** This measure requires minimal hospital resources because the focus is on elective procedures with known high-blood use and the physician has ordered blood type testing. Monitoring may result in a decreased mortality rate if the patient´s blood type is available if needed during surgery. The 2011 National Patient Safety Goal for the Universal Protocol UP.01.01.01 recommends that any required blood products be added to a checklist to verify their availability pre-procedure.	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** **C☐** **P☐** **M☐** **N☐**
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited ☐**
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y☐** **N☐** **A☐**
CONTACT INFORMATION	
Co.1 **Measure Steward (Intellectual Property Owner)** Co.1 **Organization** The Joint Commission, One Renaissance Boulevard, Oakbrook Terrace, Illinois, 60181 Co.2 **Point of Contact** Jerod M., Loeb, PhD, jloeb@jointcommission.org, 630-792-5920-	
Measure Developer If different from Measure Steward Co.3 **Organization** The Joint Commission, One Renaissance Boulevard, Oakbrook Terrace, Illinois, 60181 Co.4 **Point of Contact** Harriet, Gammon, MSN, RN, CPHQ, hgammon@jointcommission.org, 630-792-5629-	
Co.5 **Submitter If different from Measure Steward POC** Harriet, Gammon, MSN, RN, CPHQ, hgammon@jointcommission.org, 630-792-5629-, The Joint Commission	

Co.6 Additional organizations that sponsored/participated in measure development

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.
The technical advisory panel determined priority areas in blood management for measure development. They reviewed public comments and were actively involved in all phases of the project to identify and develop the numerator and denominator statements. Measure recommendations for National Quality Forum endorsement were made after careful review of the pilot results and site feedback.

Ad.2 If adapted, provide name of original measure:
Ad.3-5 If adapted, provide original specifications URL or attachment

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 Year the measure was first released:
Ad.7 Month and Year of most recent revision: 12, 2010
Ad.8 What is your frequency for review/update of this measure? Biannually
Ad.9 When is the next scheduled review/update for this measure? 06, 2011

Ad.10 Copyright statement/disclaimers: No royalty or use fee is required for copying or reprinting this manual, but the following are required as a condition of usage: 1) disclosure that the Specifications Manual is periodically updated, and that the version being copied or reprinted may not be up-to-date when used unless the copier or printer has verified the version to be up-to-date and affirms that, and 2) users participating in Joint Commission accreditation, including performance measures systems, are required to update their software and associated documentation based on the published manual production timelines.
Example Acknowledgement: The Specifications Manual for National Hospital Inpatient Quality Measures Patient Blood Management Performance Measure Set is periodically updated by The Joint Commission. Users of the Specifications Manual for National Hospital Inpatient Quality Measures Patient Blood Management Performance Measure Set must update their software and associated documentation based on the published manual production timelines.

Ad.11 -13 Additional Information web page URL or attachment: Attachment TAPLISTWEBc-634277940469262794.doc

Date of Submission (*MM/DD/YY*)**:** 12/29/2010

Patient Blood Management (PBM)

Set Measures

Set Measure ID	Measure Short Name
PBM-01	Transfusion Consent
PBM-02	RBC Transfusion Indication
PBM-03	Plasma Transfusion Indication
PBM-04	Platelet Transfusion Indication
PBM-05	Blood Administration Documentation
PBM-06	Preoperative Anemia Screening
PBM-07	Preoperative Blood Type Testing and Antibody Screening

Measure Set Specific Data Elements

Element Name	Collected For
Admission From Home	PBM-06,
Anesthesia Start Date	PBM-06,
Blood Administration Location	PBM-02, PBM-03, PBM-04, PBM-05,
Blood Bank Records	PBM-01, PBM-02, PBM-03, PBM-04, PBM-05,
Blood ID Number	PBM-05,
Blood Type Testing Ordered	PBM-07,
Clinical Indication for Plasma	PBM-03,
Clinical Indication for Platelets	PBM-04,
Clinical Indication for RBCs	PBM-02,
Education Addressed Risks, Benefits and Alternatives to Transfusion	PBM-01,
Patient ID Verification	PBM-05,
Plasma ID	PBM-03, PBM-05,
Platelet ID	PBM-04, PBM-05,
Pre-transfusion Hematocrit	PBM-02,
Pre-transfusion Hemoglobin	PBM-02,
Pre-transfusion PT/INR Result	PBM-03,
Pre-transfusion Platelet Count	PBM-04,
Preoperative Anemia Screening Date	PBM-06,
Preoperative Blood Type Testing	PBM-07,
RBC ID	PBM-02, PBM-05,
RBC Unit Exclusions	PBM-02, PBM-05,
Surgery Scheduled Timeframe	PBM-06,
Transfusion Consent	PBM-01,
Transfusion Order	PBM-05,
Transfusion Start Date	PBM-05,
Transfusion Start Time	PBM-05,
Vital Sign Monitoring	PBM-05,

Related Materials

Document Name
z. Appendix E - Miscellaneous Tables

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-01

Performance Measure Name: Transfusion Consent

Description: Patients with a signed consent who received information about the risks, benefits and alternatives of transfusion prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency.

Rationale: Planning a discussion with a licensed practitioner regarding the risks, benefits and alternatives of transfusion is an opportunity for the patient to participate in decisions about his or her care. It is a process that takes into consideration, each patient's preferences, clinical needs and provides information in compliance with the regulations and policies of the state and facility. Even though policies related to informed consent may vary among hospitals, all hospitals require some type of consent prior to treatment unless emergency care is needed. The elements of performance for the Joint Commission Standard RI.01.03.01 related to the informed consent process include a discussion about the risks, benefits and alternatives, and a discussion about the risk, if care is not received. This measure is also supported by the Joint Commission's National Patient Safety Goal (NPSG) 13 that encourages patients' active involvement in their own care as a patient safety strategy.

For many years, the American Association of Blood Banks (AABB) organization has supported the consent process for transfusion and has developed several standards such as AABB Standard 5.19.1. AABB requires that at a minimum, a recipient consent for transfusion and that should include; a description of the risks, benefits and treatment alternatives, the opportunity to ask questions and the right to accept or refuse transfusion.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with a signed consent who received information about the risks, benefits and alternatives prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Education Addressed Risks, Benefits and Alternatives to Transfusion*
- *Transfusion Consent*

Denominator Statement: Patients who received red blood cell, plasma or platelet transfusions

Included Populations: Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.3-9.6 or a transfusion documented from Blood Bank Records.

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data collection sources for required data elements include administrative data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document tranfusions may use blood bank records to identify the population.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Hospitals may want to evaluate the cases according to medical or surgical designation that were not included in the numerator in order to determine if the consent was signed and/or if all or only part of the educational components were given or if documentation was insufficient. Based on this information, hospitals may assess the barriers impacting this measure that could be improved.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

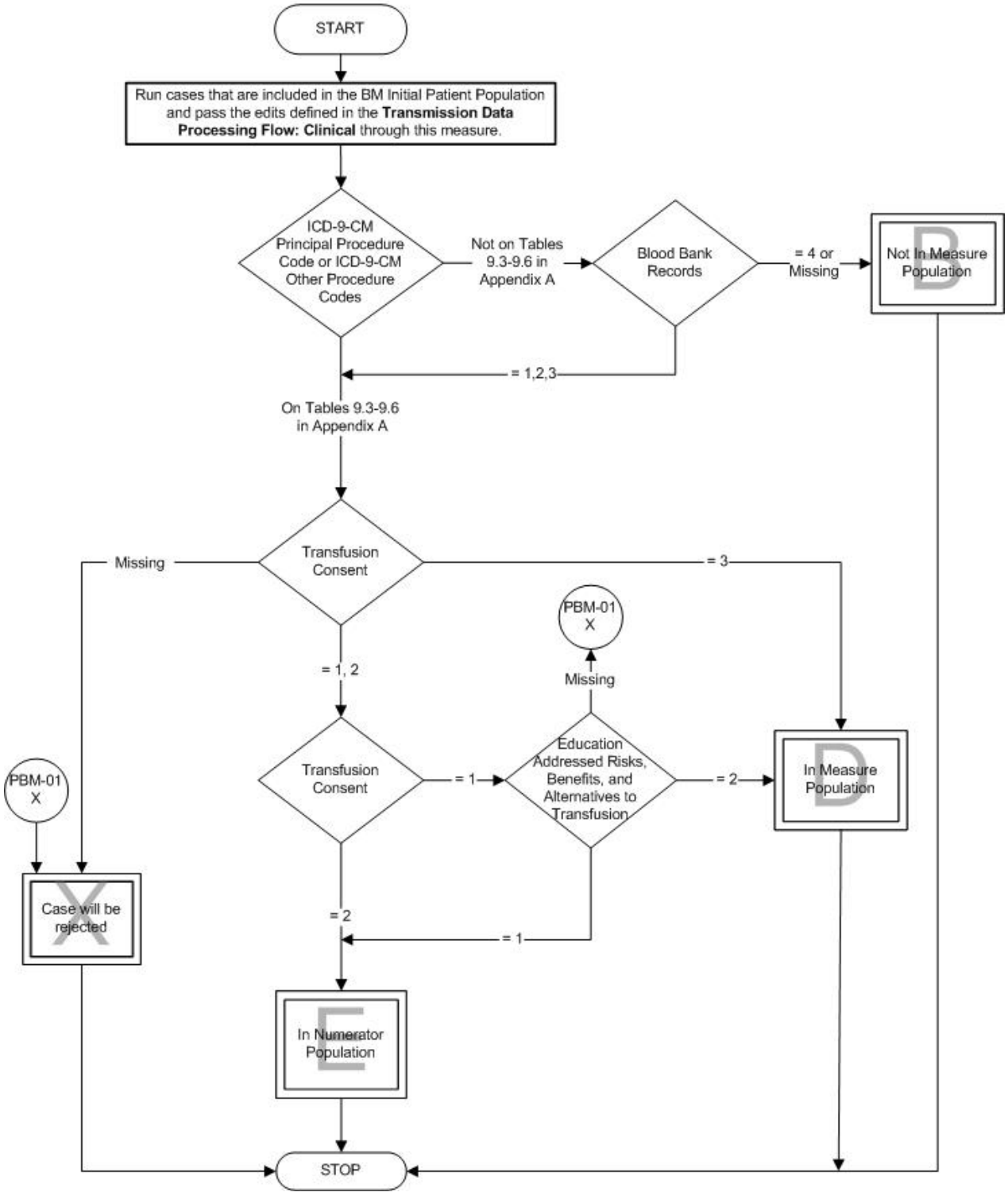
- Speiss BD, Counts RB, Gould SA. Perioperative Transfusion Medicine, Williams and Wilkins; 1998; 201-204.
- Stowell C, Sazama K. Informed Consent in Blood Transfusion and Cellular Therapies: Patients, Donors and Research Subjects. AABB Press; 2007; ISBN #978-1-56395-254-8.
- Burch JW, Uhl L. Guidelines for Informed Consent in Transfusion Medicine. AABB Press; 2006; ISBN #1-56395-146-0.2008.
- Standards for Blood Banks and Transfusion Services, 25th ed. Bethseda, MD: AABB 2008.
- The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL. Joint Commission Resources, Inc, 2009.
- The Joint Commission, “National Patient Safety Goals (NPSG)”, IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.

Measure Algorithm:

PBM–01: Transfusion Consent

Numerator: Patients with a signed consent who received information about the risks, benefits and alternatives prior to the initial blood transfusion or the initial transfusion was deemed a medical emergency

Denominator: Patients who received red blood cells, platelets or plasma



Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-02

Performance Measure Name: RBC Transfusion Indication

Description: The number of transfused red blood cell (RBC) units with a pre-transfusion hemoglobin (hgb) or hematocrit (hct) result and clinical indication documented from patients of all ages who received RBCs.

Rationale: Improvement of the safety and quality of care that a hospital provides includes the review of the use of blood and blood products. Despite current evidence and best practice guidelines, clinical practice regarding when to transfuse varies among physicians and institutions even though most would agree that blood products should only be given when the benefits outweigh the harm. Many advocate that transfusion decisions should be based on a clinical assessment and not on laboratory values alone to avoid inappropriate over-or-under transfusion. Measuring whether an "indication for transfusion" and a pre-transfusion laboratory value was documented may improve the utilization of blood components. In addition, implementing such a process may simplify the hospital's review for appropriateness of the transfusion when auditing records for accreditation and regulatory agencies. In a study by Friedman and Ebrahim, there was a significant correlation between red blood cell transfusions that lacked documentation of the clinical necessity for transfusion and justification of the transfusion.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of RBC units with pre-transfusion hemoglobin or hematocrit result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for RBCs*
- *Pre-transfusion Hematocrit*
- *Pre-transfusion Hemoglobin*
- *RBC ID*

Denominator Statement: Number of transfused red blood cell units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Tables 9.3 or 9.4 or a RBC transfusion documented from Blood Bank Records.
- The first six RBCs units transfused after hospital arrival

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*
- *RBC Unit Exclusions*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received RBCs.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Hospitals may want to use the data to further evaluate the process for determining the need for blood products based on the clinical indications and correlating it with the pre-transfusion value that was documented. This information may assist hospitals to determine if the patients were transfused appropriately or if efforts should be directed toward additional documentation efforts for monitoring blood product usage. Data may be grouped by service designation or by blood products to identify specific areas for staff review.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

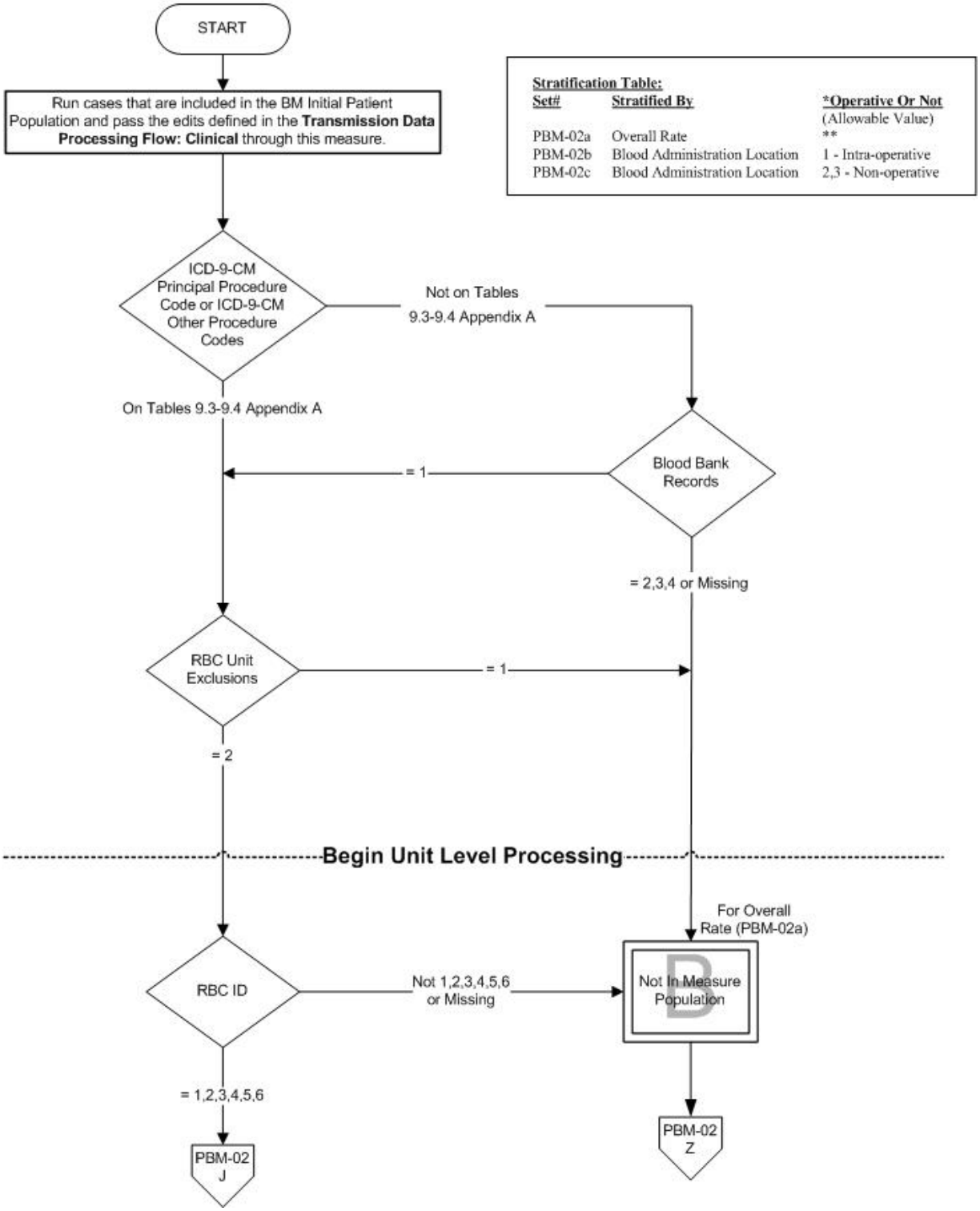
- Friedman MT, Ebrahim A. Adequacy of physician documentation of red blood cell transfusion and correlation with assessment of transfusion appropriateness. Arch Pathol Lab Med. 2006;130: 474-79.
- Corwin HL, Parsonnet KC, Gettinger A. RBC transfusion in the ICU: is there a reason? Chest. 1995;108: 767-771.
- Tobin SN, Campbell DA, Boyce NW. Durability of response to a targeted intervention to modify clinician transfusion practices in a major teaching hospital. MJA. 2001;174:445-448.
- Clinical practice guideline: Red blood cell transfusion in adult trauma and critical care. Crit Care Med 2009 Vol.37, No.12.

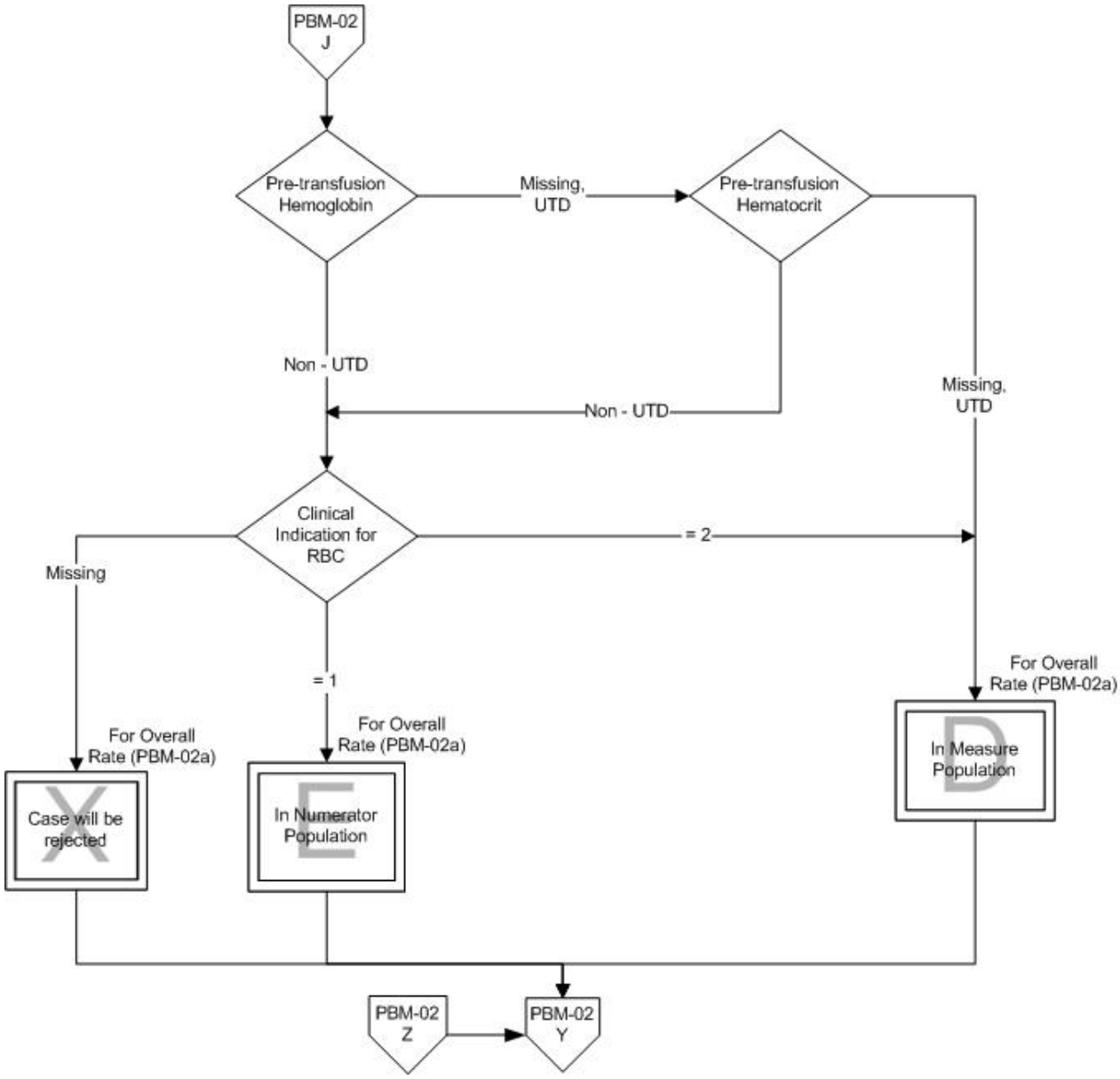
Measure Algorithm:

PBM–02: RBC Transfusion Indication

Numerator: Number of RBC units (bags) with pre-transfusion hemoglobin or hematocrit result and clinical indication documented

Denominator: Number of transfused red blood cell units evaluated





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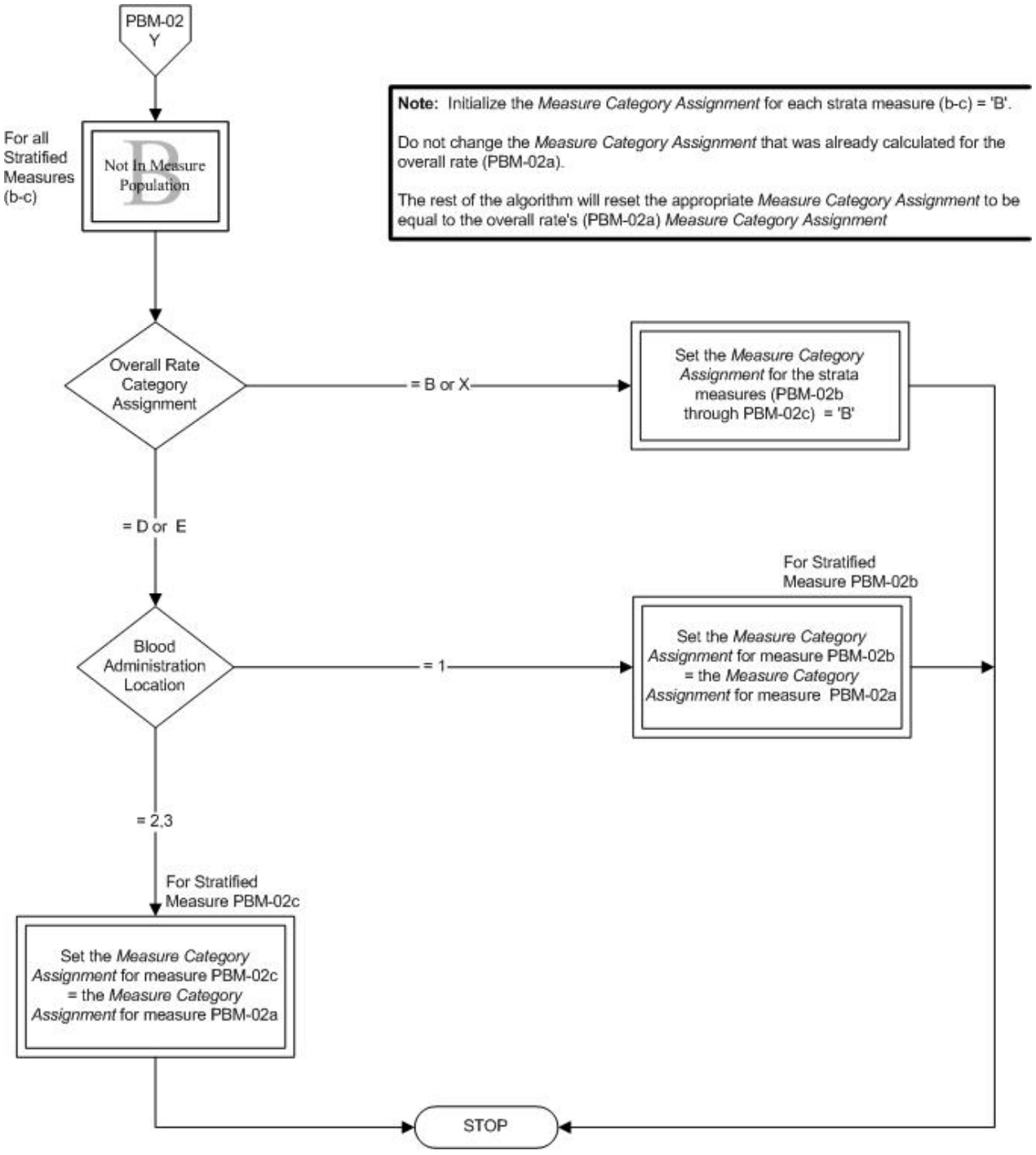


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-03

Performance Measure Name: Plasma Transfusion Indication

Description: The number of transfused plasma units with a pre-transfusion PT/INR result and clinical indication documented from patients of all ages who received plasma.

Rationale: The use of plasma has increased and is disproportionally high compared to other countries with similar levels of health care. Indications for transfusing plasma are very limited, and as a result, published studies often show unjustifiable use of plasma. According to the National Heart Lung and Blood Institute, plasma should be administered only to increase the level of clotting factors in patients with a demonstrated deficiency. If the prothrombin time (PT) and partial thromboplastin time (PTT) are < 1.5 times normal, a plasma transfusion is rarely needed. However, plasma is frequently transfused to patients with mild-to moderate elevations in PT despite numerous studies that have not shown a correlation between the risk of bleeding and mild-to moderate test results. In a study by Wahab et al, transfusion of plasma for mild abnormalities of coagulation values resulted in a partial normalization in a minority of patients, and failed to correct the PT in 99% of the patients. In a 2004 study by Hui, the need to correct prolonged international normalized ratios (INRs) for patients on warfarin emerged as the primary indication for plasma followed by massive transfusions.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of plasma units with pre-transfusion PT/INR result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for Plasma*
- *Plasma ID*
- *Pre-transfusion PT/INR Result*

Denominator Statement: Number of transfused plasma units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.6 or a plasma transfusion documented from Blood Bank Records
- The first three plasma units transfused from hospital arrival

Excluded Populations:

- Discharges with an ICD-9-CM Principal Diagnosis Code of trauma as defined in Appendix A, Table 9.7.

