NATIONAL QUALITY FORUM

TO: NQF Members and public

FR: NQF staff

RE: Pre-voting review for National Voluntary Consensus Standards for Patient Safety Measures, First Report: A Consensus Report

DA: October 8, 2010

This first report of the patient safety measures project presents the evaluation results of several healthcare-associated infections (HAI) measures. NQF launched this new project to address HAI, medication safety, and other patient safety-related areas. A Steering Committee of 21 individuals representing the range of stakeholder perspectives reviewed and considered for endorsement five HAI candidate standards. All five measures are recommended for endorsement as voluntary consensus standards.

The draft document, *National Voluntary Consensus Standards for Patient Safety Measures, First Report*, is also posted on the NQF website, http://www.qualityforum.org/projects/patient_safety_measures.aspx, along with the following additional information:

- measure evaluations; and
- additional technical information, if applicable.

Pursuant to section II.A of the Consensus Development Process v. 1.8, this draft document, along with the accompanying material, is being provided to you at this time for purposes of review and comment only—not voting. You may post your comments and view the comments of others on the NQF website.

NQF Member comments must be submitted no later than 6:00 pm ET, November 8, 2010. Public comments must be submitted no later than 6:00 pm ET, November 1, 2010.

Thank you for your interest in the NQF's work. We look forward to your review and comments.

NATIONAL QUALITY FORUM

NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PATIENT SAFETY MEASURES, FIRST REPORT: A CONSENSUS REPORT

DRAFT REPORT FOR COMMENTING

NATIONAL QUALITY FORUM

NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PATIENT SAFETY MEASURES, FIRST REPORT: A CONSENSUS REPORT

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EXECUTIVE SUMMARY

Healthcare-associated infections (HAIs) remain a significant public health issue in the United States. In hospitals alone, the incidence of HAIs is estimated at 1.7 million infections, with 99,000 associated deaths. Urinary tract infections (UTIs), surgical site infections (SSIs), pneumonia, and bloodstream infections account for 83 percent of all HAIs. The estimated direct cost of these infections to the healthcare system is nearly $4.5 billion. In 2009, the American Recovery and Reinvestment Act (ARRA) authorized $50 million in funding for states to engage in HAI planning and other activities in support of the Department of Health