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Diagnosis Code*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received plasma.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Data from this measure may be used to review the type of invasive procedures or surgeries that use plasma in order to further evaluate appropriateness of use.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

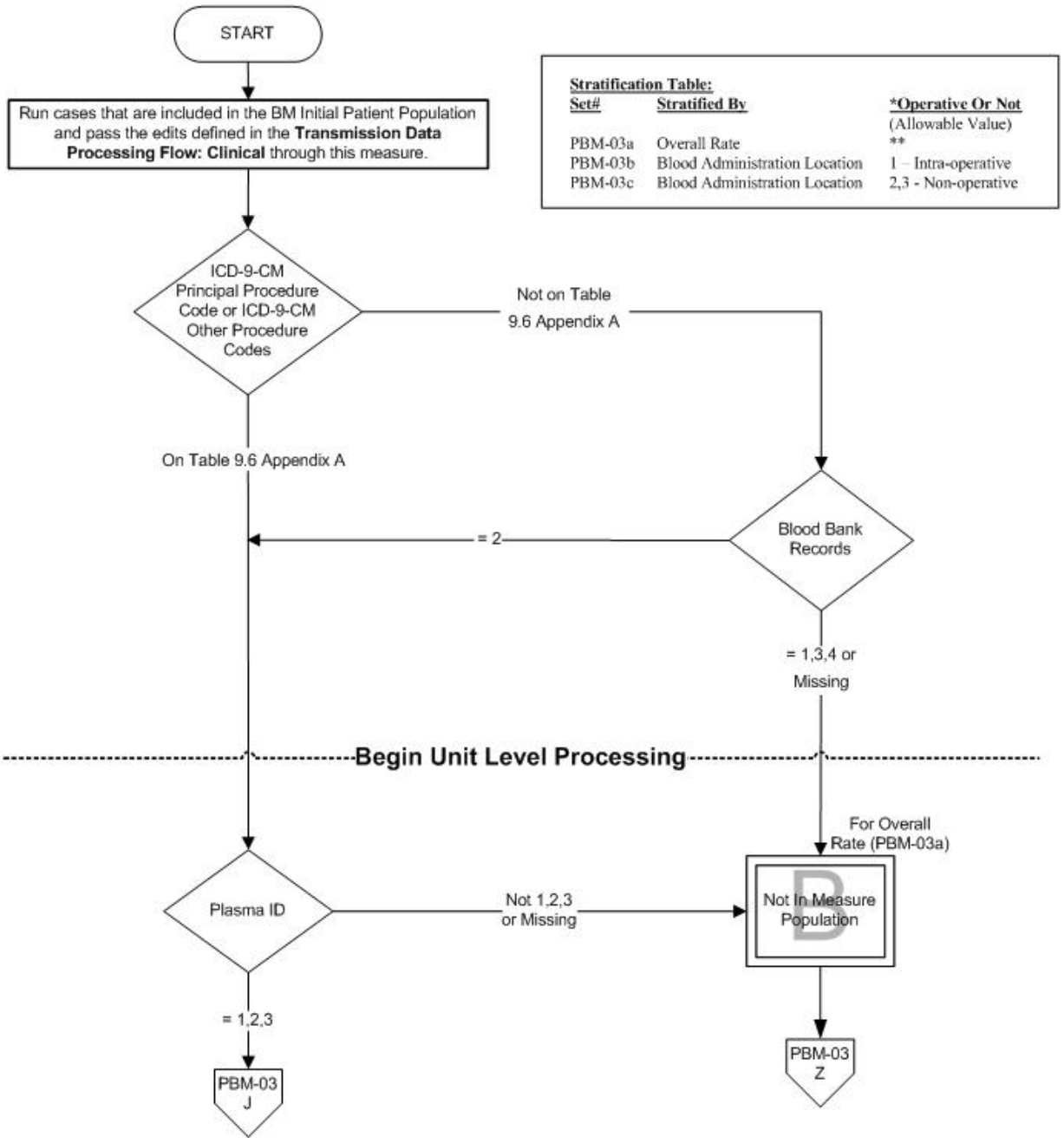
- Hui C, Williams I, Davis K. Clinical audit of the use of fresh-frozen plasma and platelets in a tertiary teaching hospital and the impact of a new transfusion request form. Int Med J. 2005;35:283-288.
- Wallis JP, Dzik S. Is fresh frozen plasma overtransfused in the United States? Transfusion. 2004;44:1674-75.
- Ardel-Wahab OI, Healy B, Dzik WH. Effect of fresh-frozen plasma transfusion on prothrombin time and bleeding in patients with mild coagulation abnormalities. Transfusion. 2006;46:1479-1285.
- Segal J, Dzik WH; Transfusion Medicine/Hemostasis Clinical Trials Network. Paucity of studies to support that abnormal coagulation test results predict bleeding in the setting of invasive procedures: an evidenced-based review. Transfusion. 2005;45:1413-25.

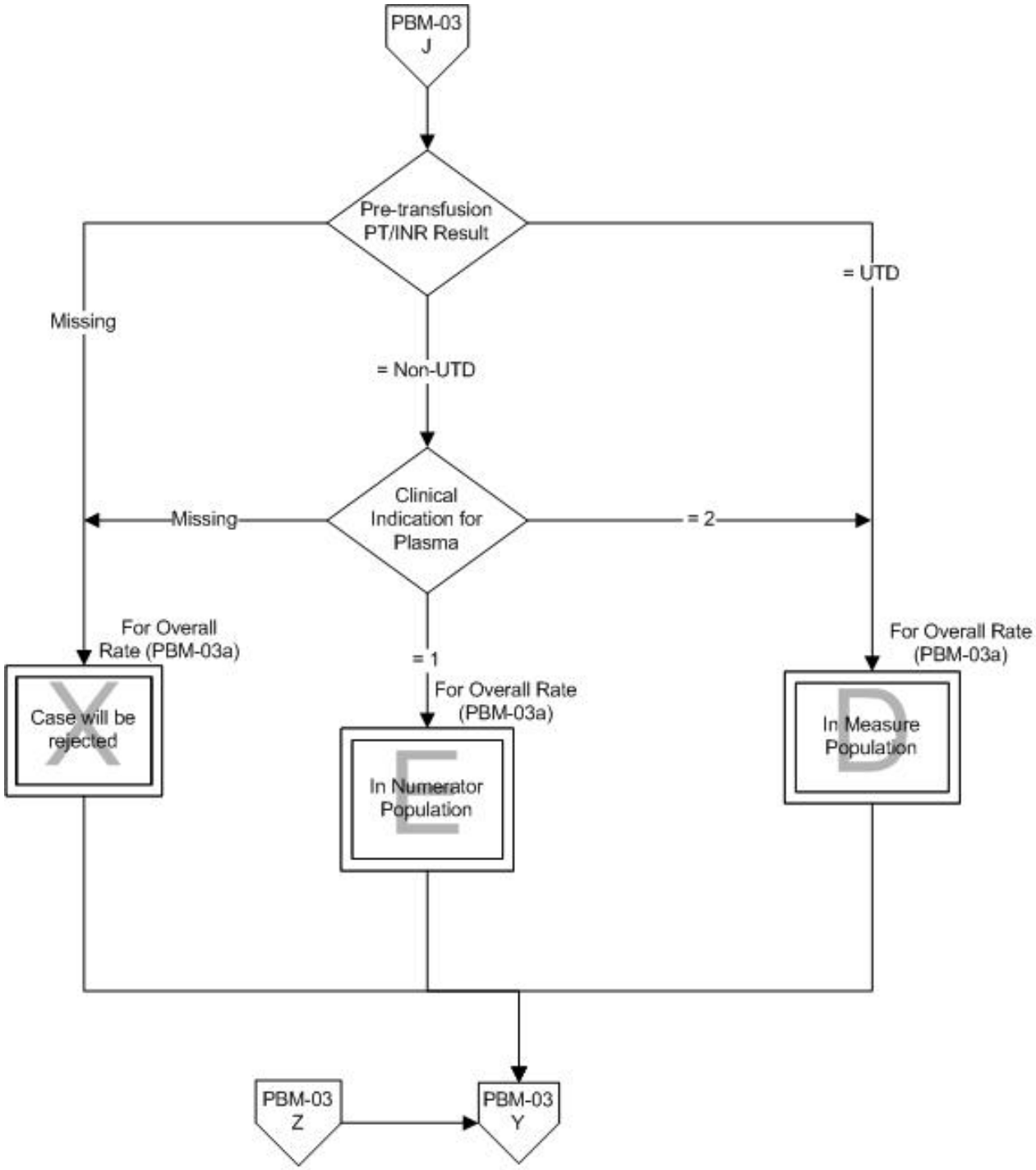
Measure Algorithm:

PBM–03: Plasma Transfusion Indication

Numerator: Number of plasma units with pre-transfusion PT/INR result and clinical indication documented

Denominator: Number of transfused plasma units evaluated





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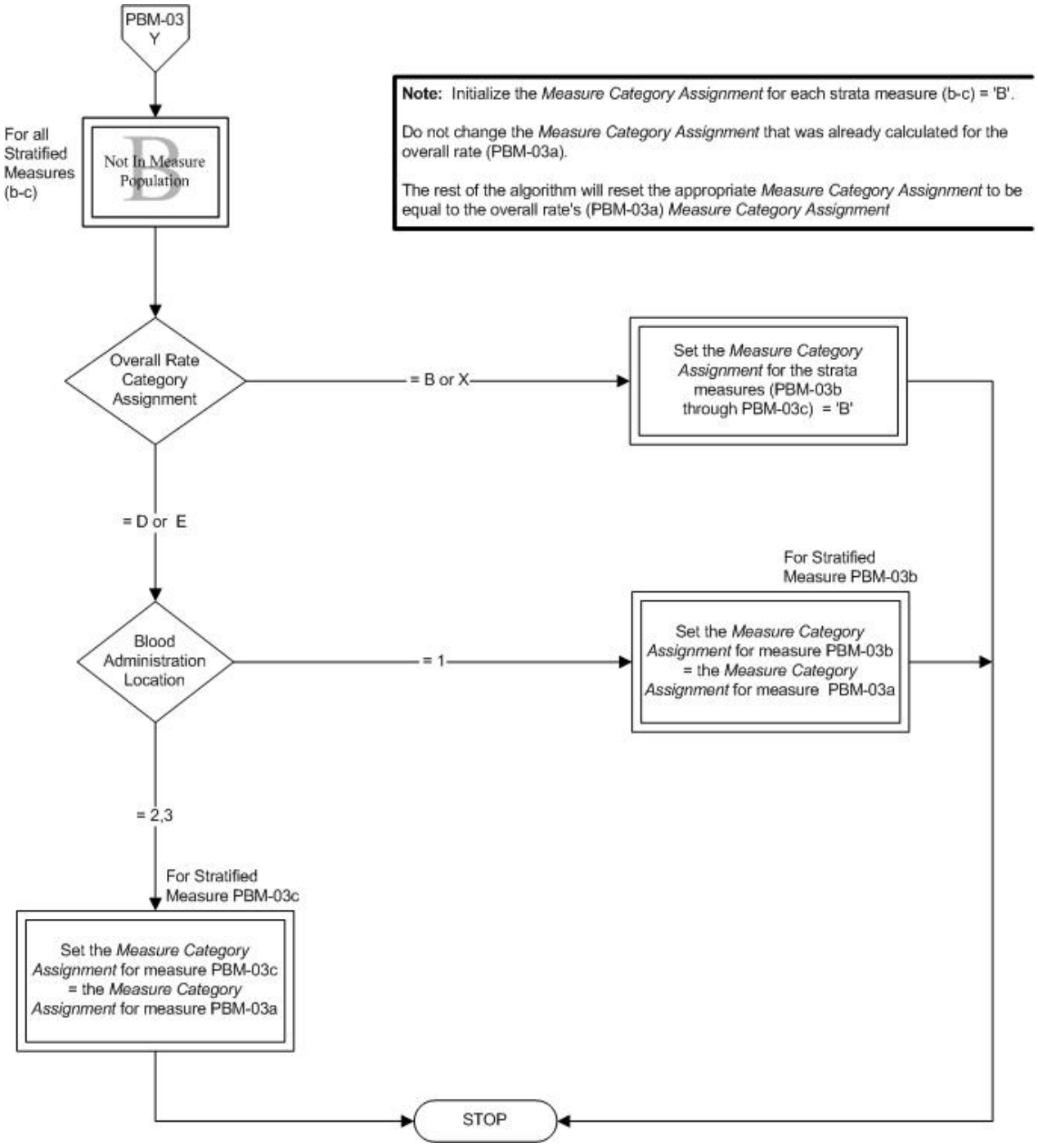


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-04

Performance Measure Name: Platelet Transfusion Indication

Description: The number of transfused platelet units with pre-transfusion platelet count and clinical indication documented from patients of all ages who received platelets.

Rationale: Platelets are transfused to treat or prevent bleeding associated with thrombocytopenia and/or platelet dysfunction. Platelets given therapeutically should help stop the bleeding, and if given prophylactically, post transfusion platelet counts should be obtained to monitor the response to determine the effectiveness of the transfusion. Repeated platelet transfusions can cause alloimmunization and cause platelet refractoriness to future transfusions. Multiple infectious risks are associated with platelet transfusions so patients should only be exposed to the least amount needed.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of platelet units with pre-transfusion platelet count result and clinical indication documented

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Clinical Indication for Platelets*
- *Platelet ID*
- *Pre-transfusion Platelet Count*

Denominator Statement: Number of transfused platelet units evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.5 or a platelet transfusion documented from Blood Bank Records
- The first three platelet units transfused after hospital arrival

Excluded Populations: None

Data Elements:

- *Admission Date*
- *Blood Administration Location*
- *Blood Bank Records*

- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population of patients who received platelets.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: Data from this measure may be used to evaluate the utilization and approriateness of platelets used by an organization.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

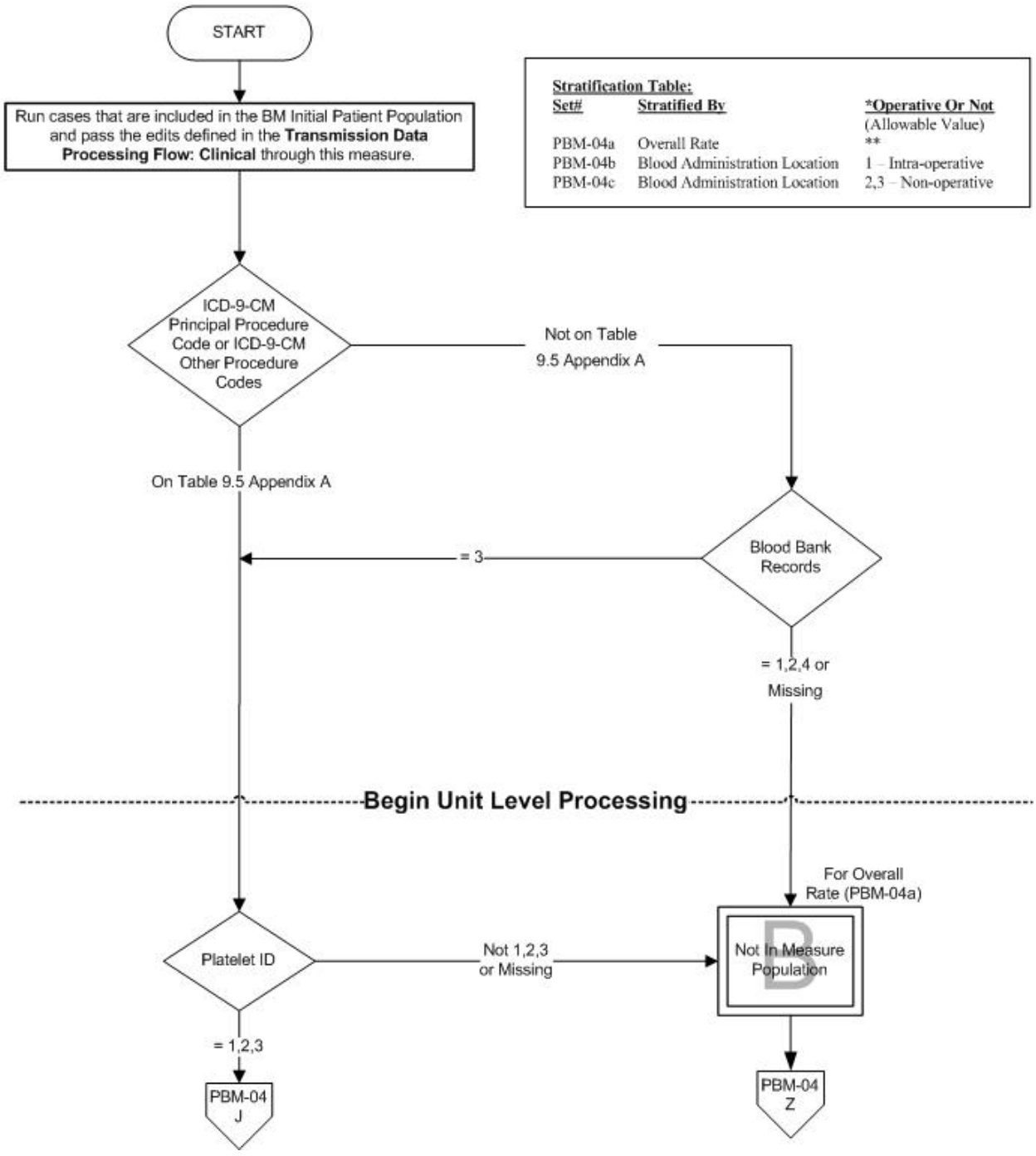
- Garrioch M, Sandbach J, Pirie E, Morrison A, Todd A, Green R. Reducing red cell transfusion by audit, education and a new guideline in a large teaching hospital. Transfusion Med. 2004;14:25-31.
- Petrides M. Red cell transfusion “trigger”: A review. Southern Med J. 2003; 96:664-667.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- BR J Haematol 1998, 101:609 - 617.

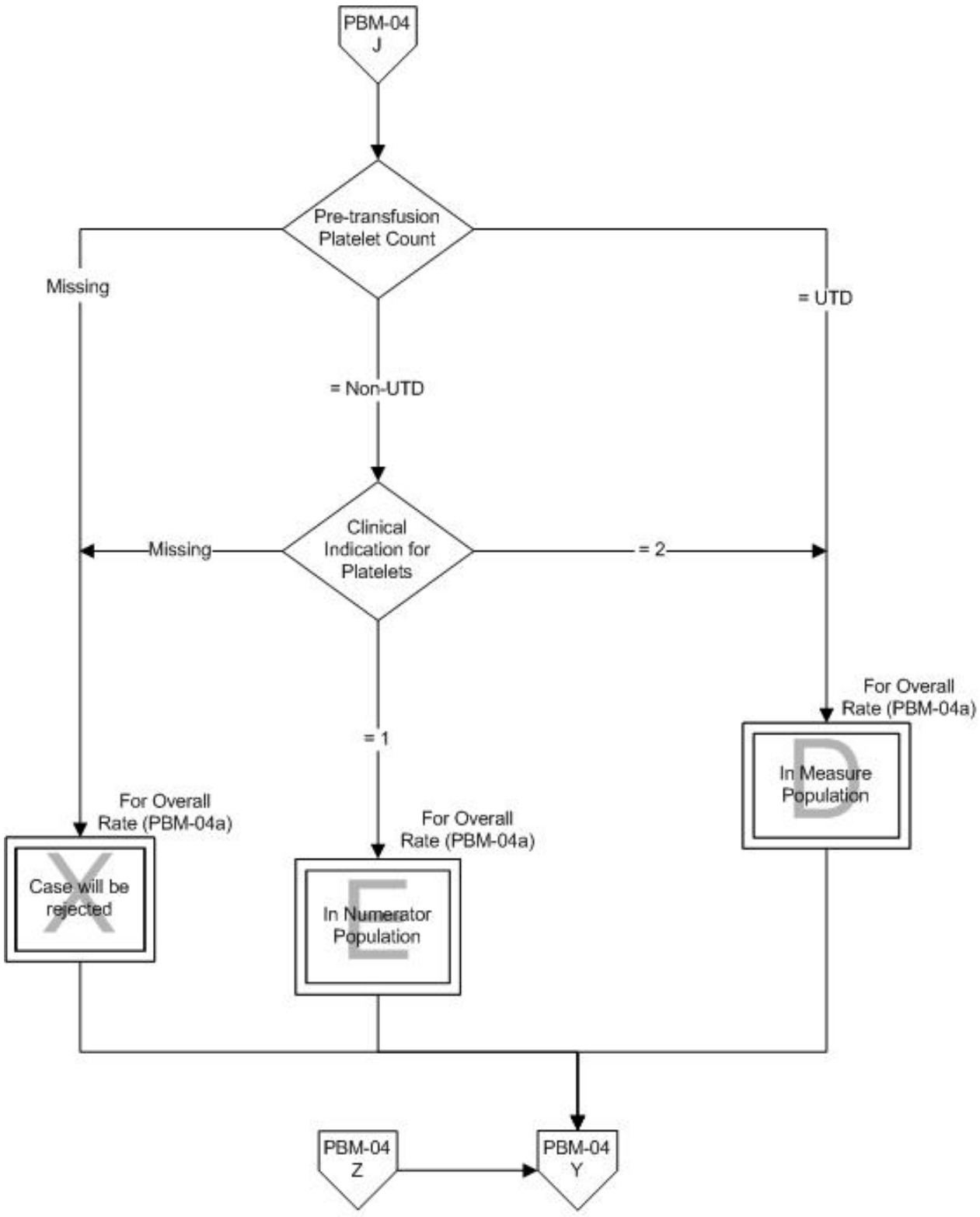
Measure Algorithm:

PBM–04: Platelet Transfusion Indication

Numerator: Number of platelet doses with pre-transfusion platelet count result and clinical indication documented

Denominator: Number of transfused platelet units evaluated





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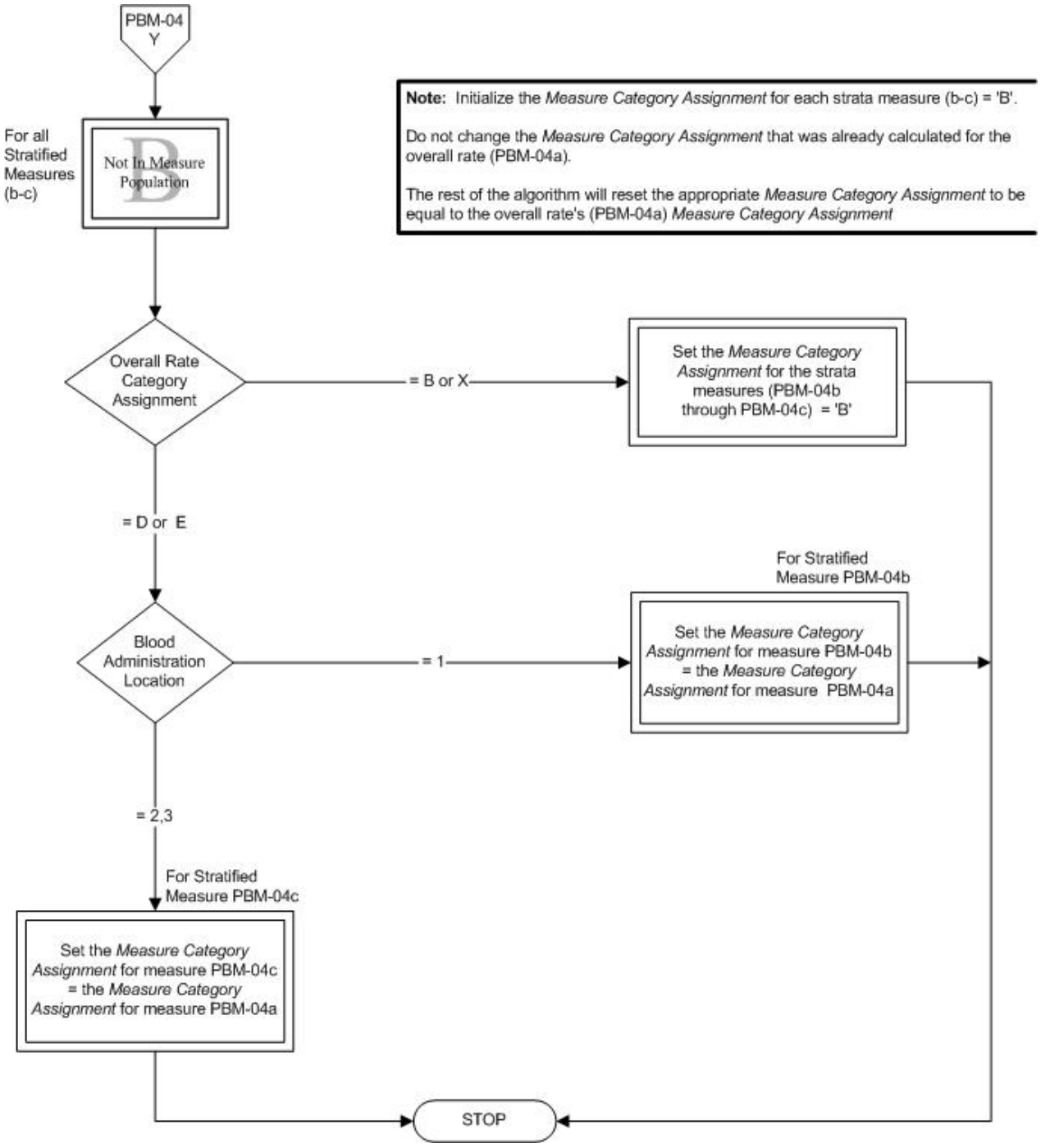


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-05

Performance Measure Name: Blood Administration Documentation

Description: The number of transfused red blood cells, plasma or platelet transfusion units/doses (bags) that had documentation of the following: patient identification and an order to transfuse (Blood ID Number) confirmed prior to the initiation of transfusion, transfusion start date and time, and blood pressure, pulse and temperature recorded at specific intervals.

Rationale: Since the majority of blood units are transfused in hospitals, specific policies and procedures have been developed by each hospital to address documentation of blood administration standards in accordance with their state and federal regulations. Though documentation components vary among organizations, identification of the patient and confirmation of the order to transfuse are common indicators used for all blood products since incomplete patient identification could result in an adverse outcome. Prior to administering blood or blood products, patient identification by two identifiers is required by numerous organizations including the AABB Standard 5.19.3, and the Joint Commission National Patient Safety Goal (NPSG) 1. In addition, numerous organizations require or advise that the licensed staff confirm that there is a transfusion order as directed by the AABB Standard 5.19.6 and the elements of performance for the Joint Commission NPSG.01.01.01.

Patient monitoring during the transfusion is an important component related to patient safety. The first 10 to 15 minutes of the transfusion are considered the most critical to assess for a potential transfusion reaction and close observation during this time is recommended in the AABB Primer. Monitoring of vital signs at baseline, during and at the completion of the transfusion in addition to observation are used to assess the patient's condition for any changes.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Number of units/doses (bags) with documentation for all of the following:

- patient identification and transfusion order (Blood ID Number) confirmed prior to the initiation of transfusion
- transfusion start date and time
- blood pressure, pulse and temperature recorded pre, during and post transfusion

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Blood ID Number*
- *Patient ID Verification*
- *Plasma ID*

- *Platelet ID*
- *RBC ID*
- *Transfusion Order*
- *Transfusion Start Date*
- *Transfusion Start Time*
- *Vital Sign Monitoring*

Denominator Statement: Number of transfused red blood cells, plasma or platelet units/doses (bags) evaluated

Included Populations:

- Discharges with an ICD-9-CM Principal or Other Procedure Codes for transfusion as defined in Appendix A, Table 9.3-9.6 or a transfusion documented from Blood Bank Records

Excluded Populations:

- Units used in massive transfusion protocols
- Uncrossmatched units
- Units used to prime equipment

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Administration Location*
- *Blood Bank Records*
- *Discharge Date*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Procedure Code*
- *RBC Unit Exclusions*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative/billing data and medical records. Hospitals that do not use ICD-9-CM procedure codes to document transfusions may use blood bank records to identify the population.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes and blood bank records; therefore, coding practices and transfusion documentation may require evaluation to ensure consistency.

Measure Analysis Suggestions: The data from this measure may be used to evaluate the adherence to organizational policies and procedures for blood administration for each of the blood products. Data could be evaluated by unit or service in order to identify areas for staff education. The data could also be used during accreditation surveys to document the hospital's efforts to improve the accuracy of patient identification when administering blood related to the Joint Commission National Patient Safety Goal #1.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References:

- Whitsett CF, Robichaux MG. Assessment of blood administration procedures: problems identified by direct observation and administrative incident reporting. Transfusion. 2001;41:581-86.
- Saxena S, Ramer L, Shulman IA. A comprehensive assessment program to improve blood-administering practices using the FOCUS-PDCA model. Transfusion. 2004; 44:1350-56.
- Novis DA, Miller KA, Howanitz PJ, Renner SW, Walsh MK; College of American Pathologists. Audit of transfusion procedures in 660 hospitals. A College of American Pathologists Q–Probes study of patient identification and vital sign monitoring frequencies in 16494 transfusions. Arch Pathol Lab Med. 2003;127:541-8.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- The Joint Commission: Comprehensive Accreditation Manual for Hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009.
- The Joint Commission, “National Patient Safety Goals (NPSG)”, IN: Comprehensive accreditation manual for hospitals, 2009. Oakbrook Terrace, IL; Joint Commission Resources, Inc., 2009, pp. NPSG 1 – NPSG 4.
- AABB Primer of Blood Administration. Revised August 2008. Bethseda, Maryland. [Available at http://www.aabb.org/Content/Professional_Development/Education_and_Training_Material/edtr (accessed November 2009).]

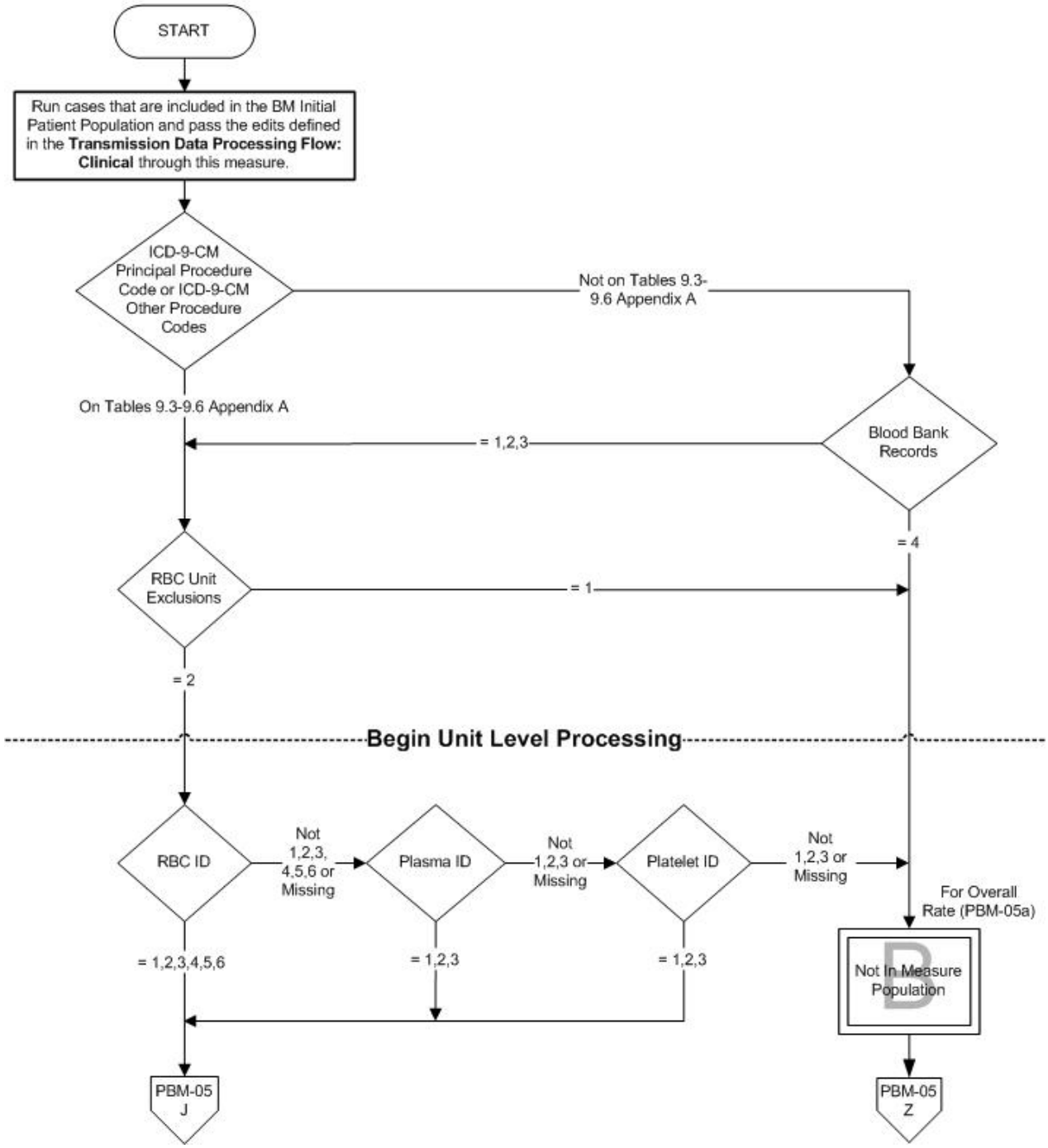
Measure Algorithm:

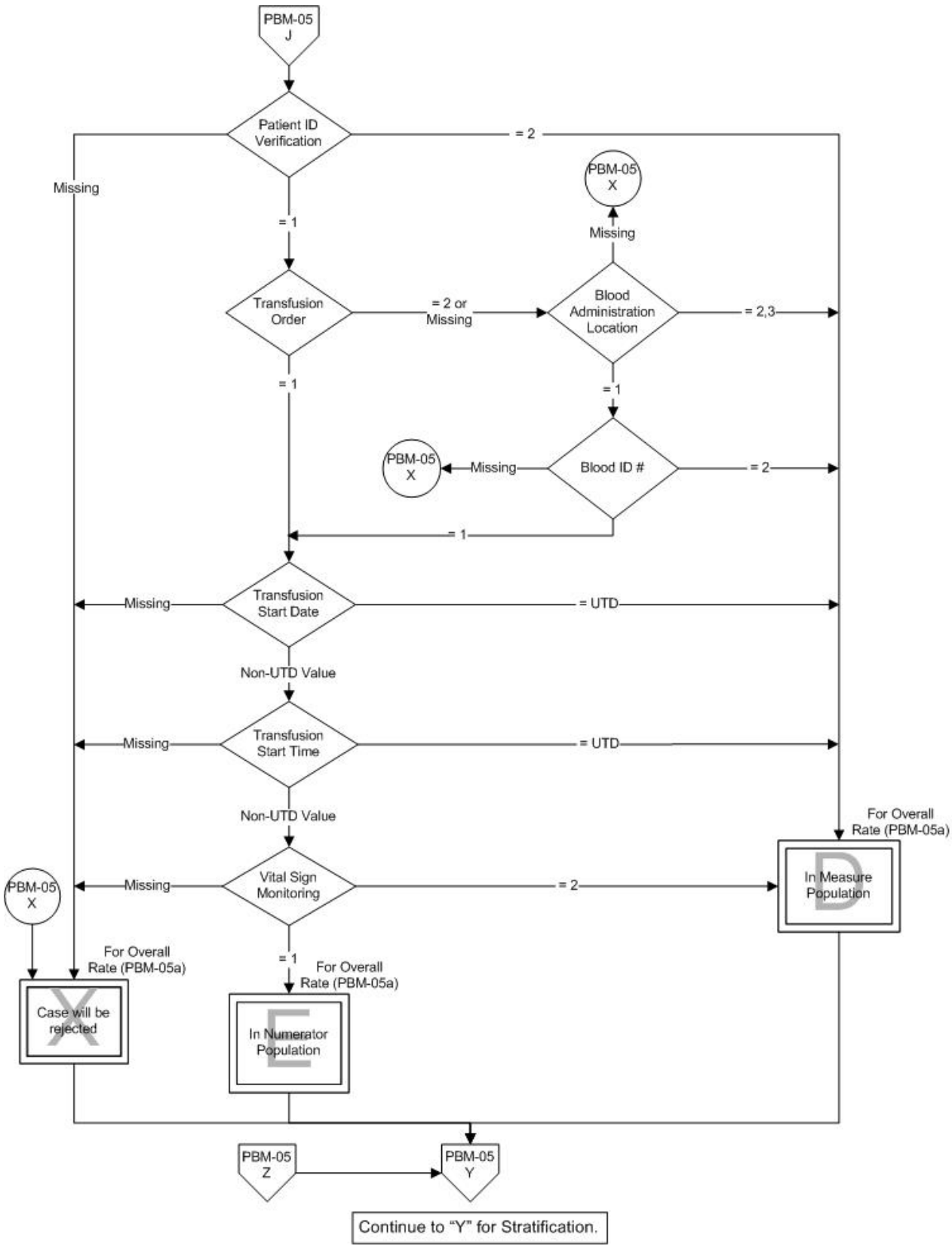
PBM–05: Blood Administration Documentation

Numerator: Number of blood transfusion units (bags) or doses with documentation for all of the following:

- patient identification (ID) and transfusion order (blood ID number) confirmed prior to the initiation of blood
- date and time of transfusion
- blood pressure, pulse and temperature recorded pre, during and post transfusion

Denominator: Number of transfused red blood cells, plasma and platelet units (bags) or doses evaluated

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Patient ID Verification
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Missing
PBM-05 X
= 1
Missing
Transfusion Order
= 2 or Missing
Blood Administration Location
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PBM-05 X
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Blood ID #
= 2
= 1
Transfusion Start Date
Missing
= UTD
Non-UTD Value
Transfusion Start Time
Missing
= UTD
Non-UTD Value
For Overall Rate (PBM-05a)
PBM-05 X
Vital Sign Monitoring
Missing
= 2
In Measure Population
D
For Overall Rate (PBM-05a)
= 1
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Case will be rejected
X
In Numerator Population
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PBM-05 Y
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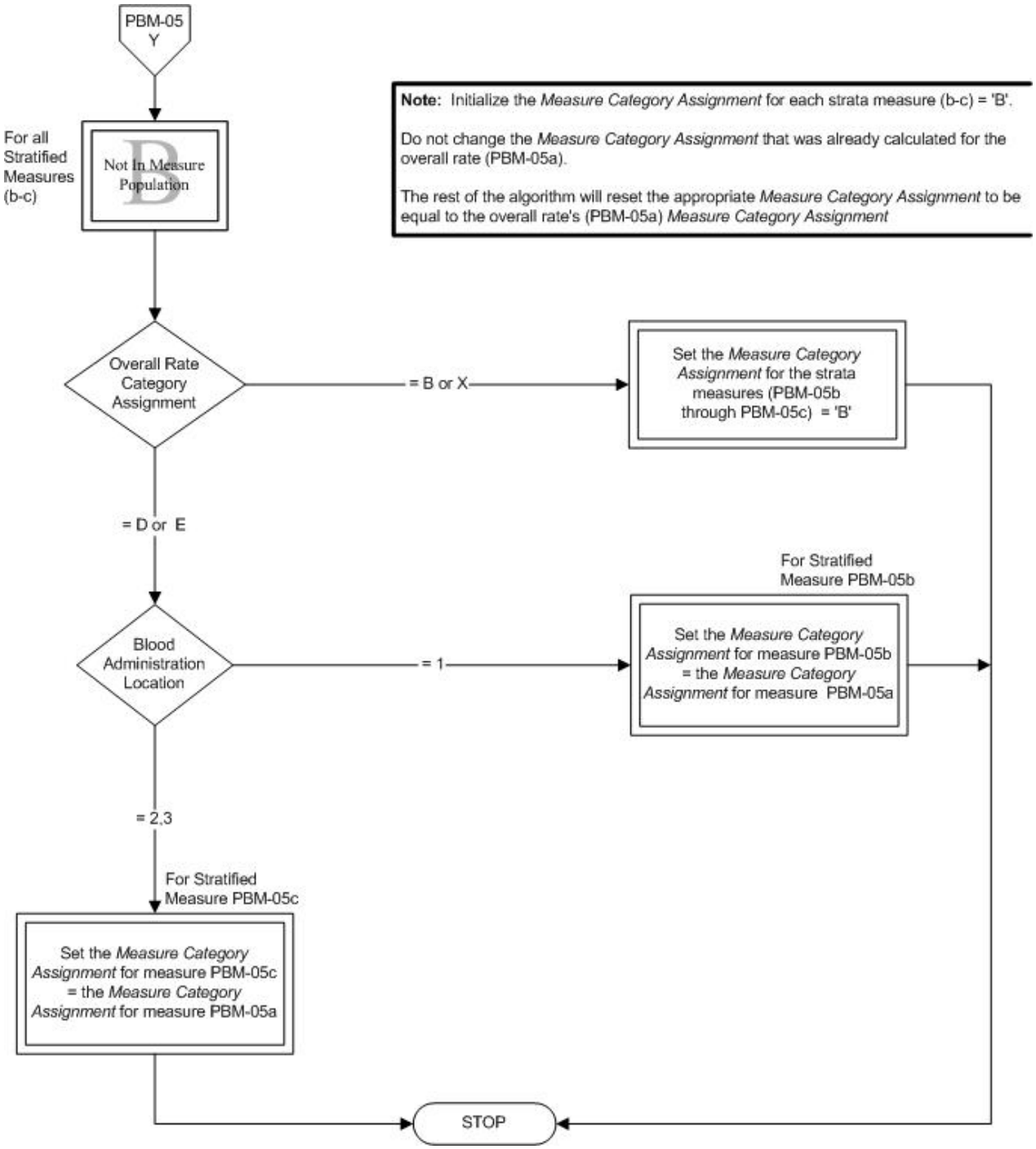


Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-06

Performance Measure Name: Preoperative Anemia Screening

Description: Selected elective orthopedic, cardiac and hysterectomy surgical patients with documentation of preoperative anemia screening date 14 – 45 days before surgery start date for procedures scheduled 14 or more days before surgery.

Rationale: Development of formal protocols for preoperative testing of hemoglobin (hgb) for potential high-blood loss elective surgeries could be used to identify and intervene for optimal management of blood resources. Preoperative anemia often goes unrecognized and untreated unless tests are ordered in advance of a planned surgery. Early recognition of anemia offers patients an opportunity to receive the most appropriate transfusion-sparing strategy, and avoid the risk of a potential transfusion. Researchers have shown that preoperative hgb and hematocrit can be used as predictors of outcome for specific types of patients such as cardiac artery bypass graft or orthopedic surgery. In a study by Salido, orthopedic patients with a preoperative hemoglobin <13 g/dL had four times the risk of transfusion than those with a hemoglobin level between 13 g/dL and 15 g/dL.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with preoperative anemia screening 14 - 45 days before Anesthesia Start Date

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Preoperative Anemia Screening Date*

Denominator Statement: Selected elective surgical patients

Included Populations:

- Discharges with an ICD-9-CM Principal Procedure Codes of selected surgeries as defined in Appendix A, Tables 2.2, 5.01, 5.02, 5.08, 5.11, 5.22, 5.23, 9.1 or 9.2.

Excluded Populations:

- Patients less than 18 years of age
- Patients with surgery scheduled less than 14 days before Anesthesia Start Date
- Patients not admitted from home

Data Elements:

- *Admission Date*
- *Admission From Home*
- *Birthdate*
- *Discharge Date*
- *ICD-9-CM Principal Procedure Code*
- *ICD-9-CM Principal Procedure Date*
- *Surgery Scheduled Timeframe*

Risk Adjustment: No.

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: These data may be used to evaluate specific patient groups at high risk for a blood transfusion that did not have their pre-operative hemoglobin and/or transfusion testing completed and/or documented prior to surgery. The data could be further analyzed based on physician or type of procedure. Patients who are not included in the numerator could be tracked to see if there were any adverse outcomes due to the lack of preoperative anemia screening.

Sampling: Yes. For additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References: * Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.

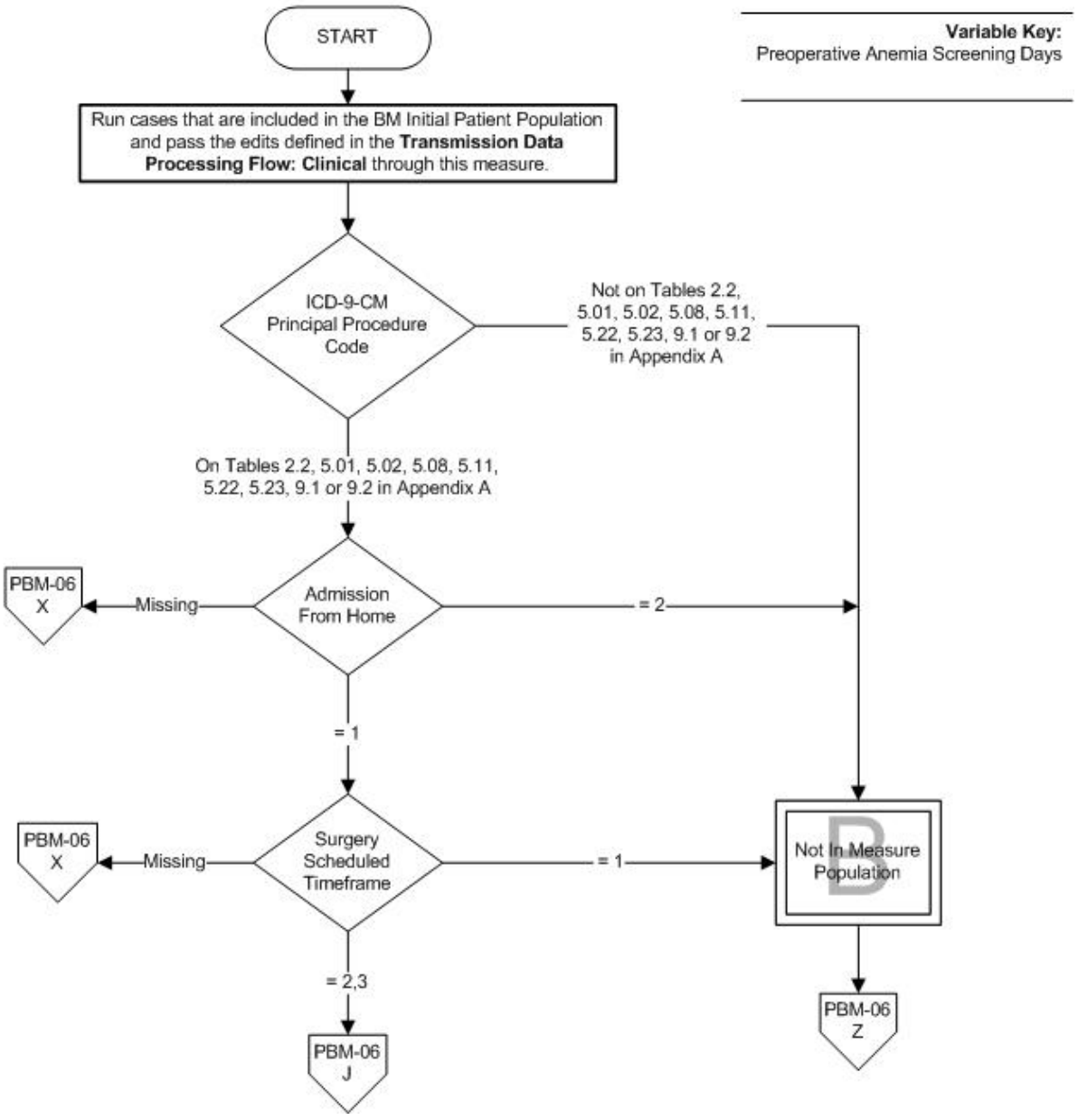
- Salido JA, Martin LA, Gomez LA, et al. Preoperative hemoglobin levels and the need for transfusion after prosthetic hip and knee surgery; analysis of predictive factors. J Bone Joint Surg. 2002;84: 216-20.
- Rady MY, Ryan T, Starr NJ. Perioperative determinants of morbidity and mortality in elderly patients undergoing cardiac surgery. Crit Care Med. 1998;26: 225-235.
- Magovern JA, Sakert T, Magovern GJ et al. A model that predicts morbidity and mortality after coronary artery bypass graft surgery. J Am Coll Cardiol. 1996;28: 1147-1153.
- Campbell DA, Henderson WG, Englesbe, MJ, Hall BL, O'Reilly M, Bratzler D et al. Surgical site infection prevention: the importance of operative duration and blood transfusion-results of the first american college of surgeons –national surgical quality improvement program best practices initiative. J AM Coll Surg 2008;207:810-820.

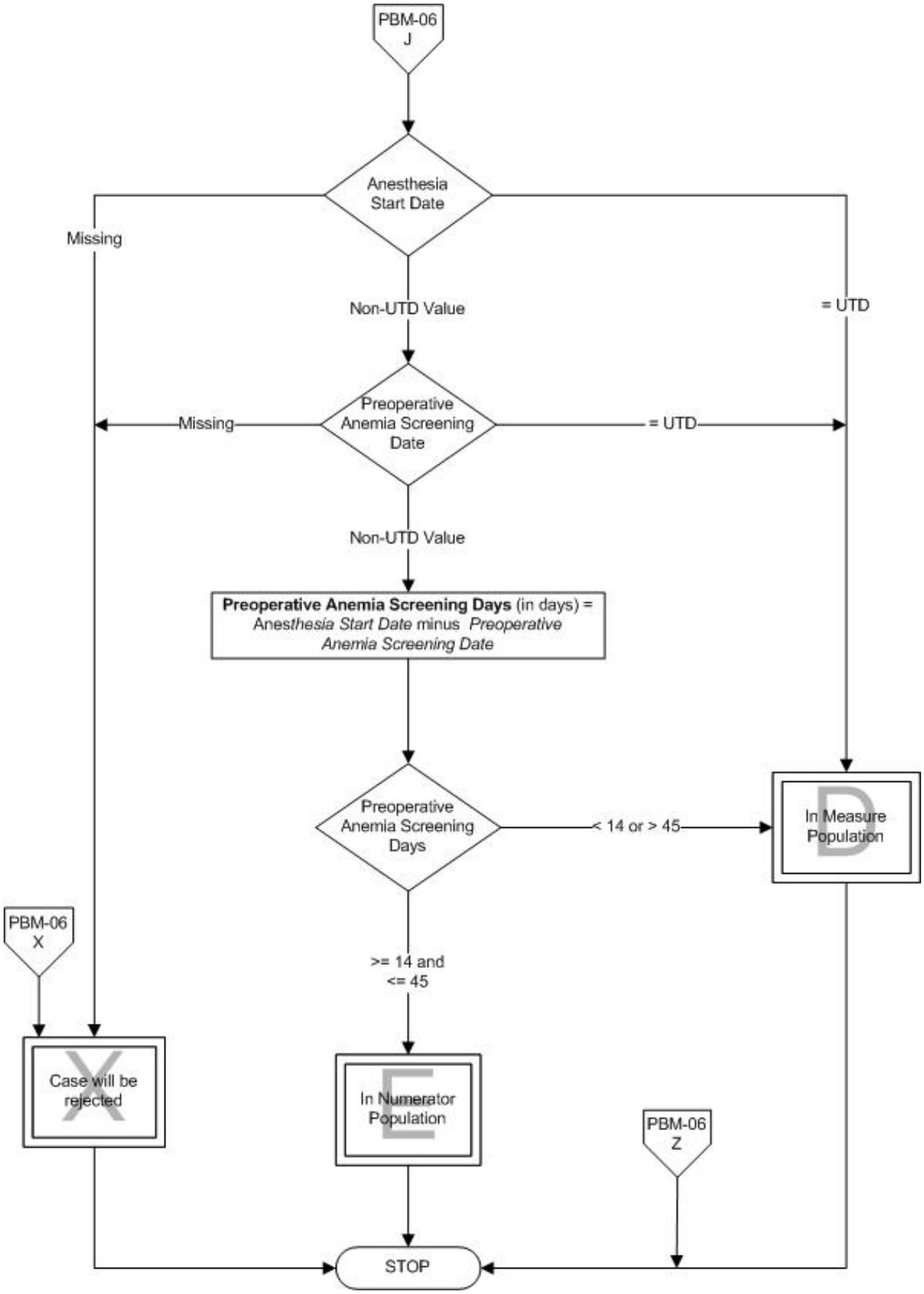
Measure Algorithm:

PBM–06: Preoperative Anemia Screening

Numerator: Patients with documentation of preoperative anemia screening 14 - 45 days before Anesthesia Start Date

Denominator: Selected elective surgical patients





Related Topics

Measure Information Form

Measure Set: Patient Blood Management(PBM)

Set Measure ID: PBM-07

Performance Measure Name: Preoperative Blood Type Testing and Antibody Screening

Description: Selected elective orthopedic, cardiac and hysterectomy surgical patients who had preoperative blood type testing and antibody screening (type and screen or type and crossmatch) completed prior to surgery start time if ordered preoperatively.

Rationale: Hospitals need to ensure that sufficient compatible blood is available for each scheduled procedure. Since about 3% of specimens have a serologic finding that requires further investigation that may cause a delay in the availability of the blood, patient screening of ABO group and Rh type should be collected in sufficient time to complete all pretransfusion testing before surgery begins. According to the Joint Commission's Pre-publication National Patient Safety Goal UP.01.01.01 for 2010, a preprocedure verification process should be conducted to identify items that must be available for the procedure and use a standardized list to verify their availability. Documentation of any required blood products for the procedure is required. Development of formal protocols to ensure that patients have blood testing completed prior to surgery start time for potential high-blood loss elective surgeries may optimize management of blood resources and maximize patient safety.

Type of Measure: Process

Improvement Noted As: Increase in the rate

Numerator Statement: Patients with preoperative type and crossmatch or type and screen completed prior to surgery start time

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Preoperative Blood Type Testing*

Denominator Statement: Selected elective surgical patients

Included Populations:

- Discharges with an ICD-9-CM Principal Procedure Code of selected surgeries as defined in Appendix A, Tables 2.2, 5.01, 5.02, 5.08, 5.11, 5.22, 5.23, 9.1 or 9.2.

Excluded Populations:

- Patients less than 18 years of age
- Patients with type and screen or type and crossmatch ordered preoperatively

Data Elements:

- *Admission Date*
- *Birthdate*
- *Blood Type Testing Ordered*
- *Discharge Date*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No.

Data Collection Approach: Retrospective data collection sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: These data may be used to evaluate specific patient groups at high risk for a blood transfusion that did not have pre-operative transfusion testing completed and/or documented prior to surgery start time. The data could be further analyzed based on physician or type of procedure. Patients who are not included in the numerator could be tracked to see if there were any adverse outcomes due to the lack of preoperative testing.

Sampling: Yes. For additional information see the Population and Sampling Specifications.

Data Reported As: Aggregate rate generated from count data reported as a proportion.

Selected References: * Saxena S, Nelson JM, Osby M, Shah M, Kempf R, Shulman IA. Ensuring timely completion of type and screen testing and the verification of ABO/Rh status for elective surgical patients. Arch Pathol Lab Med. 2007;131:576-81.

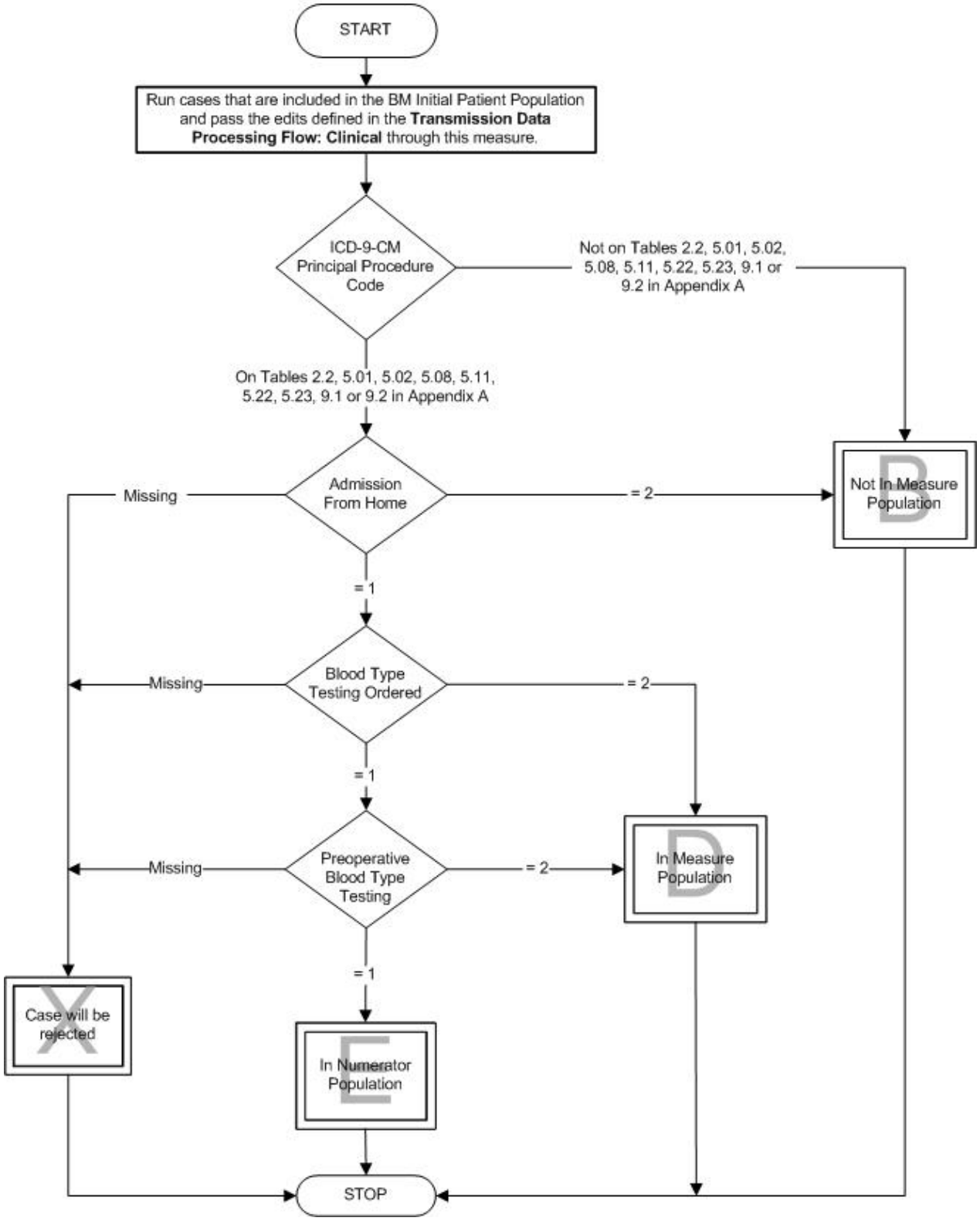
- Friedberg RC, Jones BA, Walsh MK. Type and screen completion for scheduled surgical procedures. A College of American Pathologists Q-Probes study of 8941 type and screen tests in 108 institutions. Arch Pathol Lab Med. 2003;127:533-40.
- Roback JD, ed. Technical manual. 16th ed, Bethseda, MD: AABB, 2008.
- Magovern JA, Sakert T, Magovern GJ et al. A model that predicts morbidity and mortality after coronary artery bypass graft surgery. J Am Coll Cardiol. 1996;28: 1147-1153.
- The Joint Commission 2010 National Patient Safety Goals, Oakbrook Terrace, IL [Available at http://www.jointcommission.org/NR/rdonlyres/868C9E07-037F-433D-8858-0D5FAA4322F2/0/RevisedChapter_HAP_NPSG_20090924.pdf (accessed January 27, 2010).]

Measure Algorithm:

PBM–07: Preoperative Blood Type Testing and Antibody Screening

Numerator: Patients with documentation of preoperative type and crossmatch or type and screen completed prior to Anesthesia Start Time

Denominator: Selected elective surgical patients



Related Topics

Data Element Name: *Admission From Home*

Collected For: PBM-06,

Definition: Patient was admitted for the pre-scheduled elective surgery procedure from home.

Suggested Data Collection Question: Was the patient admitted from home?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 Patient was admitted from home.

2 Patient was not admitted from home or unable to determine from medical record documentation.

Notes for Abstraction:

- Patients who have to stay overnight at a location other than their primary residence due to long distance travel for procedure are considered admitted from home.

Suggested Data Sources:

- Face sheet
- Nursing admission assessment
- Physician's notes
- Preop checklist

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Anesthesia Start Date*
Collected For:	PBM-06,
Definition:	The date the anesthesia for the procedure started.
Suggested Data Collection Question:	On what date did the anesthesia for the procedure start?
Format:	**Length:** 10 – MM-DD-YYYY (includes dashes) **Type:** Date **Occurs:** 1
Allowable Values:	MM-DD-YYYY MM = Month (01-12) DD = Day (01-31) YYYY = Year (2001-Current Year) Leave Blank if Unable to Determine
Notes for Abstraction:	If the Anesthesia Start Date cannot be determined from medical record documentation, enter UTD. When the date documented is obviously invalid (not a valid format/range [12-39-20xx] or after the Discharge Date or Anesthesia End Date) and no other documentation can be found that provides the correct information, the abstractor should select "UTD." Example: Patient expires on 02-12-20xx and documentation indicates the Anesthesia Start Date was 03-12-20xx. Other documentation in the medical record supports the date of death as being accurate, but no other documentation of the Anesthesia Start Date can be found. Since the Anesthesia Start Date is outside of the parameter for care (after the Discharge Date [death]) and no other documentation is found, the abstractor should leave blank. If the Anesthesia Start Date is incorrect (in error) but it is a valid date and the correct date can be supported with other documentation in the medical record, the correct date may be entered. If supporting documentation of the correct date cannot be found, the medical record must be abstracted as documented or at "face value." Examples: The anesthesia form is dated 12-10-2007, but other documentation in the medical record supports that the correct date was 12-10-2009. Enter the correct date of 12-10-2009 as the Anesthesia Start Date. An Anesthesia End Date of 11-20-20xx is documented but the Anesthesia Start Date is documented as 11-10-20xx. If no other documentation can be found to support another Anesthesia Start Date, then it must be abstracted as 11-10-20xx because the date is not considered invalid or outside the parameter of care.

Suggested Data Sources:

Other Suggested Sources:

- Intraoperative record
- Circulator record
- Post-anesthesia evaluation record
- Operating room notes

Additional Notes:

Suggested Data Sources:

Note: The anesthesia record is the priority data source for this data element, if a valid Anesthesia Start Date is found on the anesthesia record, use that date. If a valid date is not on the anesthesia record, other suggested data sources may be used in no particular order to determine the Anesthesia Start Date.

Priority Source:

- Anesthesia record

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Blood Administration Location*
Collected For:	PBM-02, PBM-03, PBM-04, PBM-05,
Definition:	The hospital setting (intraoperative or non-intraoperative) where the blood product began infusing.
Suggested Data Collection Question:	In what setting did the blood product begin infusing?
Format:	**Length:** 1 **Type:** Alphanumeric **Occurs:** 1-12

Allowable Values:

1 Intraoperative setting

2 Non-introperative setting

3 Unable to determine

Notes for Abstraction:

- Select setting for each unit transfused based on the physical location of the patient.
- Intraoperative setting is anytime during the operation.
- Non-intraoperative setting is any area outside of the operating room. For example, setting such as the intensive care unit, surgical floor or emergency room.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Nursing notes
- Nursing flow sheet
- Nursing admission assessment
- Progress notes
- Physician's notes
- Operative notes
- Operating room notes
- Operative report
- Procedure notes
- ICU notes
- PACU/recovery room record

Blood Administration Documentation Sheet

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Blood Bank Records*

Collected For: PBM-01, PBM-02, PBM-03, PBM-04, PBM-05,

Definition: Documentation that the patient received red blood cells (RBCs), plasma or platelets after hospital arrival.

Suggested Data Collection Question: Was there documentation that the patient received RBCs, plasma or platelets after hospital arrival?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1-12

Allowable Values:

Select all that apply: 1 RBCs

2 Plasma

3 Platelets

4 None of the above or unable to determine from medical record documentation

Notes for Abstraction:

- Include transfusions given in the emergency room or observation area.

Suggested Data Sources: Blood Bank Records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion

Data Element Name: *Blood ID Number*

Collected For: PBM-05,

Definition: Documentation of the actual blood bank identification number in the intraoperative record for the unit that was transfused.

Suggested Data Collection Question: Was there documentation of a blood bank identification number for the unit or dose of blood transfused during surgery?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 There is documentation of a blood bank identification number for the unit that was transfused.

2 There is no documentation of a blood bank identification number for the unit that was transfused or unable to determine from medical record documentation.

Notes for Abstraction:

Suggested Data Sources:

- Anesthesia record
- Operative report

Blood administration record

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Blood Type Testing Ordered*

Collected For: PBM-07,

Definition: A type and screen and/or type and crossmatch was ordered preoperatively for the elective surgery.

Suggested Data Collection Question: Was a type and screen and/or type and crossmatch ordered preoperatively?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 A type and screen and/or type and crossmatch was ordered preoperatively.

2 A type and screen and/or type and crossmatch was not ordered preoperatively or unable to determine

Notes for Abstraction:

Suggested Data Sources:

- Physician orders
- Preop checklist

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for Plasma*

Collected For: PBM-03,

Definition: Documentation by the physician/advance practice nurse/physician assistant or (physician/APN/PA) of the clinical indication for the plasma transfusion unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused plasma unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused plasma unit.

2 There was no documentation of a clinical indication for the transfusion or unable to determine from the medical record.

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first four plasma transfusion units closest to hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING BLOOD:

- Anesthesia record
- Consultation notes
- Emergency department record
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for Platelets*

Collected For: PBM-04,

Definition: Documentation by the physician/advance practice nurse/physician assistant (physician/APN/PA) of the clinical indication for the transfused platelet unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused platelet unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused platelet unit.

2 There was no documentation of clinical indication for the platelet transfusion or unable to determine from the medical record

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first three units transfused after hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING PLASMA:

- Anesthesia record
- Consultation notes
- Emergency department record
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Clinical Indication for RBCs*

Collected For: PBM-02,

Definition: Documentation by the physician/advance practice nurse/physician assistant (physician/APN/PA) of the clinical indication for the tranfused red blood cell (RBCs) unit.

Suggested Data Collection Question: Was there a clinical indication documented by the physician/APN/PA for the transfused RBC unit?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 6

Allowable Values:

1 There was a clinical indication documented by the physician/APN/PA for the transfused RBC unit.

2 There was no clinical indication documented by the physician/APN/PA for the transfused RBC unit or unable to determine from medical record documentation.

Notes for Abstraction:

- The clinical indication for the transfusion must be documented within 24 hours after the start of the transfusion.
- Select the first six RBC transfusion units after hospital arrival for abstraction.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE CLINICAL INDICATION FOR ADMINISTERING RBCs:

- Anesthesia record
- Consultation notes
- Emergency department record
- Operative notes
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Education Addressed Risks, Benefits and Alternatives to Transfusion*
Collected For:	PBM-01,
Definition:	Documentation that information addressing risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion or the initial transfusion was deemed a medical emergency after hospital arrival.
Suggested Data Collection Question:	Was there documentation that information regarding risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion event or was the initial transfusion deemed a medical emergency after hospital arrival?
Format:	**Length:** 1 **Type:** Numeric **Occurs:** 1

Allowable Values:

1 Information addressing the risks, benefits and alternatives to transfusion was given to the patient/caregiver prior to the initial transfusion after hospital arrival.

2 Information addressing the risks, benefits and alternatives to transfusion was not given to the patient/caregiver prior to the initial transfusion after hospital arrival or unable to determine from medical record documentation.

Notes for Abstraction:

- Use only documentation provided in the medical record.
- If the patient refused information about risks, benefits and alternatives to transfusion, select “1.”
- The caregiver is defined as the patient’s family or any other person (e.g., guardian) who will be responsible for care of the patient.

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Nursing notes
- Progress notes
- Operative notes
- Admission forms
- Consent form
- Emergency department record
- Progress notes
- Nursing notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Patient ID Verification*

Collected For: PBM-05,

Definition: Documentation that two unique patient identifiers were checked during a two-person verification process (or the use of automated identification technology may be used in place of one of the individuals) prior to the administration of the transfusion unit/dose (bag).

Suggested Data Collection Question: Was there documentation that two unique patient identifiers were checked or automated identification was used in place of one person during the verification process prior to the administration of the blood transfusion unit/dose (bag)?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 12

Allowable Values:

1 There was documentation that two unique patient identifiers were checked during the two person verification process or an automated identification system was used in place of one of the individuals prior to the administration of the transfusion unit/dose (bag).

2 There was no documentation that two unique patient identifiers or automated identification were used during the two-person identification check prior to the administration of the transfusion unit/dose (bag) or unable to determine from medical record documentation.

Notes for Abstraction:

- *Patient ID Verification* must be associated with the blood product and RBC ID that was selected for abstraction.
- *Patient ID Verification* can be documented by the signature of two persons that attest that two unique patient identifiers were checked to verify the identification of the patient prior to the transfusion or the signature of one person and an automated identification device.
- Patient identifiers that could be used include; name, date of birth, patient identification number or unique identifier given at the time the crossmatch was drawn.
- The patient room number should not be used to identify the patient.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Nursing notes
- Progress notes
- Physician's notes
- Operative notes
- Operative report
- Procedure notes
- PACU/recovery room record

- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Plasma ID*

Collected For: PBM-03, PBM-05,

Definition: The number assigned to designate whether the plasma unit was the first, second or third unit transfused after hospital arrival.

Suggested Data Collection Question: What number was assigned to the plasma unit selected for abstraction?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 First Plasma Unit

2 Second Plasma Unit

3 Third Plasma Unit

Notes for Abstraction:

- The abstractor assigns a plasma identification (ID) number for each unit evaluated.
- Each allowable value is only used one time and is determined by the order in which it was administered.
- Abstract up to three plasma transfusion units per patient.
- Include plasma transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Platelet ID*

Collected For: PBM-04, PBM-05,

Definition: The number assigned to designate whether the platelet unit was the first, second or third unit that was transfused after hospital arrival.

Suggested Data Collection Question: What number was assigned to the platelet unit selected for abstraction?

Format:

Length: 2
Type: Numeric
Occurs: 1 - 3

Allowable Values:

1 First Platelet Unit

2 Second Platelet Unit

3 Third Platelet Unit

Notes for Abstraction:

- The abstractor assigns a platelet identification (ID) number for each unit evaluated.
- Each allowable value is only used one time and is determined by the order in which it was administered.
- Abstract up to three platelet units per patient
- Include platelet transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Hematocrit*

Collected For: PBM-02,

Definition: Documentation of the closest hematocrit (hct) completed prior to the RBC transfusion.

Suggested Data Collection Question: What was documented as the closest pre-transfusion hct prior to the RBC transfusion?

Format:

Length: 4
Type: Alphanumeric
Occurs: 1 - 6

Allowable Values:

Enter the patient's closest hematocrit result (number only, reported in percent) performed prior to each RBC transfusion.

UTD = Unable to Determine

- For abstraction, select either the pre-transfusion hematocrit or the hemoglobin result; both are not required.
- Select the result associated with the RBC ID selected for abstraction.
- When recording the allowable value for hematocrit, input 23.00 if the patient's hematocrit is 23%.

Notes for Abstraction:

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Hemoglobin*

Collected For: PBM-02,

Definition: Documentation of the closest hemoglobin (hgb) completed prior to the RBC transfusion.

Suggested Data Collection Question: What was documented as the closest pre-transfusion hgb prior to the RBC transfusion?

Format:

Length: 4
Type: Alphanumeric
Occurs: 1 - 6

Allowable Values:

Enter the patient's closest hemoglobin result reported in g/dL performed prior to transfusion.

UTD = Unable to Determine

- For abstraction, select either the pre-transfusion hematocrit or the hemoglobin result; both are not required.
- Select the hemoglobin result that is associated with the RBC ID selected for abstraction.
- If the hemoglobin result is 9.9 g/dL, enter 9.9.

Notes for Abstraction:

Suggested Data Sources:

- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion PT/INR Result*

Collected For: PBM-03,

Definition: Documentation of PT/INR result completed prior to the plasma transfusion.

Suggested Data Collection Question: What was the PT/INR result completed prior to the plasma transfusion.

Format:

Length: 1 - 5
Type: Alphanumeric
Occurs: 1 - 3

Allowable Values:

Enter the closest PT/INR result to the plasma transfusion.

UTD = Unable to determine

Notes for Abstraction:

- Enter the PT/INR result that is associated with the plasma ID selected for abstaction.
- An allowable value should be entered with one decimal. For example, a PT/INR of 1.5 should be entered as written. INR values over 10 should be entered as 10.00.

Suggested Data Sources:

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Pre-transfusion Platelet Count*

Collected For: PBM-04,

Definition: Documentation of the closest platelet count completed prior to the platelet transfusion.

Suggested Data Collection Question: What was the closest platelet count documented prior to the platelet transfusion?

Format:

Length: 1 - 5
Type: Alphanumeric
Occurs: 1 - 3

Allowable Values:

Enter the patient's closest platelet count result, in 10^9/µL performed prior to the platelet transfusion selected for abstraction.

UTD = Unable to Determine

Note:

- Select the platelet count result that is associated with the Platelet ID selected for abstraction.
- An allowable value for a platelet count result should be entered as '11.00' for a platelet count of 11,000.

Notes for Abstraction:

Suggested Data Sources:

- Anesthesia record
- Consultation notes
- Emergency department record
- History and physical
- Laboratory report
- Progress notes
- Operative report
- Blood administration form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Preoperative Anemia Screening Date*

Collected For: PBM-06,

Definition: The date that preoperative anemia screening or a hemoglobin (hgb)or hematocrit (hct) result was completed.

Suggested Data Collection Question: What date was preoperative anemia screening or a hgb or hct result completed?

Format:

Length: 10 - MM-DD-YYYY (includes dashes)
Type: Date
Occurs: 1

Allowable Values:

MM-DD-YYYY

MM = Month (01-12)
DD = Day (01-31)
YYYY = Year (2001-Current Year)
UTD

Notes for Abstraction:

- Select the *Preoperative Anemia Screening Date* associated with the elective surgical procedure selected for abstraction.*Preoperative Transfusion Testing*.
- The medical record must be abstracted as documented (taken at "face value"). When the date documented is obviously in error (not a valid date/format) and no other documentation is found that provides this information, the abstractor should select UTD.
- Example: Documentation indicates the Preoperative Anemia Screening Date was 03-42-2008. No other documentation in the medical record provides a valid date. Since the Preoperative Anemia Screening Date is outside of the range listed in the Allowable Values for "Day," it is not a valid date, and the abstractor should select UTD.

Suggested Data Sources:

- Nursing notes
- Progress notes
- Preop checklist
- Pre-arrival laboratory reports

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Preoperative Blood Type Testing*

Collected For: PBM-07,

Definition: Documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time.

Suggested Data Collection Question: Was there documentation of a type and screen or type and crossmatch completed prior to anesthesia start time?

Format:

Length: 1
Type: Numeric
Occurs: 1

Allowable Values:

1 There is documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time.

2 There is no documentation that a type and screen or type and crossmatch was completed prior to anesthesia start time or unable to determine from medical record documentation.

Notes for Abstraction:

- If type and screen and type and crossmatch were completed prior to the surgical procedure, select “1”.
- Anesthesia Start Time is the same as surgery start time.

Suggested Data Sources:

- Consultation notes
- History and physical
- Progress notes
- Preop checklist
- Pre-arrival laboratory reports

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *RBC ID*

Collected For: PBM-02, PBM-05,

Definition: The number assigned to designate whether the RBC transfusion was the first through the sixth RBC transfusion unit that was transfused after hospital arrival.

Suggested Data Collection Question: What RBC unit was selected for abstraction?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 6

Allowable Values:

1 First RBC Unit

2 Second RBC Unit

3 Third RBC Unit

4 Fourth RBC Unit

5 Fifth RBC Unit

6 Sixth RBC Unit

Notes for Abstraction:

- The abstractor assigns a RBC identification (ID) number for each unit evaluated.
- Each allowable value is used only one time and is determined by the order in which it was administered.
- Abstract up to six RBC transfusion units per patient.
- Include RBC transfusions administered after hospital arrival.

Suggested Data Sources:

- Anesthesia record
- Emergency department record
- Progress notes
- Operative notes
- Operative report
- Medication administration record (MAR)
- Blood administration form
- Blood bank records

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion

None	None

Data Element Name:	*RBC Unit Exclusions*
Collected For:	PBM-02, PBM-05,
Definition:	Red blood cell (RBC) units that are excluded from abstraction. The following RBC units excluded from abstraction are; units used for a massive transfusion protocol or documentation of hemorrhagic shock, uncrossmatched units given during an emergency situation and units used to prime equipment for treatment.
Suggested Data Collection Question:	Was this unit transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment?
Format:	**Length:** 1 **Type:** Alphanumeric **Occurs:** 1-6

Allowable Values:

1. There was documentation that this unit was transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment

1. There was no documentation that this unit was transfused for a massive transfusion protocol, hemorrhagic shock, uncrossmatched or used to prime equipment or unable to determine from medical record documentation.

Notes for Abstraction:

- If the initial six units transfused are excluded due to the exclusion criteria, abstract the next six units that were tranfused. If the patient only received RBC units that are excluded, then no RBC units should be abstracted.

Suggested Data Sources:

- Anesthesia record
- Circulation record
- Emergency department record
- Laboratory report
- Nursing notes
- Nursing flow sheet
- Progress notes
- Physician orders
- Physician’s notes
- Operative notes
- Operating room notes
- Operative report
- Procedure notes
- ICU notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Surgery Scheduled Timeframe*

Collected For: PBM-06,

Definition: The elective surgery was scheduled in less than 14 days from the planned surgery start date.

Suggested Data Collection Question: Was the elective surgery scheduled in less than 14 days from the planned surgery?

Format:

Length: 1
Type: Alphanumeric
Occurs: 1

Allowable Values:

1 There was documentation that the elective surgery was scheduled in less than 14 days from the planned surgery.

2 There was no documentation that the elective surgery was scheduled in less than 14 days from the planned surgery or unable to determine from medical record documentation.

Notes for Abstraction:

Suggested Data Sources:

- Preop checklist

Preoperative paperwork

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Transfusion Consent*

Collected For: PBM-01,

Definition: Documentation of a signed consent **prior** to the first transfusion of RBCs, platelets or plasma.

Suggested Data Collection Question: Was there documentation of a signed consent **prior** to the first blood transfusion?

Format:

Length: 1
Type: Numeric
Occurs: 1

Allowable Values:

1 There was documentation of a signed consent prior to the first blood transfusion.

2 The first blood transfusion was deemed a medical emergency.

3 There was no documentation of a blood transfusion consent prior to the first blood transfusion or unable to determine from medical record documentation.

Notes for Abstraction:

- The consent may be signed by the patient or caregiver.
- If organizations require a consent prior to every transfusion, then review the record for the first transfusion to answer this data element.
- For hospitals that use a general consent for treatment that includes transfusions, select “Yes”.
- If a patient receives chronic transfusions and a previous consent is acceptable for a defined timeframe within the institution, select “1” if the consent is valid.

Suggested Data Sources:

- Emergency department record
- History and physical
- Nursing notes
- Progress notes
- Operative notes
- Consent form

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name: *Transfusion Order*

Collected For: PBM-05,

Definition: An order to transfuse was written by the physician/advance practice nurse/physician assistant (physician/APN/PA) **prior** to the initiation of the transfusion.

Suggested Data Collection Question: Was there documentation of an order to transfuse **prior** to the transfusion?

Format:

Length: 1
Type: Numeric
Occurs: 1 - 12

Allowable Values:

1 There was documentation of an order to transfuse prior to transfusion.

2 There was no documentation of an order to transfuse prior to transfusion or unable to determine from medical record documentation.

Notes for Abstraction:

- A verbal or telephone order that was written prior to the transfusion is acceptable.
- The Transfusion Order must be associated with the blood product unit ID that was selected for abstraction.
- Note: Transfusion Order may apply to more than one unit/dose (bag). For example: An order written to "Transfuse two doses of platelets" would apply to both bags that were administered.

Suggested Data Sources:

ONLY PHYSICIAN/APN/PA DOCUMENTATION OF THE ORDER TO TRANSFUSE:

- Anesthesia record
- Consultation notes
- Emergency department record
- Operative notes
- Physician orders
- Progress notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Transfusion Start Date*
Collected For:	PBM-05,
Definition:	The date that the blood transfusion unit/dose (bag) was administered.
Suggested Data Collection Question:	What is the date that the blood transfusion unit/dose (bag) was administered?
Format:	**Length:** 10 – MM-DD-YYYY (includes dashes) **Type:** Date **Occurs:** 1 - 12
Allowable Values:	MM-DD-YYYY MM = Month (01-12) DD = Day (01-31) YYYY = Year (2001-Current Year) UTD
Notes for Abstraction:	• Abstract the Transfusion Date associated with the Transfusion Start Time of the unit/dose (bag) from the blood product ID selected for abstraction. • Some of the dates of the transfusion units may be the same date. Record a transfusion date for each unit abstracted up to three units for plasma or platelets or up to six units for RBCs. • The medical record must be abstracted as documented (taken at "face value"). When the date documented is obviously in error (not a valid date/format) and no other documentation is found that provides this information, the abstractor should select UTD. Example: Documentation indicates the Transfusion Start Date was 03-42-2008. No other documentation in the medical record provides a valid date. Since the Transfusion Start Date is outside of the range listed in the Allowable Values for "Day," it is not a valid date and the abstractor should select UTD.
Suggested Data Sources:	• Anesthesia record • Emergency department record • Nursing notes • Progress notes • Operative notes • Blood administration record
Additional Notes:	

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Transfusion Start Time*
Collected For:	PBM-05,
Definition:	The start time (military time) of the unit/dose (bag) of RBCs, plasma or platelets that was administered.
Suggested Data Collection Question:	What was the start time of the blood unit/dose (bag) administration?
Format:	**Length:** 5 - HH:MM (with or without colon) or UTD **Type:** Time **Occurs:** 1 - 12

Allowable Values:

Select the Transfusion Start Time associated with the Transfusion Start Date of the unit/dose (bag) from the associated blood product ID being abstracted.

HH = Hour (00-23)
MM = Minutes (00-59)
UTD = Unable to Determine

Notes for Abstraction:

Time must be recorded in military time format. With the exception of Midnight and Noon:

- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour

Examples:
Midnight - 00:00 Noon - 12:00
5:31 am - 05:31 5:31pm - 17:31
11:59 am - 11:59 11:59pm - 23:59

- For times that include “seconds,” remove the seconds and record the time as is. Example: 15:00:35 would be recorded as 15:00
- If more than one Transfusion Start Time is documented, use the earliest time documented.
- The medical record must be abstracted as documented (taken at “face value”). When the time documented is obviously in error (not a valid format/range) and no other documentation is found that provides this information, the abstractor should select “UTD.”
- Example: Documentation indicates the Transfusion Start Time was 3300. Since the Transfusion Start Time is outside of the range in the Allowable Values for “Hour,” it is not a valid time and the abstractor should select “UTD.”

Suggested Data Sources:

- Anesthesia record

- Emergency department record
- Nursing notes
- Operative notes
- Operative report
- Blood administration form

Additional Notes:

Select the Transfusion Start Time associated with the Transfusion Start Date of the unit/dose (bag) from the blood product ID identified for abstraction.

Time must be recorded in military time format.
With the exception of Midnight and Noon:

- If the time is in the a.m., conversion is not required
- If the time is in the p.m., add 12 to the clock time hour.

The medical record must be abstracted as documented (taken at "face value"). When the time documented is obviously in error (not a valid format/range) and no other documentation is found that provides this information, the abstractor should select "UTD."

Example:
Documentation indicates the Transfusion Start Time was 3300. Since the Transfusion Start Time is outside of the range in the Allowable Values for "Hour," it is not a valid time and the abstractor should select "UTD."

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Data Element Name:	*Vital Sign Monitoring*
Collected For:	PBM-05,
Definition:	Documentation of blood pressure (BP), pulse and temperature monitored at specific intervals for the transfusion. The intervals are: • Pre-transfusion, within 15 minutes of the initiation of the transfusion and within one hour of transfusion completion
Suggested Data Collection Question:	Was there documentation of BP and temperature monitored for all of the specified intervals for the transfusion?
Format:	**Length:** 2 **Type:** Numeric **Occurs:** 1 -12
Allowable Values:	**1** There was documentation for all of the BP, pulse and temperature monitoring intervals for the transfusion. **2** There was no documentation for all of the blood pressure, pulse and temperature monitoring intervals for the transfusion or unable to determine from medical record documentation.
Notes for Abstraction:	• All vital signs must be recorded at the following times: pre-transfusion, within 15 minutes of the initiation of the transfusion and within one hour of transfusion completion. To select "1", all recordings must be documented. • The pre-transfusion BP, pulse and temperature must be within one hour of the Transfusion Start Time. Vitals documented at the start of the transfusion are considered “within one hour of transfusion initiation". • For blood that may be transfused within 15 minutes, select "1" if the pre-transfusion and the within one hour of transfusion completion vitals are documented. • Vitals documented at the completion of the transfusion are considered “within one hour of transfusion completion". • The "unit" or "dose" information for the Vital Sign Monitoring data element must be associated with the blood product ID that was selected for abstraction.
Suggested Data Sources:	• Anesthesia record • Consultation notes • Emergency department record • Nursing notes • Progress notes • Operative notes

Additional Notes:

Guidelines for Abstraction:

Inclusion	Exclusion
None	None

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 2.2 Left Ventricular Assistive Device (LVAD) and Heart Transplant		
Code	ICD-9-CM Description	Shortened Description
33.6	Combined heart-lung transplantation	COMB HEART/LUNG TRANSPLA
37.51	Heart transplantation	HEART TRANSPLANTATION
37.52	Implantation of total replacement heart system	IMPLANT TOT REP HRT SYS
37.53	Replacement or repair of thoracic unit of total replacement heart system	REPL/REP THORAC UNIT HRT
37.54	Replacement or repair of other implantable component of total replacement heart system	REPL/REP OTH TOT HRT SYS
37.62	Insertion of non-implantable heart assist system	INS NON-IMPL HRT ASSIST
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of heart assist system	REMOVE HEART ASSIST SYS
37.65	Implant of external heart assist system	IMP EXT HRT ASSIST SYST
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.68	Insertion of percutaneous external heart assist device	PERCUTAN HRT ASSIST SYST

Table 5.01 Coronary Artery Bypass Graft (CABG)		
Code	ICD-9-CM Description	Shortened Description
36.10	Aortocoronary bypass for heart revascularization, not otherwise specified	AORTOCORONARY BYPASS NOS
36.11	(Aorto)coronary bypass of one coronary artery	(AORTO)COR BYPAS-1 COR ART
36.12	(Aorto)coronary bypass of two coronary arteries	(AORTO)COR BYPAS-2 COR ART
36.13	(Aorto)coronary bypass of three coronary arteries	(AORTO)COR BYPAS-3 COR ART
36.14	(Aorto)coronary bypass of four coronary arteries	(AORT)COR BYPAS-4+ COR ART
36.15	Single internal mammary-coronary artery bypass	1 INT MAM-COR ART BYPASS
36.16	Double internal mammary-coronary artery bypass	2 INT MAM-COR ART BYPASS
36.17	Abdominal-coronary artery bypass	ABD-CORON ARTERY BYPASS
36.19	Other bypass anastomosis for heart revascularization	HRT REVAS BYPS ANAS NEC

Table 5.02 Other Cardiac Surgery		
Code	ICD-9-CM Description	Shortened Description
35.10	Open heart valvuloplasty, without replacement, unspecified valve	OPEN VALVULOPLASTY NOS
35.11	Open heart valvuloplasty of aortic valve without replacement	OPN AORTIC VALVULOPLASTY
35.12	Open heart valvuloplasty of mitral valve without replacement	OPN MITRAL VALVULOPLASTY
35.13	Open heart valvuloplasty of pulmonary valve without replacement	OPN PULMON VALVULOPLASTY
35.14	Open heart valvuloplasty of tricuspid valve without	OPN TRICUS

	replacement	VALVULOPLASTY
35.20	Replacement of unspecified heart valve	REPLACE HEART VALVE NOS
35.21	Replacement of aortic valve with tissue graft	REPLACE AORT VALV-TISSUE
35.22	Other replacement of aortic valve	REPLACE AORTIC VALVE NEC
35.23	Replacement of mitral valve with tissue graft	REPLACE MITR VALV-TISSUE
35.24	Other replacement of mitral valve	REPLACE MITRAL VALVE NEC
35.25	Replacement of pulmonary valve with tissue graft	REPLACE PULM VALV-TISSUE
35.26	Other replacement of pulmonary valve	REPLACE PULMON VALVE NEC
35.27	Replacement of tricuspid valve with tissue graft	REPLACE TRIC VALV-TISSUE
35.28	Other replacement of tricuspid valve	REPLACE TRICUSP VALV NEC
35.31	Operations on papillary muscle	PAPILLARY MUSCLE OPS
35.32	Operations on chordae tendineae	CHORDAE TENDINEAE OPS
35.33	Annuloplasty	ANNULOPLASTY
35.34	Infundibulectomy	INFUNDIBULECTOMY
35.35	Operations on trabeculae carneae cordis	TRABECUL CARNEAE CORD OP
35.39	Operations on other structures adjacent to valves of heart	TISS ADJ TO VALV OPS NEC
35.42	Creation of septal defect in heart	CREATE SEPTAL DEFECT
35.50	Repair of unspecified septal defect of heart with prosthesis	PROSTH REP HRT SEPTA NOS
35.51	Repair of atrial septal defect with prosthesis, open technique	PROS REP ATRIAL DEF-OPN
35.53	Repair of ventricular septal defect with prosthesis, open technique	PROS REP VENTRIC DEF-OPN
35.54	Repair of endocardial defect with prosthesis	PROS REP ENDOCAR CUSHION
35.60	Repair of unspecified septal defect with tissue graft	GRFT REPAIR HRT SEPT NOS
35.61	Repair of atrial septal defect with tissue graft	GRAFT REPAIR ATRIAL DEF
35.62	Repair of ventricular septal defect with tissue graft	GRAFT REPAIR VENTRIC DEF
35.63	Repair of endocardial cushion defect with tissue graft	GRFT REP ENDOCAR CUSHION
35.70	Other and unspecified repair of unspecified septal defect of heart	HEART SEPTA REPAIR NOS
35.72	Other and unspecified repair of ventricular septal defect	VENTR SEPTA DEF REP NEC
35.73	Other and unspecified repair of endocardial cushion defect	ENDOCAR CUSHION REP NEC
35.81	Total repair of tetralogy of Fallot	TOT REPAIR TETRAL FALLOT
35.82	Total repair of total anomalous pulmonary venous connection	TOTAL REPAIR OF TAPVC
35.83	Total repair of truncus arteriosus	TOT REP TRUNCUS ARTERIOS
35.84	Total correction of transposition of great vessels, not elsewhere classified	TOT COR TRANSPOS GRT VES
35.91	Interatrial transposition of venous return	INTERAT VEN RETRN TRANSP

35.92	Creation of conduit between right ventricle and pulmonary artery	CONDUIT RT VENT-PUL ART
35.93	Creation of conduit between left ventricle and aorta	CONDUIT LEFT VENTR-AORTA
35.94	Creation of conduit between atrium and pulmonary artery	CONDUIT ARTIUM-PULM ART
35.98	Other operations on septa of heart	OTHER HEART SEPTA OPS
35.99	Other operations on valves of heart	OTHER HEART VALVE OPS

Table 5.08 Vascular Surgery

Code	ICD-9-CM Description	Shortened Description
38.14	Endarterectomy, aorta	ENDARTERECTOMY OF AORTA
38.16	Endarterectomy, abdominal arteries	ABDOMINAL ENDARTERECTOMY
38.18	Endarterectomy, lower limb arteries	LOWER LIMB ENDARTEREC T
38.34	Resection of vessel with anastomosis, aorta	AORTA RESECTION & ANAST
38.36	Resection of vessel with anastomosis, abdominal arteries	ABD VESSEL RESECT/ANAST
38.37	Resection of vessel with anastomosis, abdominal veins	ABD VEIN RESECT & ANAST
38.44	Resection of vessel with replacement, aorta, abdominal	RESECT ABDM
38.48	Resection of vessel with replacement, lower limb arteries	LEG ARTERY RESEC W REPLA
38.49	Resection of vessel with replacement, lower limb veins	LEG VEIN RESECT W REPLAC
38.64	Other excision of vessels, aorta, abdominal	EXCISION OF AORTA
39.25	Aorta-iliac-femoral bypass	AORTA-ILIAC-FEMOR BYPASS
39.26	Other intra-abdominal vascular shunt or bypass	INTRA-ABDOMIN SHUNT NEC
39.29	Other (peripheral) vascular shunt or bypass	VASC SHUNT & BYPASS NEC

Table 5.11 Cardiac Surgery

Code	ICD-9-CM Description	Shortened Description
35.10	Open heart valvuloplasty without replacement, unspecified valve	OPEN VALVULOPLASTY NOS
35.11	Open heart valvuloplasty of aortic valve without replacement	OPN AORTIC VALVULOPLASTY
35.12	Open heart valvuloplasty of mitral valve without replacement	OPNMITRAL VALVULOPLASTY
35.13	Open heart valvuloplasty of pulmonary valve without replacement	OPN PULMON VALVULOPLASTY
35.14	Open heart valvuloplasty of tricuspid valve without replacement	OPN TRICUS VALVULOPLASTY
35.20	Replacement of unspecified heart valve	REPLACE HEART VALVE NOS
35.21	Replacement of aortic valve with tissue graft	REPLACE AORT VALVE-TISSUE
35.22	Other replacement of aortic valve	REPLACE AORT VALVE NEC

35.23	Replacement of mitral valve with tissue graft	REPLACE MITR VALVE-TISSUE
35.24	Other replacement of mitral valve	REPLACE MITRAL VALVE NEC
35.25	Replacement of pulmonary valve with tissue graft	REPLACE PULM VALV-TISSUE
35.26	Other replacement of pulmonary valve	REPLACE PULMON VALVE NEC
35.27	Replacement of tricuspid valve with tissue graft	REPLACE TRICUSP VALV NEC
35.28	Other replacement of tricuspid valve	REPLACE TRICUSP VALV NEC
35.31	Operations on papillary muscle	PAPILLARY MUSCLE OPS
35.32	Operations on chordae tendineae	CHORDAE TENDINEAE OPS
35.33	Annuloplasty	ANNULOPLASTY
35.34	Infundibulectomy	INFUNDIBULECTOMY
35.35	Operations of trabeculae carneae cordis	TRABECUL CARNEAE CORD OP
35.39	Operations on other structures adjacent to valves of heart	TISS ADJ TO VALV OPS NEC
35.42	Creation of septal defect in heart	CREATE SEPTAL DEFECT
35.50	Repair of unspecified septal defect of heart with prosthesis	PROSTH REP HRT SEPTA NOS
35.51	Repair of atrial septal defect with prosthesis, open technique	PROS REP ATRIAL DEF-OPN
35.53	Repair of ventricular septal defect with prosthesis, open technique	PROS REP VENTRIC DEF-OPN
35.54	Repair of endocardial cushion defect with prosthesis	PROS REP ENDOCAR CUSHION
35.60	Repair of unspecified septal defect of heart with tissue graft	GRFT REPAIR HRT SEPT NOS
35.61	Repair of atrial septal defect with tissue graft	GRAFT REPAIR ATRIAL DEF
35.62	Repair of ventricular septal defect with tissue graft	GRAFT REPAIR VENTRIC DEF
35.63	Repair of endocardial cushion defect with tissue graft	GRFT REP ENDOCAR CUSHION
35.70	Other and unspecified repair of unspecified septal defect of heart	HEART SEPTA REPAIR NOS
35.71	Other and unspecified repair of atrial septal defect	ATRIA SEPTA DEF REP NEC
35.72	Other and unspecified repair of ventricular septal defect	VENTR SEPTA DEF REP NEC
35.73	Other and unspecified repair of endocardial cushion defect	ENDOCAR CUSHION REP NEC
35.81	Total repair of tetralogy of Fallot	TOT REPAIR TETRAL FALLOT
35.82	Total repair of total anomalous pulmonary venous connection	TOTAL REPAIR OF TAPVC
35.83	Total repair of truncus arteriosus	TOT REP TRUNCUS ARTERIOS

Table 5.11 Cardiac Surgery (cont.)		
Code	ICD-9-CM Description	Shortened Description

35.84	Total connection of transposition of great vessels, not elsewhere classified	TOT COR TRANSPOS GRT VES
35.91	Interatrial transposition of venous return	INTERAT VEN RETRN TRANSP
35.92	Creation of conduit between right ventricle and pulmonary artery	CONDUIT RT VENT-PUL ART
35.93	Creation of conduit between left ventricle and aorta	CONDUIT LEFT VENTR-AORTA
35.94	Creation of conduit between atrium and pulmonary artery	CONDUIT ARTIUM-PULM ART
35.98	Other operations on septa of heart	OTHER HEART SEPTA OPS
35.99	Other operations on valves of heart	OTHER HEART VALVE OPS
36.03	Open chest coronary artery angioplasty	OPEN CORONRY ANGIOPLASTY
36.10	Aortocoronary bypass for heart revascularization, not otherwise specified	AORTOCORONARY BYPASS NOS
36.11	Aortocoronary bypass of one coronary artery	AORTOCOR BYPASS-1 COR ART
36.12	Aortocoronary bypass of two coronary arteries	AORTOCOR BYPASS-2 COR ART
36.13	Aortocoronary bypass of three coronary arteries	AORTOCOR BYPASS-3 COR ART
36.14	Aortocoronary bypass of four or more coronary arteries	AORTOCOR BYPASS-4+ COR ART
36.15	Single internal mammary-coronary artery bypass	1 INT MAM-COR ART BYPASS
36.16	Double internal mammary-coronary artery bypass	2 INT MAM-COR ART BYPASS
36.17	Abdominal-coronary artery bypass	ABD-CORON ARTERY BYPASS
36.19	Other bypass anastomosis for heart revascularization	HRT REVAS BYPS ANAS NEC
36.31	Open chest transmyocardial revascularization	OPEN CHEST TRANS REVASC
36.32	Other transmyocardial revascularization	OTH TRANSMYO REVASCULAR
36.39	Other heart revascularization	OTH REVASCULAR
36.91	Repair of aneurysm of coronary vessel	CORON VESS ANEURYSM REP
36.99	Other operations on vessels of heart	HEART VESSEL OP NEC
37.10	Incision of heart, not otherwise specified	INCISION OF HEART NOS
37.11	Cardiotomy	CARDIOTOMY
37.31	Pericardiectomy	PERICARDIECTOMY
37.32	Excision of aneurysm of heart	HEART ANEURYSM EXCISION
37.33	Excision or destruction of other lesion or tissue of heart, open approach	EXC/DEST HRT LESION OPEN
37.35	Partial ventriculectomy	PARTIAL VENTRICULECTOMY
37.41	Implantation of prosthetic cardiac support device around the heart	IMPL CARDIAC SUPPORT DEV
37.49	Other repair of heart and pericardium	HEART/PERICARD REPR NEC
37.51	Heart transplantation	HEART TRANSPLANTATION

37.52	Implantation of total replacement heart system	IMPLANT TOT REP HRT SYS
37.53	Replacement or repair of thoracic unit of total replacement heart system	REPL/REP THORAC UNIT HRT
37.54	Replacement or repair of other implants component of total replacement heart system	REPL/REP OTH TOT HRT SYS
37.62	Insertion of non-implantable heart assist system	INS NON-IMPL HRT ASSIST
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of heart assist system	REMOVE HEART ASSIST SYS
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.67	Implantation of cardiomyostimulation system	IMP CARDIOMYOSTIMUL SYS

Table 5.22 Elective Hip Replacement

Code	ICD-9-CM Description	Shortened Description
00.70	Revision of hip replacement, both acetabular and femoral components	REV HIP REPL-ACETAB/FEM
00.71	Revision of hip replacement, acetabular component	REV HIP REPL-ACETAB COMP
00.72	Revision of hip replacement, femoral component	REV HIP REPL-FEM COMP
00.73	Revision of hip replacement, acetabular liner and/or femoral head only	REV HIP REPL-LINER/HEAD
00.77	Hip bearing surface, ceramic-on-polyethylene	HIP SURFACE, CERMC/POLY
00.85	Resurfacing hip, total, acetabulum and femoral head	RESRF HIP,TOTAL-ACET/FEM
00.86	Resurfacing hip, partial, femoral head	RESRF HIP,PART-FEM HEAD
00.87	Resurfacing hip, partial, acetabulum	RESRF HIP,PART-ACETABLUM
81.51	Total hip replacement	TOTAL HIP REPLACEMENT
81.52	Partial hip replacement	PARTIAL HIP REPLACEMENT
81.53	Revision of hip replacement	REVISE HIP REPLACEMENT

Table 5.23 Elective Total Knee Replacement

Code	ICD-9-CM Description	Shortened Description
00.80	Revision of knee replacement, total (all components)	REV KNEE REPLACEMT-TOTAL
00.81	Revision of knee replacement, tibial component	REV KNEE REPL-TIBIA COMP
00.82	Revision of knee replacement, femoral component	REV KNEE REPL-FEMUR COMP
00.83	Revision of knee replacement, patellar component	REV KNEE REPLACE-PATELLA
00.84	Revision of total knee replacement, tibial insert (liner)	REV KNEE REPL-TIBIA LIN
81.54	Total knee replacement	TOTAL KNEE REPLACEMENT
81.55	Revision of knee replacement	REVISE KNEE REPLACEMENT

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 9.1 Elective Cardiac Surgery (Selected Codes from Table 5.25)		
Code	ICD-9-CM Description	Shortened Description
35.71	Other and unspecified repair of atrial septal defect	ATRIA SEPTA DEF REP NEC
36.03	Open chest coronary artery angioplasty	OPEN CORONRY ANGIOPLASTY
36.31	Open chest transmyocardial revascularization	OPEN CHEST TRANS REVASC
36.32	Other transmyocardial revascularization	OTH TRANSMYO REVASCULAR
36.39	Other heart revascularization	OTH HEART REVASCULAR
36.91	Repair of aneurysm of coronary vessel	CORON VESS ANEURYSM REP
36.99	Other operations on vessels of heart	HEART VESSEL OP NEC
37.10	Incision of heart, not otherwise specified	INCISION OF HEART NOS
37.11	Cardiotomy	CARDIOTOMY
37.32	Excision of aneurysm of heart	HEART ANEURYSM EXCISION
37.33	Excision or destruction of other lesion or tissue of heart, open approach	EXC/DEST HRT LESION OPEN
37.35	Partial ventriculectomy	PARTIAL VENTRICULECTOMY
37.36	Excision or destruction of left atrial appendage (LAA)	EXC LEFT ATRIAL APPENDAG
37.41	Implantation of prosthetic cardiac support device around the heart	IMPL CARDIAC SUPPORT DEV
37.49	Other repair of heart and pericardium	HEART/PERICARD REPR NEC
37.51	Heart transplantation	HEART TRANSPLANTATION
37.52	Implantation of total internal biventricular heart replacement system	IMP TOT INT BI HT RP SYS
37.53	Replacement or repair of thoracic unit of (total) replacement heart system	REPL/REP THR UNT TOT HRT
37.54	Replacement or repair of other implantable component of (total) replacement heart system	REPL/REP OTH TOT HRT SYS
37.55	Removal of internal biventricular heart replacement system	REM INT BIVENT HRT SYS
37.60	Implantation or insertion of biventricular external heart assist system	IMP BIVN EXT HRT AST SYS
37.62	Insertion of temporary non-implantable extracorporeal circulatory assist device	INSRT NON-IMPL CIRC DEV
37.63	Repair of heart assist system	REPAIR HEART ASSIST SYS
37.64	Removal of external heart assist system(s) or device(s)	REMVE EXT HRT ASSIST SYS
37.66	Insertion of implantable heart assist system	IMPLANTABLE HRT ASSIST
37.67	Implantation of cardiomyostimulation system	IMP CARDIOMYOSTIMUL SYS

Table 9.2 Elective Gynecological		
Code	ICD-9-CM Description	Shortened Description
68.31	Other incision and excision of uterus, subtotal abdominal hysterectomy, other incision and excision of uterus, laparoscopic supracervical hysterectomy [LSH]	Lap scervic hysterectomy
68.39	Other incision and excision of uterus, subtotal abdominal hysterectomy, other incision and excision of uterus, other and unspecified subtotal	Subtotl abd hyst NEC/NOS

	abdominal hysterectomy	
68.41	Other incision and excision of uterus, total abdominal hysterectomy, laparoscopic total abdominal hysterectomy	Lap total abdominal hyst
68.49	Other incision and excision of uterus, total abdominal hysterectomy, other and unspecified total abdominal hysterectomy	Total abd hyst NEC/NOS
68.51	Vaginal hysterectomy, laparoscopically assisted vaginal hysterectomy [LAVH]	Lap ast vag hysterectomy
68.59	Vaginal hysterectomy, other and unspecified vaginal hysterectomy	Vag hysterectomy NEC/NOS
68.61	Radical abdominal hysterectomy, laparoscopic radical abdominal hysterectomy	Lap radical abdomnl hyst
68.69	Radical abdominal hysterectomy, other and unspecified radical abdominal hysterectomy	Radical abd hyst NEC/NOS
68.71	Radical vaginal hysterectomy, laparoscopic radical vaginal hysterectomy [LRVH]	Lap radical vaginal hyst
68.79	Radical vaginal hysterectomy, other and unspecified radical vaginal hysterectomy	Radical vag hyst NEC/NOS
68.9	Other and unspecified hysterectomy	Hysterectomy NEC/NOS

Table 9.3 Previously Donated Autologous Transfusion

Code	ICD-9-CM Description	Shortened Description
99.02	Other nonoperative procedures, transfusion of blood and blood components, transfusion of previously collected autologous blood	TRANSFUS PREV AUTO BLOOD

Table 9.4 Packed Red Blood Cell Transfusion

Code	ICD-9-CM Description	Shortened Description
99.04	Other nonoperative procedures, transfusion of blood and blood components, transfusion of packed cells	PACKED CELL TRANSFUSION

Table 9.5 Platelet Transfusion

Code	ICD-9-CM Description	Shortened Description
99.05	Other nonoperative procedures, transfusion of blood and blood components, transfusion of platelets	PLATELET TRANSFUSION

Table 9.6 Plasma Transfusion

Code	ICD-9-CM Description	Shortened Description
99.07	Other nonoperative procedures, transfusion of blood and blood components, transfusion of other serum	SERUM TRANSFUSION NEC

Appendix A
ICD-9-CM Diagnosis and Procedure Code Tables

Table 9.7 Trauma		
Code	ICD-9-CM Description	Shortened Description
800	Fracture of vault of skull	CLOSED SKULL VAULT FX
801	Fracture of base of skull	CLOS SKULL BASE FRACTURE
802	Fracture of face bones	NASAL BONE FX-CLOSED
803	Other and unqualified skull fractures	CLOSE SKULL FRACTURE NEC
804	Multiple fractures involving skull or face with other bones	CL SKUL FX W OTH BONE FX
805	Fracture of vertebral column without mention of spinal cord injury	FX CERVICAL VERT NOS-CL
806	Fracture of vertebral column with spinal cord injury	C1-C4 FX-CL/CORD INJ NOS
807	Fracture of rib(s), sternum, larynx, and trachea	FRACTURE RIB NOS-CLOSED
808	Fracture of pelvis	FRACTURE ACETABULUM-CLOS
809	III-defined fractures of bones of trunk	FRACTURE TRUNK BONE-CLOS
810	Fracture of clavicle	FX CLAVICLE NOS-CLOSED
811	Fracture of scapula	FX SCAPULA NOS-CLOSED
812	Fracture of humerus	FX UP END HUMERUS NOS-CL
813	Fracture of radius and ulna	FX UPPER FOREARM NOS-CL
814	Fracture of carpal bones(s)	FX CARPAL BONE NOS-CLOSE
815	Fracture of metacarpal bones(s)	FX METACARPAL NOS-CLOSED
816	Fracture of one or more phalanges of hands	FX PHALANX, HAND NOS-CL
817	Multiple fractures of hand bones	MULTIPLE FX HAND-CLOSED
818	III-defined fractures of upper limb	FX ARM MULT/NOS-CLOSED
819	Multiple fractures involving both upper limbs, and upper limb with rib(s) and sternum	FX ARMS W RIB/STERNUM-CL
820	Fracture of neck of femur	FX FEMUR INTRCAPS NOS-CL
821	Fracture of other and unspecified parts of femur	FX FEMUR NOS-CLOSED
822	Fracture of patella	FRACTURE PATELLA-CLOSED
823	Fracture of tibia and fibula	FX UPPER END TIBIA-CLOSE
824	Fracture of ankle	FX MEDIAL MALLEOLUS-CLOS
825	Fracture of one or more tarsal and metatarsal bones	FRACTURE CALCANEUS-CLOSE
826	Fracture of one or more phalanges of foot	FX PHALANX, FOOT-CLOSED
827	Other, multiple, and ill-defined fractures of lower limb	FX LOWER LIMB NEC-CLOSED
828	Multiple fractures involving both lower limbs, lower with upper limb, and lower limb(s) with rib(s) and sternum	FX LEGS W ARM/RIB-CLOSED
829	Fracture of unspecified bones	FRACTURE NOS-CLOSED
830	Dislocation of jaw	DISLOCATION JAW-CLOSED
831	Dislocation of shoulder	DISLOC SHOULDER NOS-

		CLOS
832	Dislocation of elbow	DISLOCAT ELBOW NOS-CLOSE
833	Dislocation of wrist	DISLOC WRIST NOS-CLOSED
834	Dislocation of finger	DISL FINGER NOS-CLOSED
835	Dislocation of hip	DISLOCAT HIP NOS-CLOSED
836	Dislocation of knee	TEAR MED MENISC KNEE-CUR
837	Dislocation of ankle	DISLOCATION ANKLE-CLOSED
838	Dislocation of foot	DISLOCAT FOOT NOS-CLOSED
839	Other, multiple, and ill-defined dislocations	DISLOC CERV VERT NOS-CL
840	Sprains and strains of shoulder and upper arm	SPRAIN ACROMIOCLAVICULAR
841	Sprains and strains of elbow and forearm	SPRAIN RADIAL COLLAT LIG
842	Sprains and strains of wrist and hand	SPRAIN OF WRIST NOS
843	Sprains and strains of hip and thigh	SPRAIN ILIOFEMORAL
844	Sprains and strains of knee and leg	SPRAIN LATERAL COLL LIG
845	Sprains and strains of ankle and foot	SPRAIN OF ANKLE NOS
846	Sprains and strains of sacroiliac region	SPRAIN LUMBOSACRAL
847	Sprains and strains of other and unspecified parts of back	SPRAIN OF NECK
848	Other and ill-defined sprains and strains	SPRAIN OF NASAL SEPTUM
850	Concussion	CONCUSSION W/O COMA
851	Cerebral laceration and contusion	CEREBRAL CORTX CONTUSION
852	Subarachnoid, subdural, and extradural hemorrhage, following injury	TRAUM SUBARACHNOID HEM
853	Other and unspecified intracranial hemorrhage following injury	TRAUMATIC BRAIN HEM NEC
854	Intracranial injury of other and unspecified nature	BRAIN INJURY NEC
860	Traumatic pneumothorax and hemothorax	TRAUM PNEUMOTHORAX-CLOSE
861	Injury to heart and lung	HEART INJURY NOS-CLOSED
862	Injury to other and unspecified intrathoracic organs	DIAPHRAGM INJURY-CLOSED
863	Injury to gastrointestinal tract	STOMACH INJURY-CLOSED
864	Injury to liver	LIVER INJURY NOS-CLOSED
865	Injury to spleen	SPLEEN INJURY NOS-CLOSED
866	Injury to kidney	KIDNEY INJURY NOS-CLOSED
867	Injury to pelvic organs	BLADDER/URETHRA INJ-CLOS
868	Injury to other intra-abdominal organs	INTRA-ABDOM INJ NOS-CLOS
869	Internal injury to unspecified or ill-defined organs	INTERNAL INJ NOS-CLOSED
870	Open wound of ocular adnexa	LAC EYELID SKN/PERIOCULR
871	Open wound of eyeball	OCULAR LAC W/O PROLAPSE
872	Open wound of ear	OPN WOUND EXTERN EAR

		NOS
873	Other open wound of head	OPEN WOUND OF SCALP
874	Open wound of neck	OPN WND LARYNX W TRACHEA
875	Open wound of chest (wall)	OPEN WOUND OF CHEST
876	Open wound of back	OPEN WOUND OF BACK
877	Open wound of buttock	OPEN WOUND OF BUTTOCK
878	Open wound of genital organs (external), including traumatic amputation	OPEN WOUND OF PENIS
879	Open wound of other and unspecified sites, except limbs	OPEN WOUND OF BREAST
880	Open wound of shoulder and upper arm	OPEN WOUND OF SHOULDER
881	Open would of elbow, forearm, and wrist	OPEN WOUND OF FOREARM
882	Open wound of hand except finger(s) alone	OPEN WOUND OF HAND
883	Open wound of finger(s)	OPEN WOUND OF FINGER
884	Multiple and unspecified open wound of upper limb	OPEN WOUND ARM MULT/NOS
885	Traumatic amputation of thumb (complete) (partial)	AMPUTATION THUMB
886	Traumatic amputation of other finger(s) (complete) (partial)	AMPUTATION FINGER
887	Traumatic amputation of arm and hand (complete) (partial)	AMPUT BELOW ELB, UNILAT
890	Open wound of hip and thigh	OPEN WOUND OF HIP/THIGH
891	Open wound of knee, leg [except thigh], and ankle	OPEN WND KNEE/LEG/ANKLE
892	Open wound of foot except toe(s) alone	OPEN WOUND OF FOOT
893	Open wound of toe(s)	OPEN WOUND OF TOE
894	Multiple and unspecified open wound of lower limb	OPEN WOUND OF LEG NEC
895	Traumatic amputation of toe(s) (complete) (partial)	AMPUTATION TOE
896	Traumatic amputation of foot (complete) (partial)	AMPUTATION FOOT, UNILAT
897	Traumatic amputation of leg(s) (complete) (partial)	AMPUT BELOW KNEE, UNILAT
900	Injury to blood vessels of head and neck	INJUR CAROTID ARTERY NOS
901	Injury to blood vessels of thorax	INJURY THORACIC AORTA
902	Injury to blood vessels of abdomen and pelvis	INJURY ABDOMINAL AORTA
903	Injury to blood vessels of upper extremity	INJ AXILLARY VESSEL NOS
904	Injury to blood vessels of lower extremity and unspecified sites	INJ COMMON FEMORAL ARTER
905	Late effects of musculoskeletal and connective tissue injuries	LATE EFFEC SKULL/FACE FX
906	Late effects of injuries to skin and subcutaneous tissues	LT EFF OPN WND HEAD/TRNK
907	Late effects of injuries to the nervous system	LT EFF INTRACRANIAL INJ
908	Late effects of other and unspecified injuries	LATE EFF INT INJUR CHEST
909	Late effects of other and unspecified external causes	LATE EFF DRUG POISONING
910	Superficial injury of face, neck, and scalp except eye	ABRASION HEAD
911	Superficial injury of trunk	ABRASION TRUNK
912	Superficial injury of shoulder and upper arm	ABRASION SHOULDER/ARM

913	Superficial injury of elbow, forearm, and wrist	ABRASION FOREARM
914	Superficial injury of hand(s) except finger(s) alone	ABRASION HAND
915	Superficial injury of finger(s)	ABRASION FINGER
916	Superficial injury of hip, thigh, leg, and ankle	ABRASION HIP & LEG
917	Superficial injury of foot and toe(s)	ABRASION FOOT & TOE
918	Superficial injury of eye and adnexa	SUPERFIC INJ PERIOCULAR
919	Superficial injury of other, multiple, and unspecified sites	ABRASION NEC
920	Contusion of face, scalp, and neck except eye(s)	CONTUSION FACE/SCALP/NCK
921	Contusion of eye and adnexa	BLACK EYE NOS
922	Contusion of trunk	CONTUSION OF BREAST
923	Contusion of upper limb	CONTUSION SHOULDER REG
924	Contusion of lower limb and of other and unspecified sites	CONTUSION OF THIGH
925	Crushing injury of face, scalp, and neck	
926	Crushing injury of trunk	CRUSH INJ EXT GENITALIA
927	Crushing injury of upper limb	CRUSH INJ SHOULDER REG
928	Crushing injury of lower limb	CRUSHING INJURY THIGH
929	Crushing injury of multiple and unspecified sites	CRUSH INJ MULT SITE NEC
930	Foreign body on external eye	CORNEAL FOREIGN BODY
931	Foreign body in ear	FOREIGN BODY IN EAR
932	Foreign body in nose	FOREIGN BODY IN NOSE
933	Foreign body in pharynx and larynx	FOREIGN BODY IN PHARYNX
934	Foreign body in trachea, bronchus, and lung	FOREIGN BODY IN TRACHEA
935	Foreign body in mouth, esophagus, and stomach	FOREIGN BODY IN MOUTH
936	Foreign body in intestine and colon	FB IN INTESTINE & COLON
937	Foreign body in anus and rectum	FOREIGN BODY ANUS/RECTUM
938	Foreign body in digestive system, unspecified	FOREIGN BODY GI NOS
939	Foreign body in genitourinary tract	FB BLADDER & URETHRA
940	Burn confined to eye and adnexa	CHEMICAL BURN PERIOCULAR
941	Burn of face, head, and neck	BURN NOS HEAD-UNSPEC
942	Burn of trunk	BURN NOS TRUNK-UNSPEC
943	Burn of upper limb, except wrist and hand	BURN NOS ARM-UNSPEC
944	Burn of wrist(s) and hand(s)	BURN NOS HAND-UNSPEC
945	Burn of lower limb(s)	BURN NOS LEG-UNSPEC
946	Burns of multiple specified sites	BURN NOS MULTIPLE SITE
947	Burn of internal organs	BURN OF MOUTH & PHARYNX
948	Burns classified according to extent of body surface involved	BDY BRN < 10%/3D DEG NOS
949	Burn, unspecified	BURN NOS
950	Injury to optic nerve and pathways	OPTIC NERVE INJURY
951	Injury to other cranial nerve(s)	INJURY OCULOMOTOR NERVE
952	Spinal cord injury without evidence of spinal bone injury	C1-C4 SPIN CORD INJ NOS

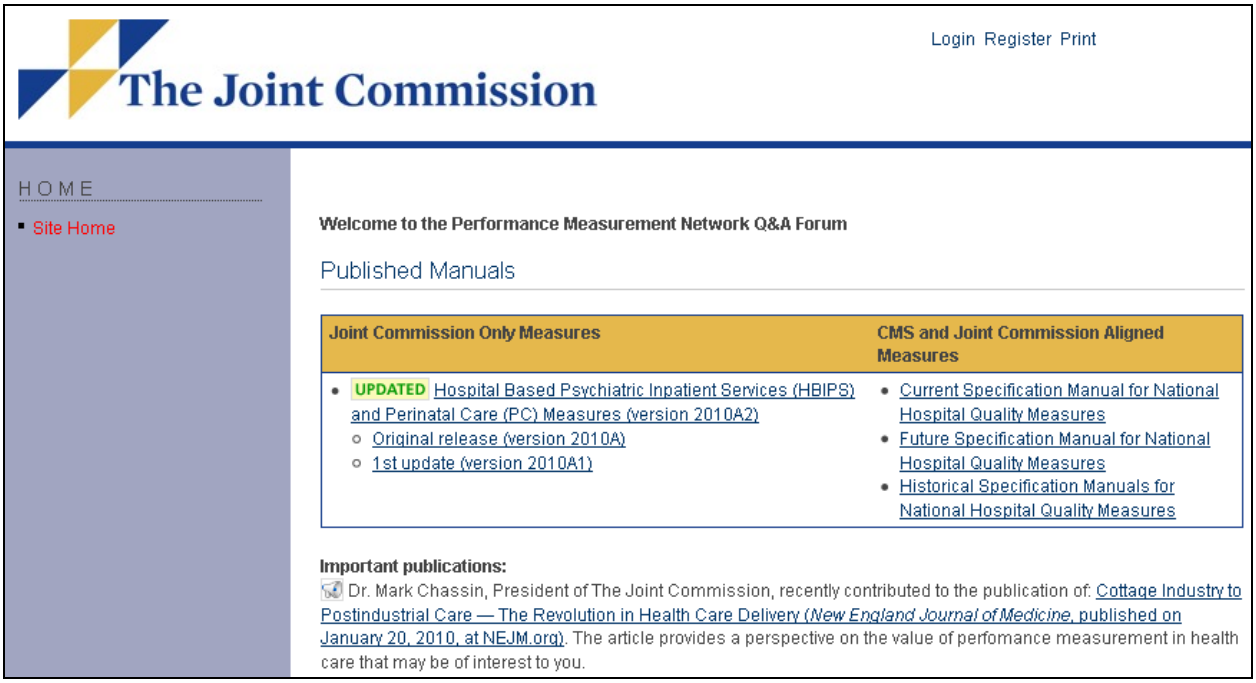
953	Injury to nerve roots and spinal plexus	CERVICAL ROOT INJURY
954	Injury to other nerve(s) of trunk, excluding shoulder and pelvic girdles	INJ CERV SYMPATH NERVE
955	Injury to peripheral nerve(s) of shoulder girdle and upper limb	INJURY AXILLARY NERVE
956	Injury to peripheral nerve(s), of pelvic girdle and lower limb	INJURY SCIATIC NERVE
957	Injury to other and unspecified nerves	INJ SUPERF NERV HEAD/NCK
958	Certain early complications of trauma	AIR EMBOLISM
959	Injury, other and unspecified	
960	Poisoning by antibiotics	POISONING-PENICILLINS
961	Poisoning by other anti-infectives	POISONING-SULFONAMIDES
962	Poisoning by hormones and synthetic substitutes	POIS-CORTICOSTEROIDS
963	Poisoning by primarily systemic agents	POIS-ANTIALLRG/ANTIEMET
964	Poisoning by agents primarily affecting blood constituents	POISONING-IRON/COMPOUNDS
965	Poisoning by analgesics, antipyretics, and antirheumatics	POISONING-OPIUM NOS
966	Poisoning by anticonvulsants and anti-Parkinsonism drugs	POISON-OXAZOLIDINE DERIV
967	Poisoning by sedatives and hypnotics	POISONING-BARBITURATES
968	Poisoning by other central nervous system depressants and anesthetics	POIS-CNS MUSCLE DEPRESS
969	Poisoning by psychotropic agents	POISON-ANTIDEPRESNT NOS
970	Poisoning by central nervous system stimulants	POISONING-ANALEPTICS
971	Poisoning by drugs primarily affecting the autonomic nervous system	POIS-PARASYMPATHOMIMETIC
972	Poisoning by agents primarily affecting the cardiovascular system	POIS-CARD RHYTHM REGULAT
973	Poisoning by agents primarily affecting the gastrointestinal system	POIS-ANTACID/ANTIGASTRIC
974	Poisoning by water, mineral, and uric acid metabolism drugs	POIS-MERCURIAL DIURETICS
975	Poisoning by agents primarily acting on the smooth and skeletal muscles and respiratory system	POISONING-OXYTOCIC AGENT
976	Poisoning by agents primarily affecting skin and mucous membrane, ophthalmological, otorhinolaryngological, and dental drugs	POIS-LOCAL ANTI-INFECT
977	Poisoning by other and unspecified drugs and medicinal substances	POISONING-DIETETICS
978	Poisoning by bacterial vaccines	POISONING-BCG VACCINE
979	Poisoning by other vaccines and biological substances	POISON-SMALLPOX VACCINE
980	Toxic effect of alcohol	TOXIC EFF ETHYL ALCOHOL
981	Toxic effect of petroleum products	TOXIC EFF PETROLEUM PROD
982	Toxic effect of solvents other than petroleum-based	TOXIC EFFECT BENZENE
983	Toxic effect of corrosive aromatics, acids, and caustic alkalis	TOX EFF CORROSIVE AROMAT

984	Toxic effect of lead and its compounds (including fumes)	TX EFF INORG LEAD COMPND
985	Toxic effect of other metals	TOXIC EFFECT MERCURY
986	Toxic effect of carbon monoxide	TOX EFF CARBON MONOXIDE
987	Toxic effect of other gases, fumes, or vapors	TOXIC EFF LIQ PETROL GAS
988	Toxic effect of noxious substances eaten as food	TOXIC EFF FISH/SHELLFISH
989	Toxic effect of other substances, chiefly nonmedicinal as to source	TOXIC EFFECT CYANIDES
990	Effects of radiation, unspecified	EFFECTS RADIATION NOS
991	Effects of reduced temperature	FROSTBITE OF FACE
992	Effects of heat and light	HEAT STROKE & SUNSTROKE
993	Effects of air pressure	BAROTRAUMA, OTITIC
994	Effects of other external causes	EFFECTS OF LIGHTNING
995	Certain adverse effects not elsewhere classified	ANAPHYLACTIC SHOCK
996	Complications peculiar to certain specified procedures	MALFUNC CARD DEV/GRF NOS
997	Complications affecting specified body systems, not elsewhere classified	NERVOUS SYST COMPLC NOS
998	Other complications of procedures, not elsewhere classified	POSTOPERATIVE SHOCK
999	Complications of medical care, not elsewhere classified	GENERALIZED VACCINIA

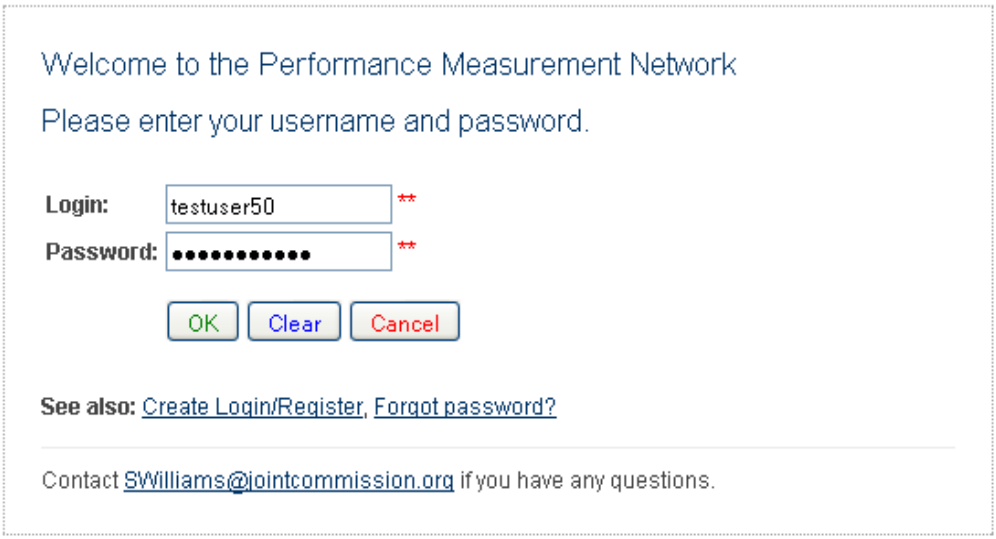
Navigating the Blood Management Project
Data Collection Tool

How to Log In and Get Started

1) Once you have registered and received your confirmation to submit data for the Blood Management Project, you may access the project website at: http://manual.jointcommission.org
2) Click on "Login" in the upper right hand corner.



3) Enter your Login and Password and click "ok".



Navigating the Blood Management Project
Data Collection Tool

4) Welcome to the Performance Measurement Network. Select the "Blood Mgmt Project" link from the left hand navigation bar.

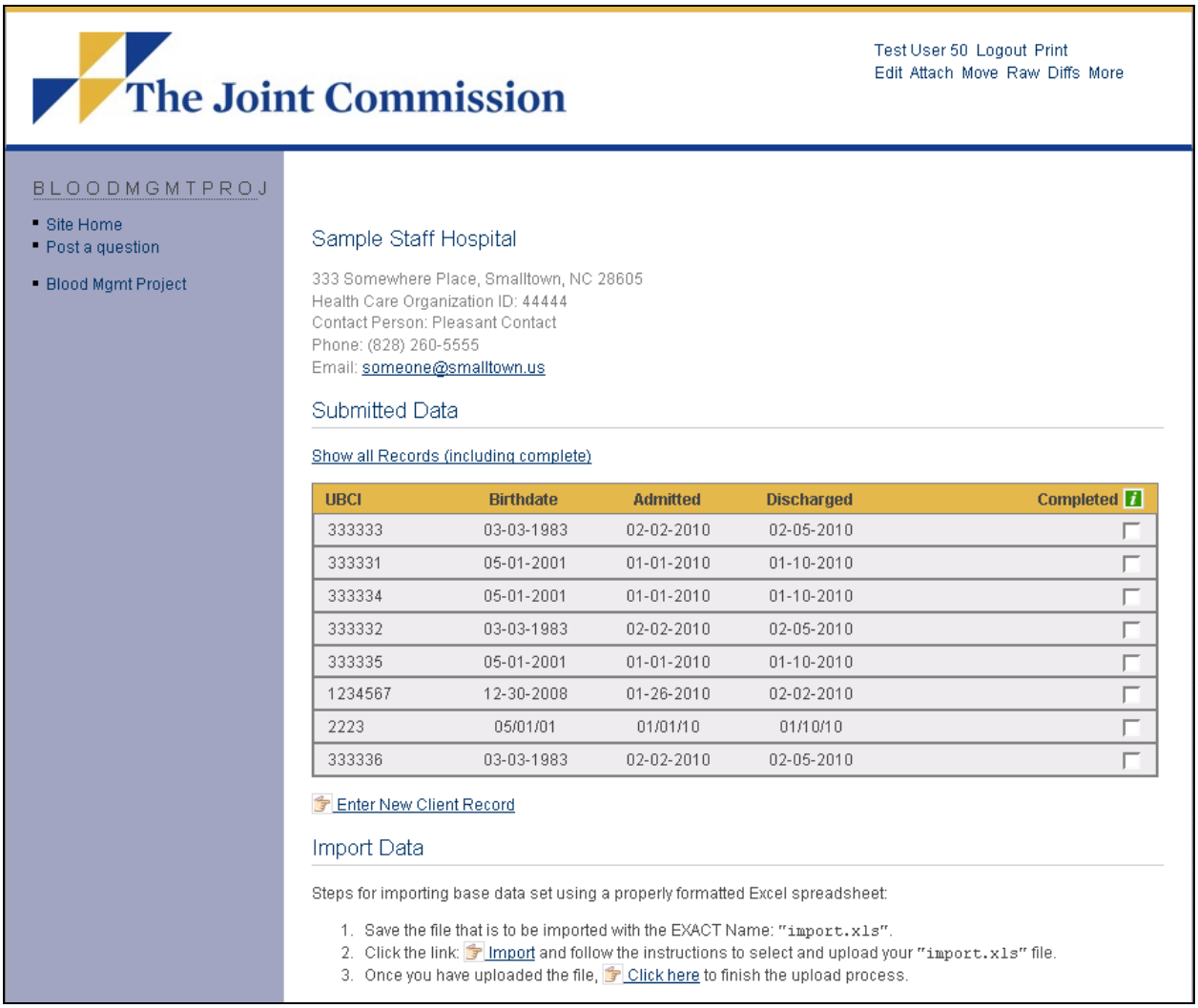
5) You are now on the Blood Management Project Page. You will see your hospitals(s) listed here. In the Project Help section, you will find a link to the measure specifications, an example of the import file template, and other material intended to assist you with your participation in this project. Please click on the hospital name to enter blood management data.

Navigating the Blood Management Project
Data Collection Tool

6) You are now on your hospital page. From this page, you can:

- update your hospital demographic information
- enter new records
- import new records
- view and update existing records
- add RBC, Plasma and Platelet events
- mark records as "complete"
- review records that have been completed
- view import attachments

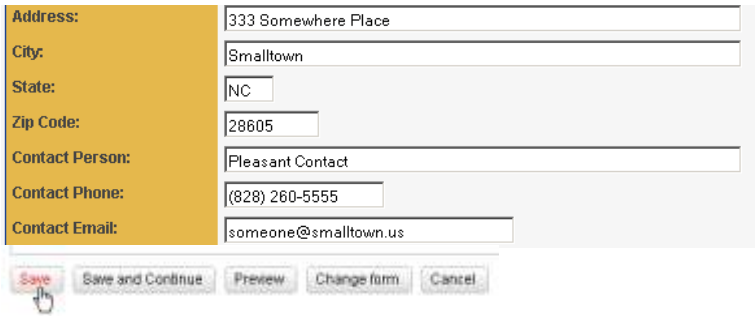
Each function will be discussed in detail below.



Navigating the Blood Management Project
Data Collection Tool
Updating your Hospital Demographic Information

a) To update your hospital's demographic information, click the "Edit" link, Fill out the form that appears, and click the "Save" button at the bottom of the form.

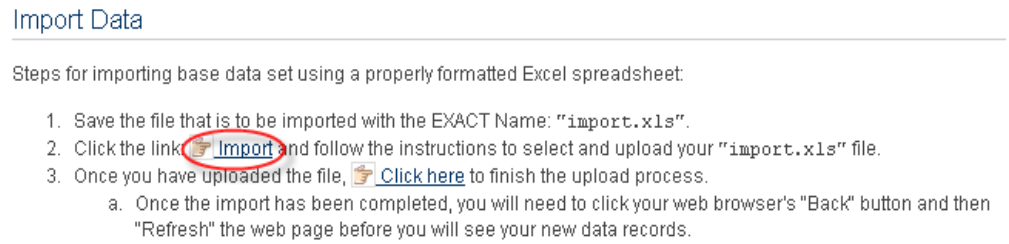
You will be directed to the Edit form, and you can change your hospital's contact details here. Click "Save" to save your changes, or "Cancel" to exit without saving.



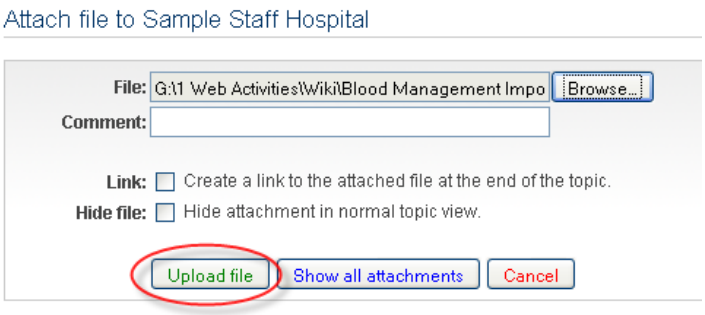
Navigating the Blood Management Project
Data Collection Tool

Importing Records

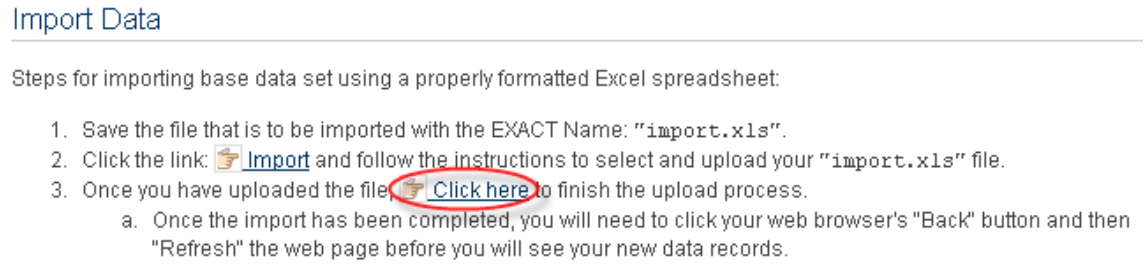
a) To import data, click on the "Import" link on your hospital home page. The template for this import file can be found on the project home page.



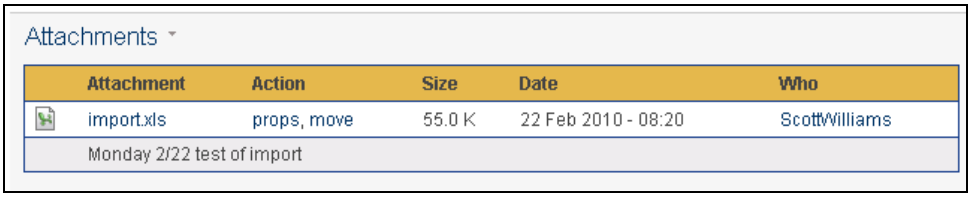
b) Click on "browse" to find and select your import file (which must be named "import.xls"), and click on "Upload File". You do not need to check the checkboxes, but <u>you may want to add a comment to keep track of your imports (e.g., April 2010 discharges; 51 records)</u>



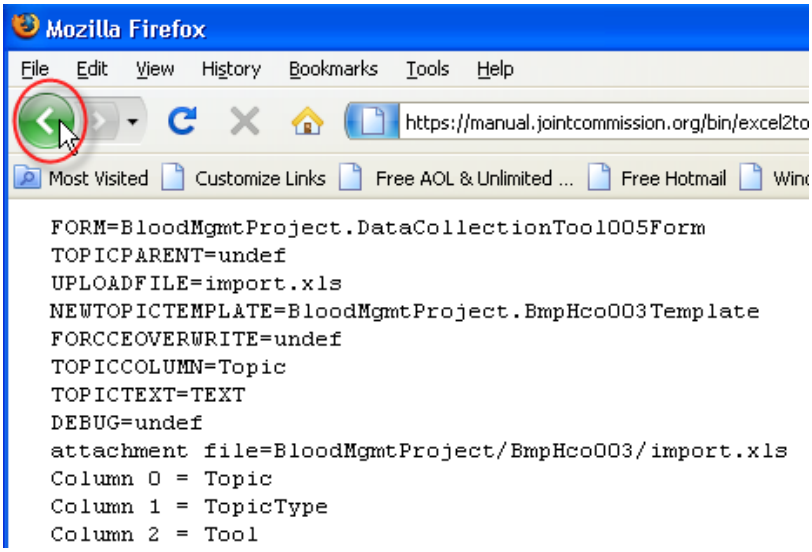
c) Once you have uploaded your file, you will need to click on the "Click here" link to finish the upload process. You'll then need to click your browser's "Back" button and "Refresh" your hospital page.



d) You may notice a form at the bottom of your hospital page. It displays the most recently imported file. This area will only be used to verify that your import was successful (note the date, time and comments to ensure that it represents the file you imported.



e) Your uploaded records are shown here (in a rather unappealing format!) and you will need to click on your browser's "Back" button to return to your hospital home page.



f) You are now back on your hospital's home page. Please click on your browser's "Refresh" button to view the records you just imported. Your records have been imported, but you will not be able to see them until the page is refreshed (or you navigate away from it and then back to it).

g) Your uploaded files should now viewable in the "Submitted Data" section of your hospital home page.

Navigating the Blood Management Project
Data Collection Tool

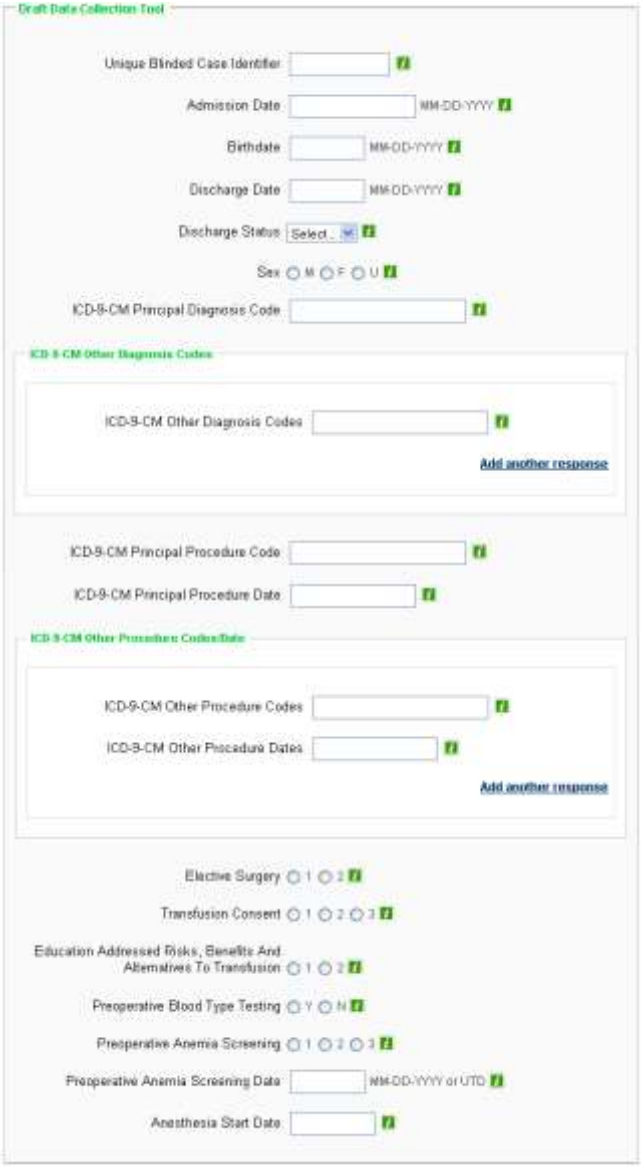
Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

Navigating the Blood Management Project
Data Collection Tool
Enter New Records (without using the file import

a) To enter a new record, click on the "Enter New Client Record" link (right below the data record table).

b) You are now viewing the data collection tool for Blood Management. Enter data for the client record. Note: hovering over the green "i" next to a data element will show you the question and allowable values associated with that data element as well as a link to the data element page.



c) Once you have completed data entry for this record, click on "Save Data Record".

Navigating the Blood Management Project
Data Collection Tool
To View and Update Existing Records

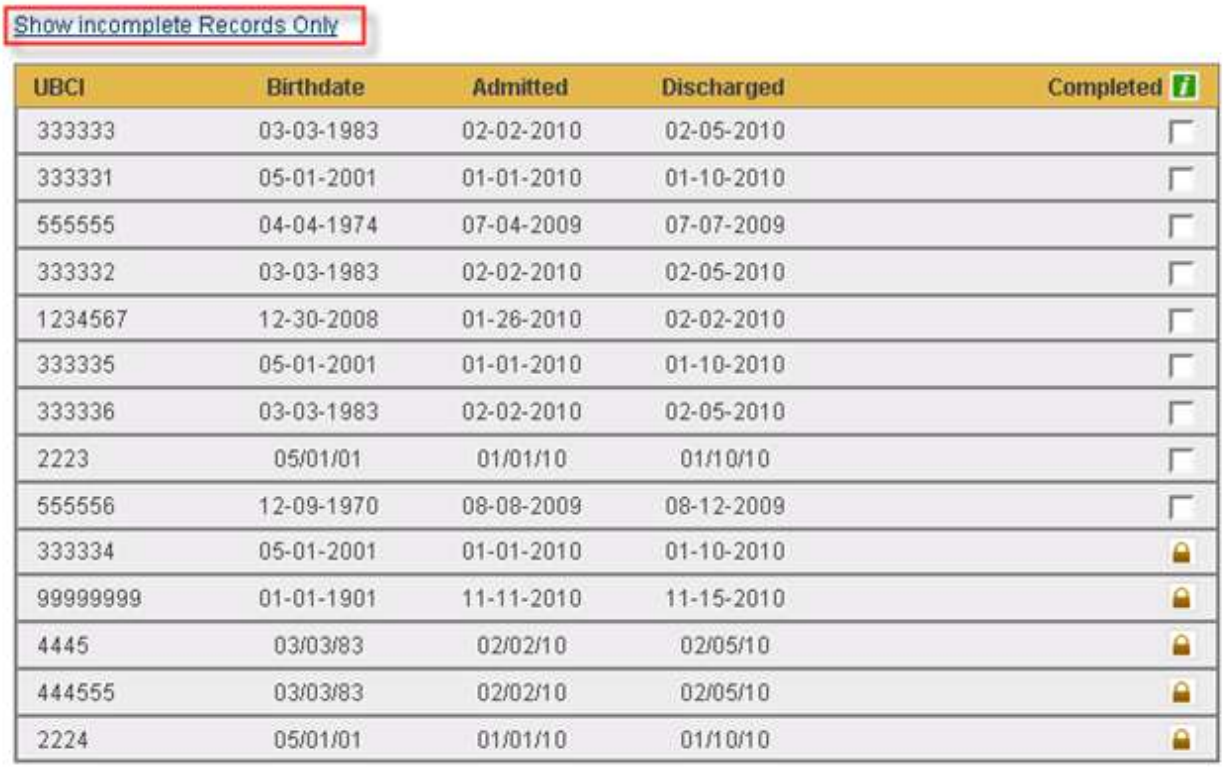
a) There are two ways to view the list of submitted records. The default view is of all incomplete records. If you would like to view all records, including completed (locked) records, click the link "Show all Records (including complete)".

View of the default setting showing a list of only incomplete records:

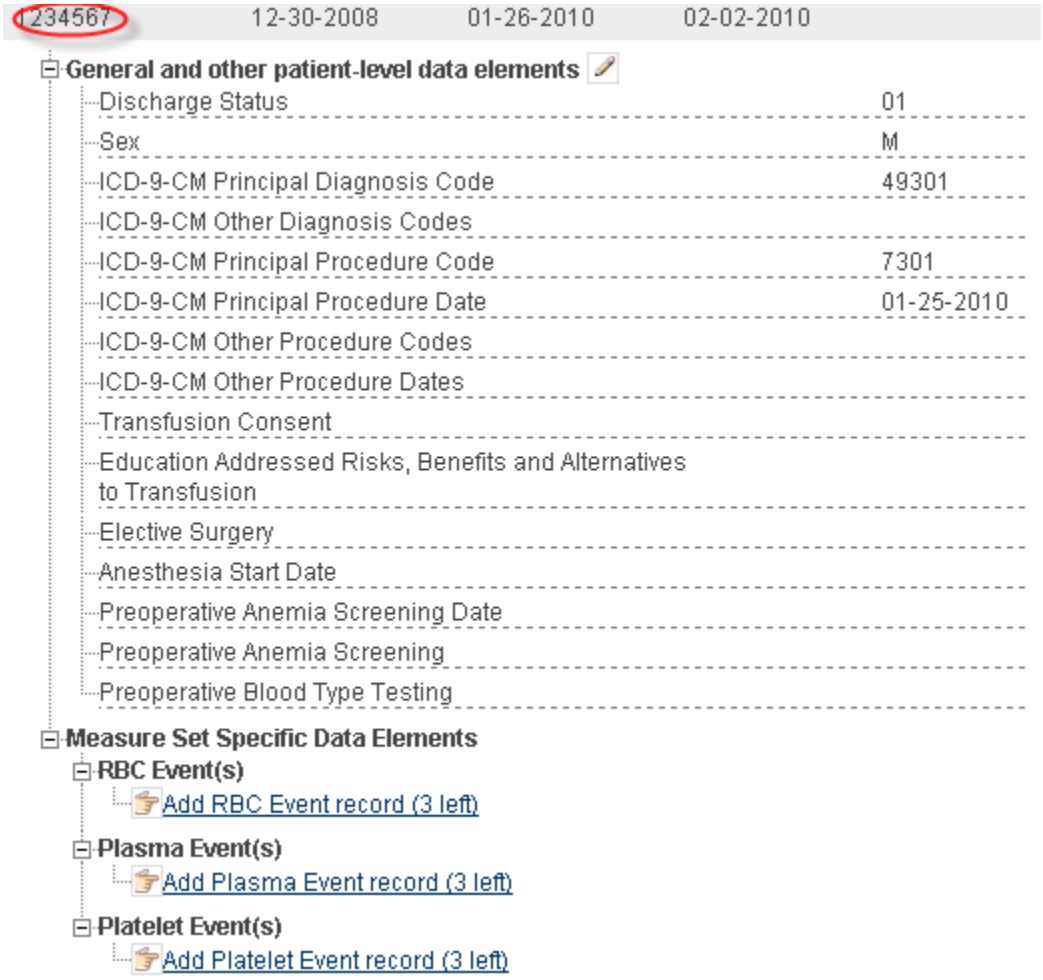
Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

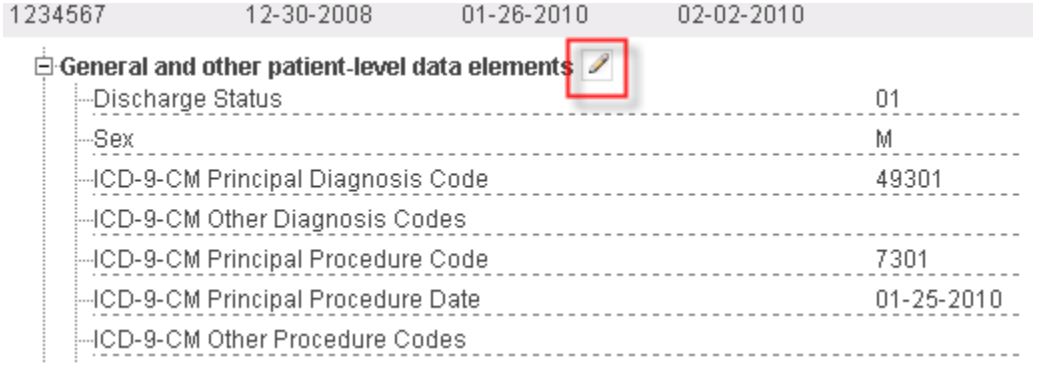
View of alternate setting showing list of all records (both incomplete and complete). To return the default setting, click the link "Show Incomplete Records Only"



b) To view or update data in an existing record, click on the UBCI number. This will create a drop down that includes all of the information for that client record. You can contract the drop down by clicking on the "-"or expand by clicking on the "+" before the different sections.

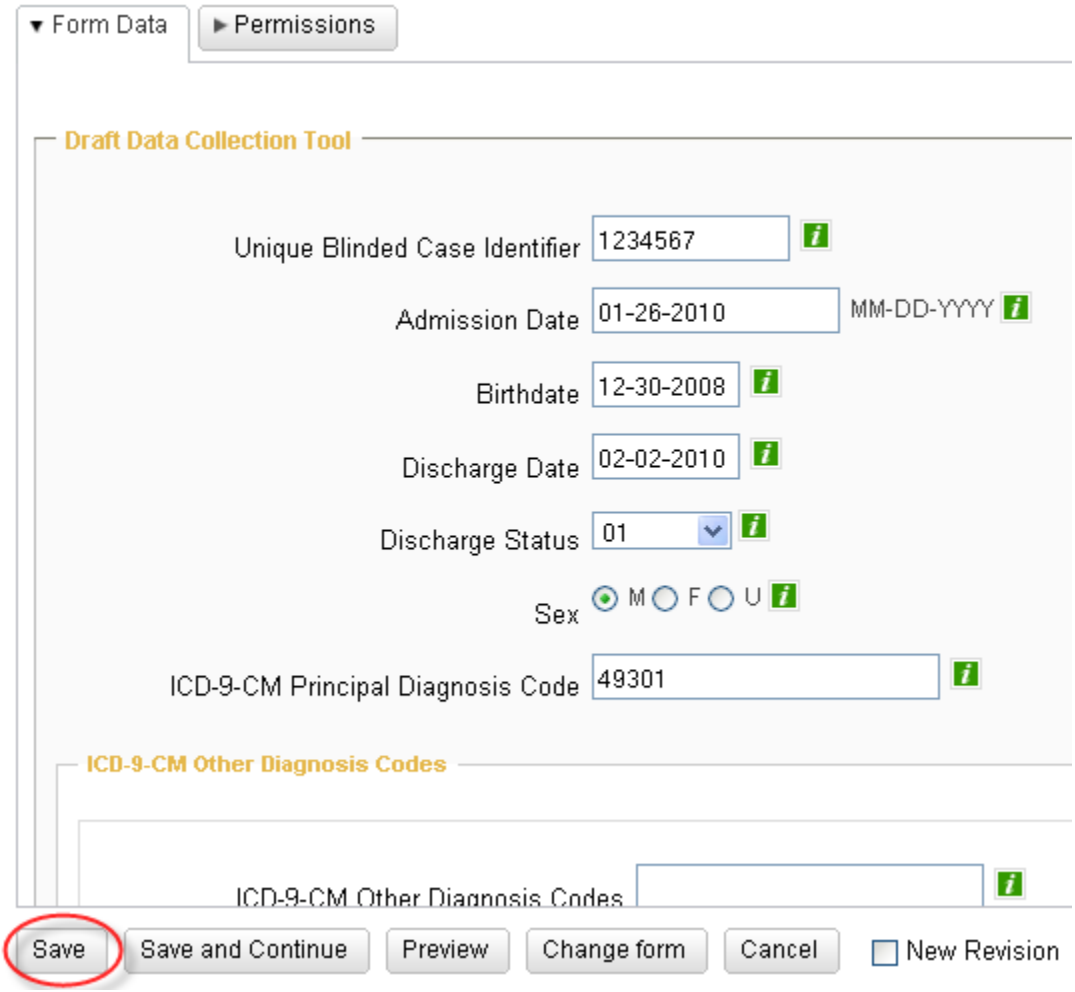


c) To edit the "General and other patient-level data elements", click on the pencil icon.



d) Make changes to the "General and other patient-level data elements" and click "Save" when you are done.

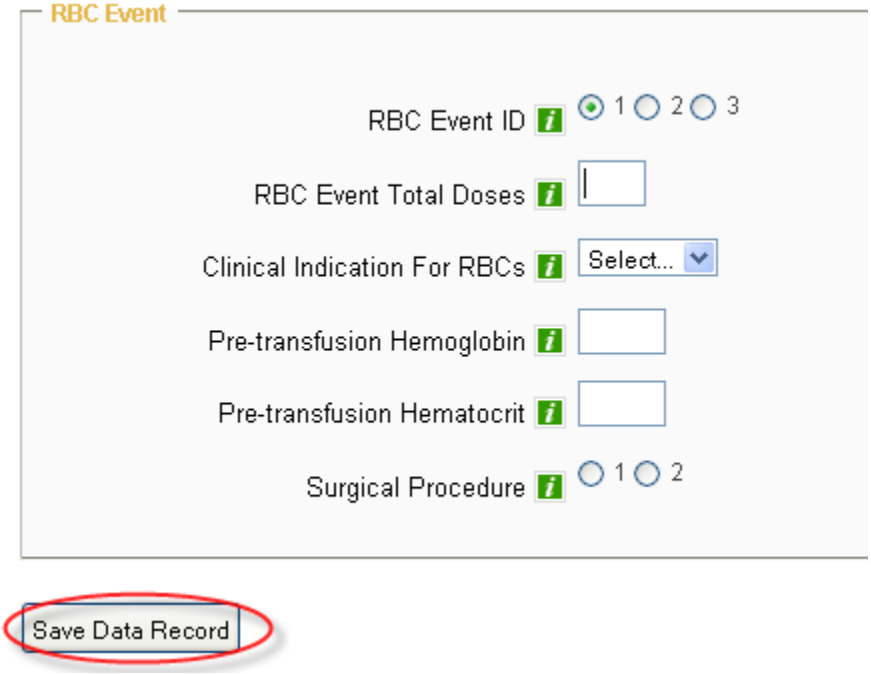
Navigating the Blood Management Project
Data Collection Tool



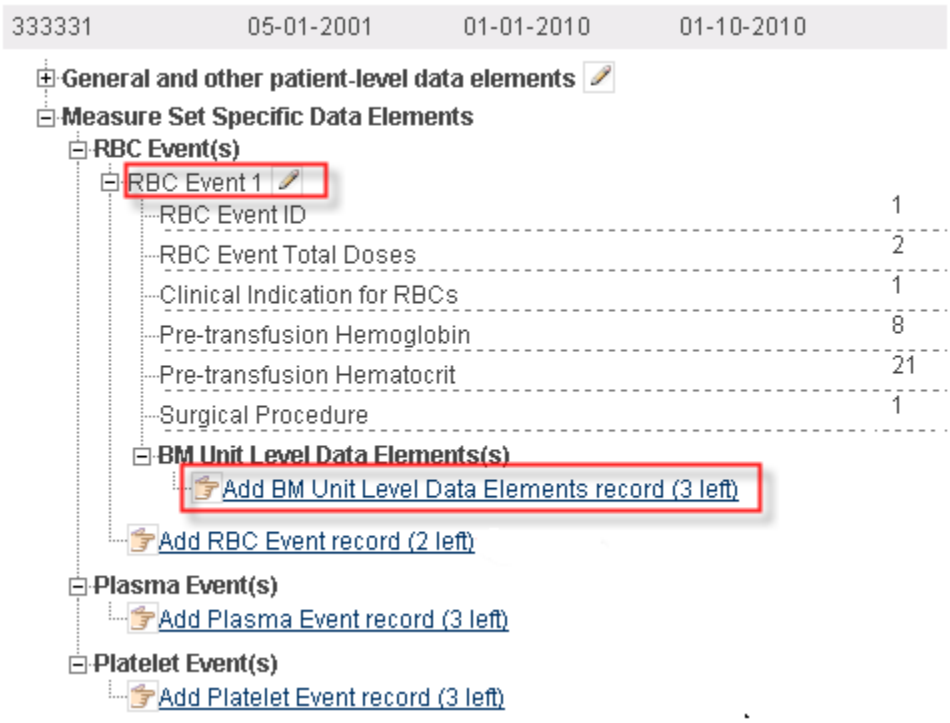
Navigating the Blood Management Project
Data Collection Tool
Add RBC Events and BM Unit Level Data Elements

a) To add a RBC event (NOTE: you can add up to three RBC events), click on the "Add RBC Event Record" Link.

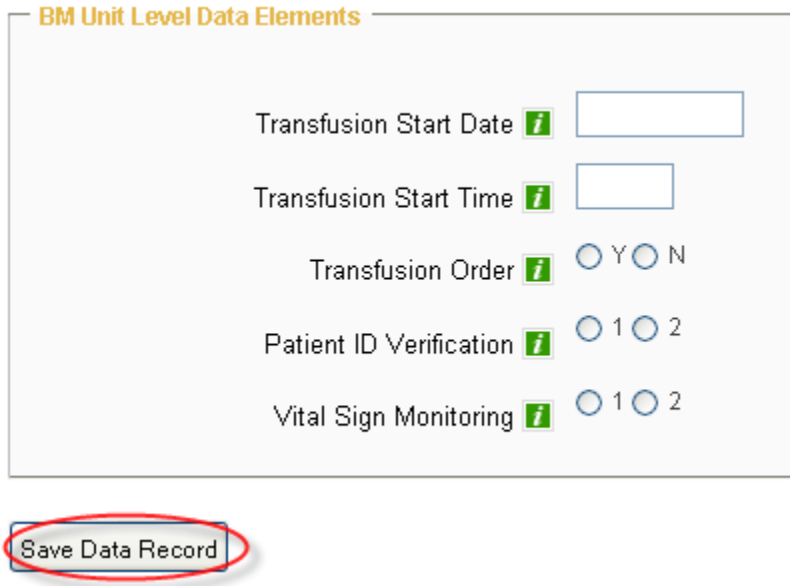
b) Enter data for RBC Event 1 and click "Save Data Record"



c) Data for "RBC Event 1" is now included with this client record. To edit the RBC Event data that you just entered, click on the pencil icon next to the event. To add unit level data for RBC Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)

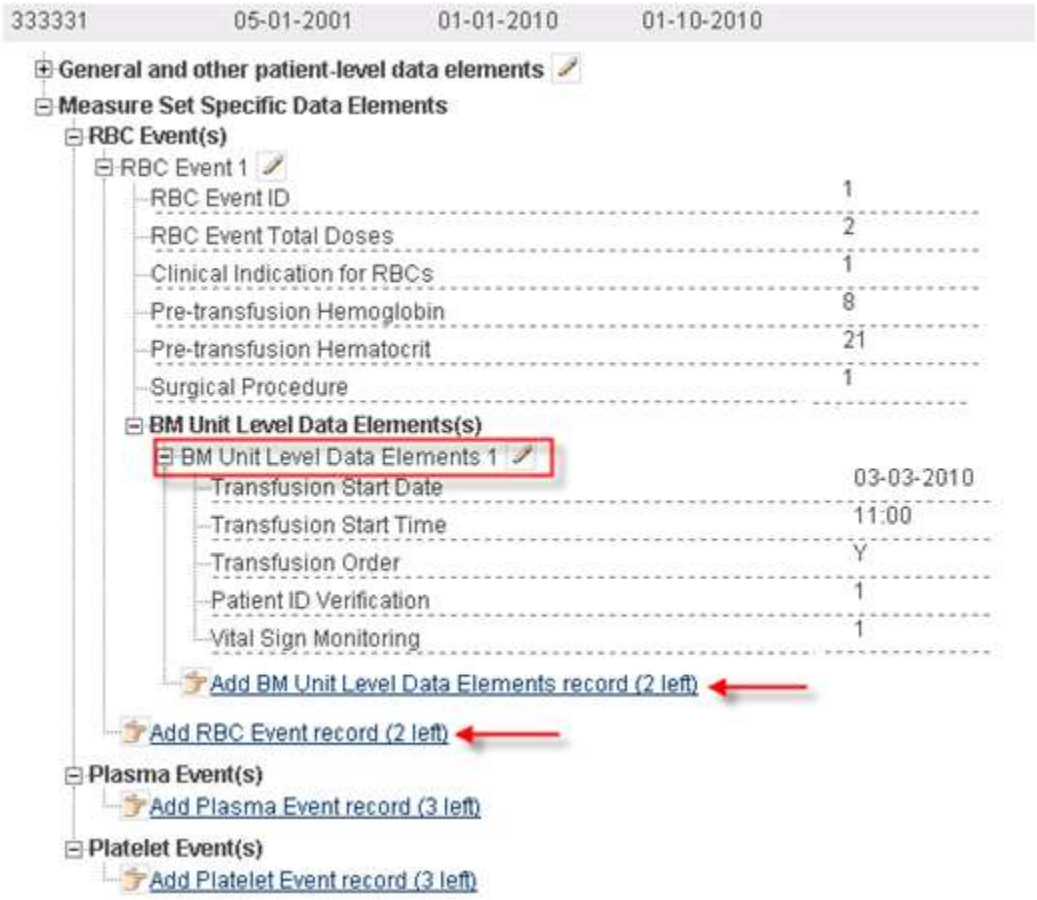


d) Enter data for the BM Unit Level Record for RBC Event 1 and click "Save Data Record"



e) Data for "BM Unit 1" for "RBC Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for RBC Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another RBC Event, click on "Add RBC Event Record".

Navigating the Blood Management Project Data Collection Tool

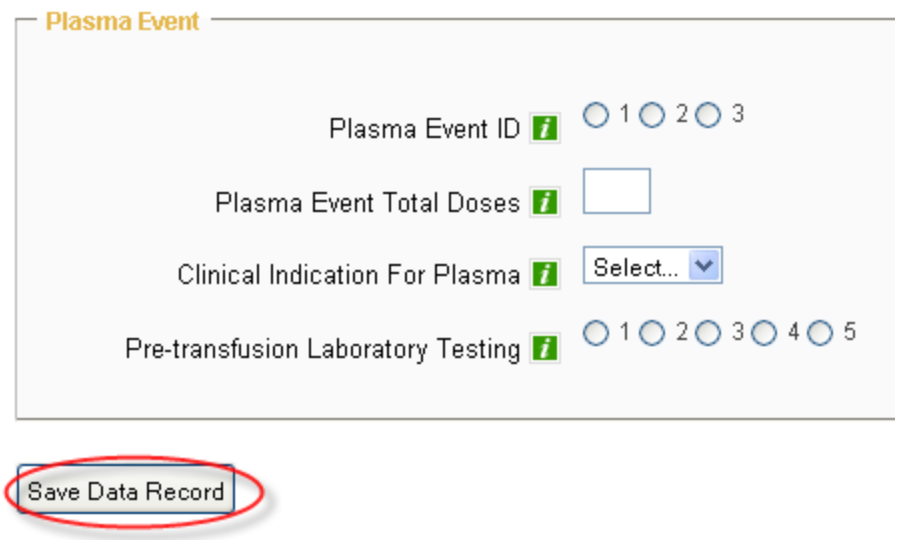


Navigating the Blood Management Project Data Collection Tool

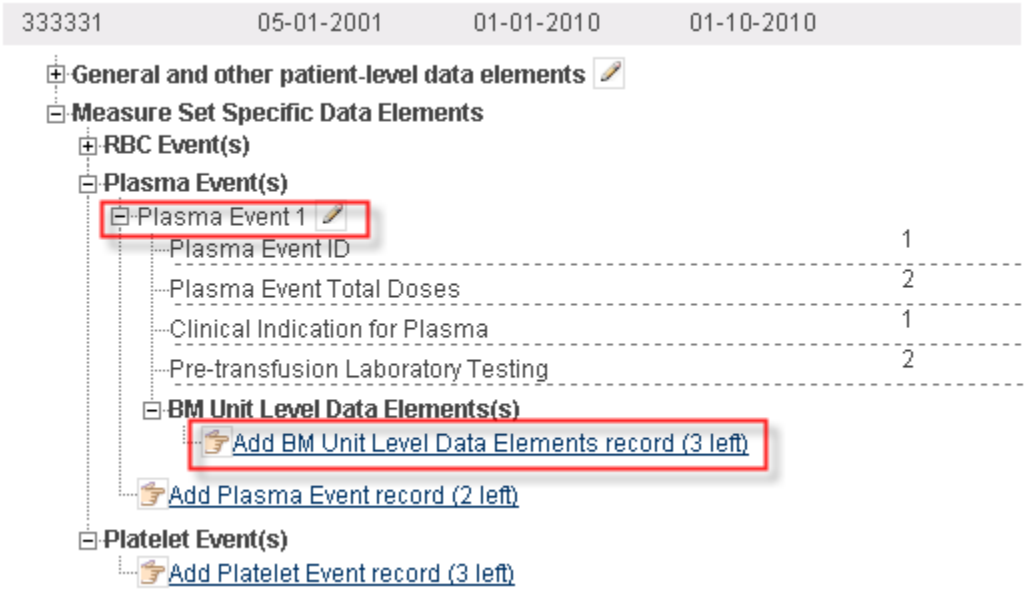
Add Plasma Events and BM Unit Level Data Elements

a) To add a Plasma event, click on the "Add Plasma Event Record" Link

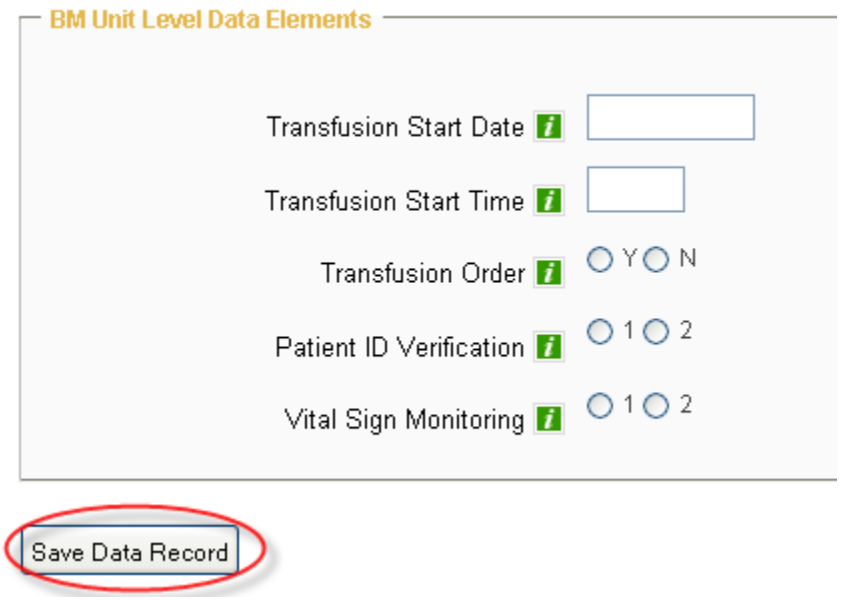
b) Enter data for Plasma Event 1 and click "Save Data Record"



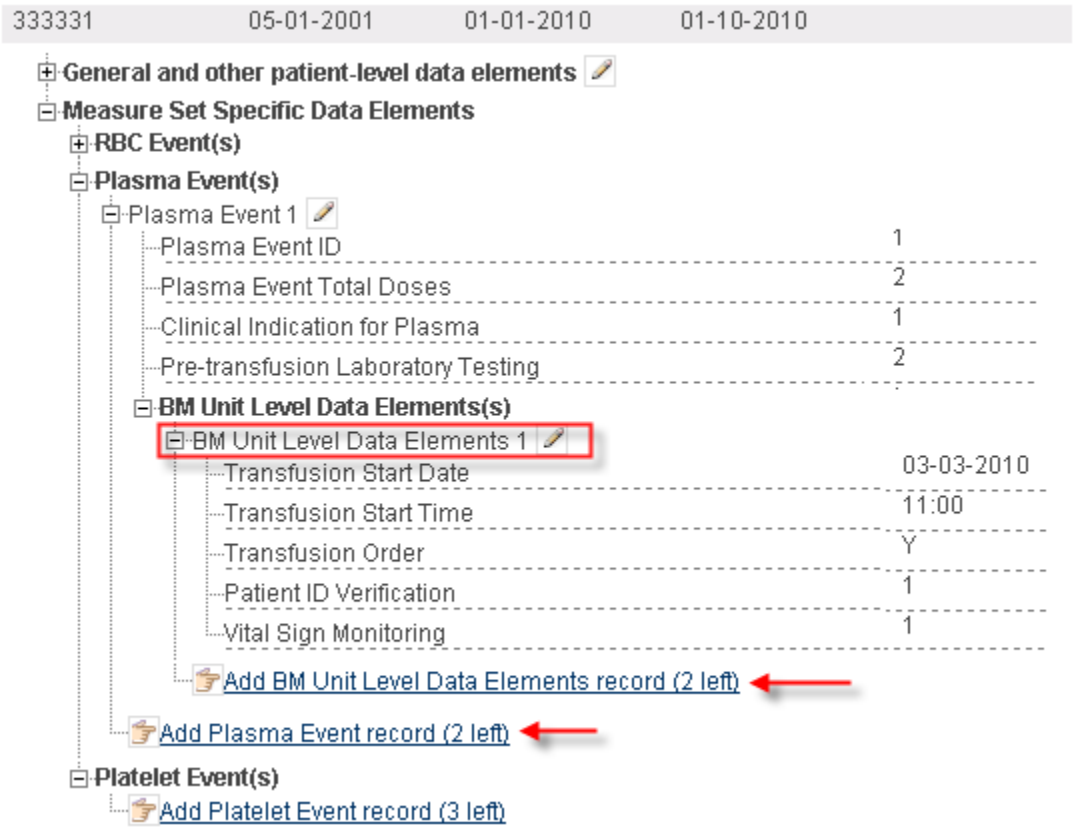
c) Data for "Plasma Event 1" is now included with this client record. To edit the Plasma Event data that you just entered, click on the pencil icon next to the event. To add unit level data for Plasma Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)



d) Enter data for the BM Unit Level Record for Plasma Event 1 and click "Save Data Record"



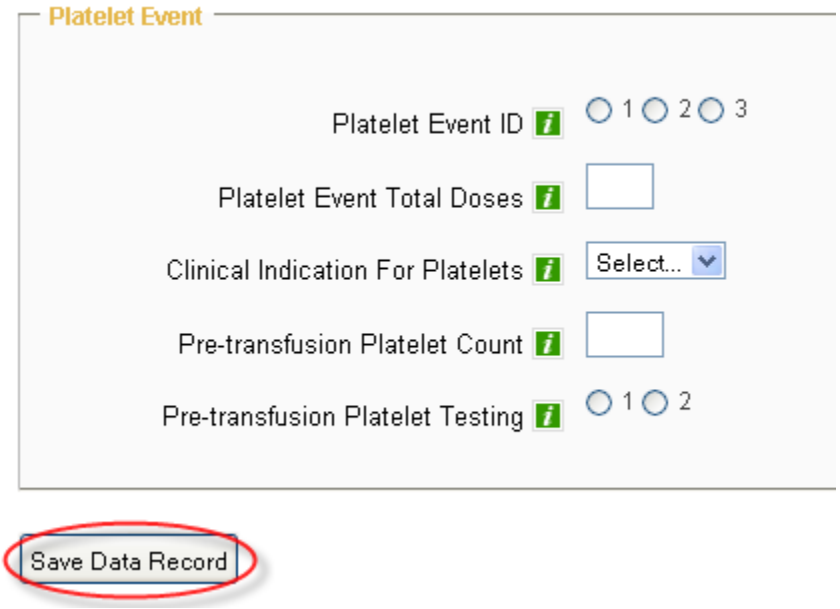
e) Data for "BM Unit Level 1" for "Plasma Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for Plasma Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another Plasma Event, click on "Add Plasma Event Record".



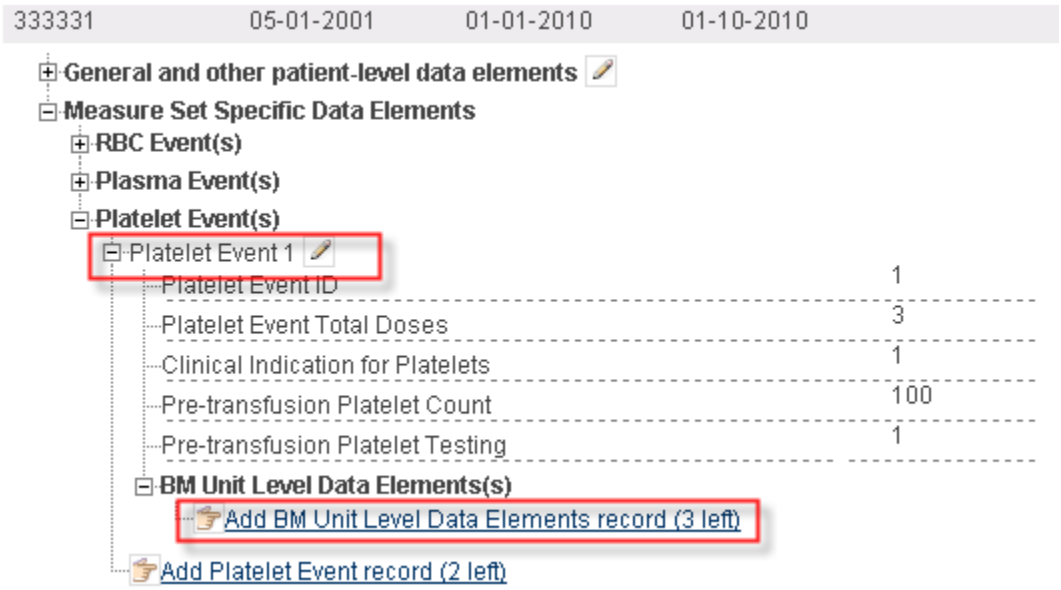
Navigating the Blood Management Project
Data Collection Tool
Add Platelet Events and BM Unit Level Data Elements

a) To add a Platelet event, click on the "Add Platelet Event Record" Link

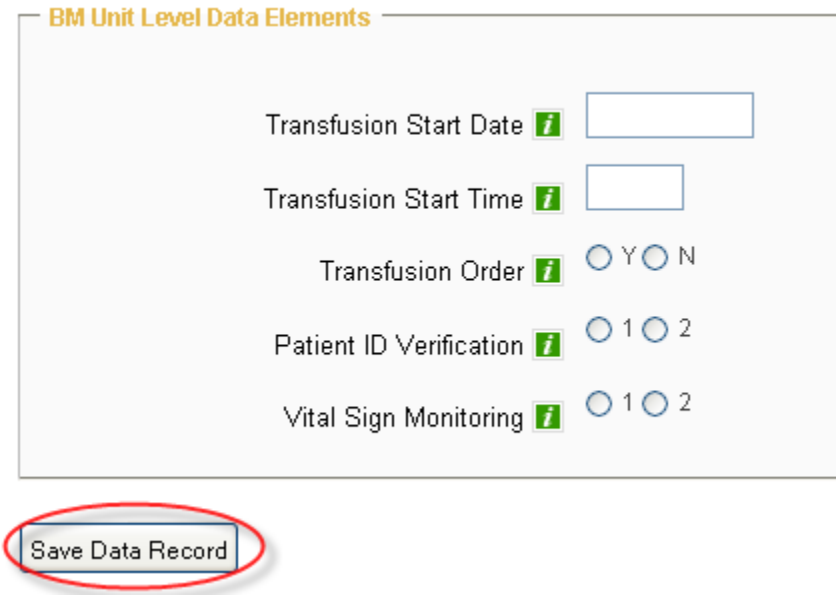
b) Enter data for Platelet Event 1 and click "Save Data Record"



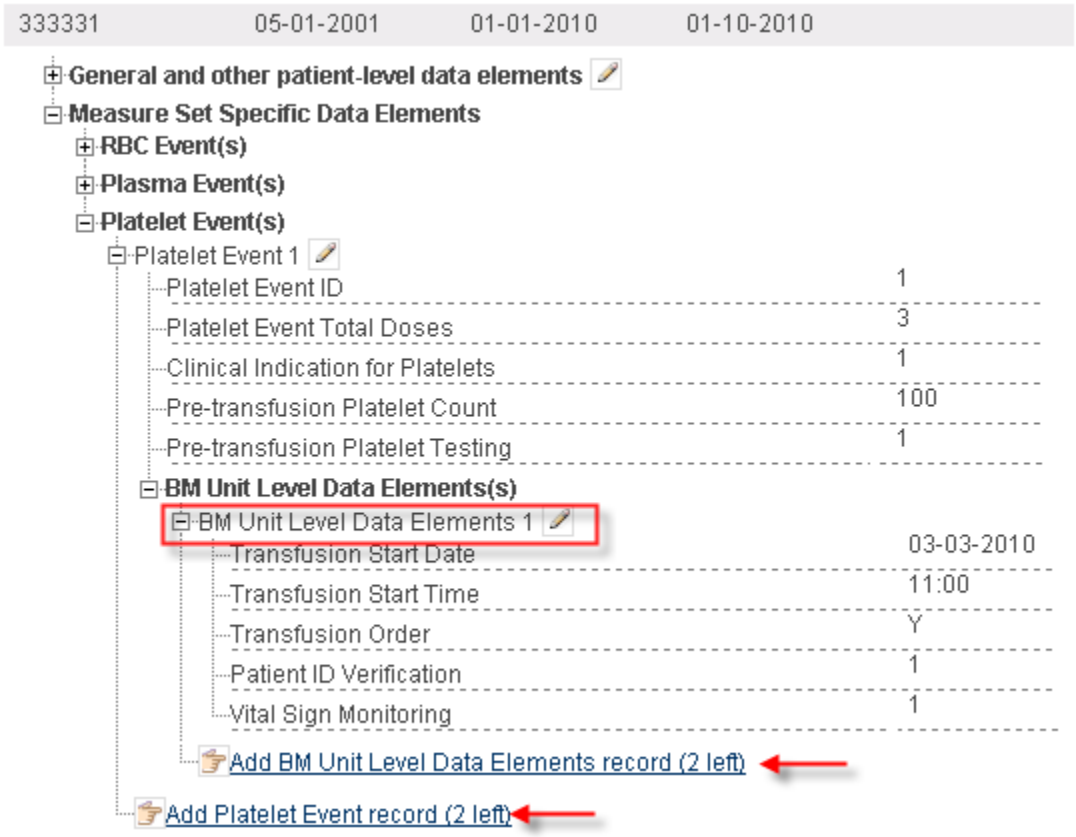
c) Data for "Platelet Event 1" is now included with this client record. To edit the Platelet Event data that you just entered, click on the pencil icon next to the event. To add unit level data for Platelet Event 1, click on the "Add BM Unit Level Data Elements Record" link. (NOTE: you can add up to three BM Unit Level Records)



d) Enter data for the BM Unit Level Record for Platelet Event 1 and click "Save Data Record"



e) Data for "BM Unit Level 1" for "Platelet Event 1" is now included with this client record. To edit the BM unit data that you just entered, click on the pencil icon. To add another BM Unit for Platelet Event 1, click on "Add BM Unit Level Data Elements Record" link. To add another Platelet Event, click on "Add Platelet Event Record".



Marking Records As "Complete"

a) Once you are done entering and editing data for a record, you will need to mark the record as complete. **Please note: Once you check the box for a record under "Complete" you are BOTH marking the record as complete AND locking that record for any further editing**. When you click on the checkbox, the record will "disappear" from view. Do not be alarmed. The default view of the table is to only show incomplete records. To view the record you just completed, click on the link to "Show all Records (including complete)"

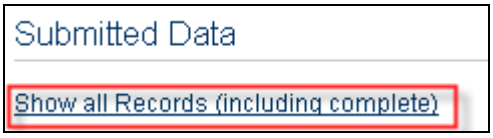

Show all Records (including complete)

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐

Navigating the Blood Management Project
Data Collection Tool

Reviewing Records That Have Been Completed

a) To review a record that has been marked complete, switch the view on your hospital home page by clicking on the "Show all Records (including complete)" link.

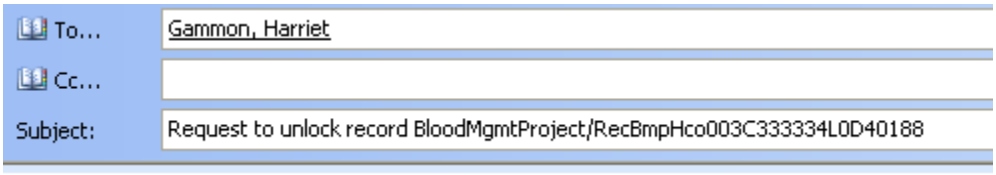


b) In this view you can see all records both complete and incomplete. Completed records are now LOCKED and can not be edited.

Show incomplete Records Only

UBCI	Birthdate	Admitted	Discharged	Completed
333333	03-03-1983	02-02-2010	02-05-2010	☐
333331	05-01-2001	01-01-2010	01-10-2010	☐
555555	04-04-1974	07-04-2009	07-07-2009	☐
333332	03-03-1983	02-02-2010	02-05-2010	☐
1234567	12-30-2008	01-26-2010	02-02-2010	☐
333335	05-01-2001	01-01-2010	01-10-2010	☐
333336	03-03-1983	02-02-2010	02-05-2010	☐
2223	05/01/01	01/01/10	01/10/10	☐
555556	12-09-1970	08-08-2009	08-12-2009	☐
333334	05-01-2001	01-01-2010	01-10-2010	🔒
99999999	01-01-1901	11-11-2010	11-15-2010	🔒
4445	03/03/83	02/02/10	02/05/10	🔒
444555	03/03/83	02/02/10	02/05/10	🔒
2224	05/01/01	01/01/10	01/10/10	🔒

b) If, for any reason, you need to unlock a record, you will need to send an e-mail to the project leader, Harriet Gammon. To send your e-mail request, click on the "lock" icon, and an e-mail form should appear. It will be addressed to Harriet, and the subject line will contain a reference to the specific record.



c) In your e-mail, please briefly explain why the record needs to be unlocked (e.g., Accidentally clicked the "Complete" checkbox).

PATIENT BLOOD MANAGEMENT PERFORMANCE MEASURES PROJECT - Technical Advisory Panel

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Case Western Reserve University School of Medicine
Cleveland, OH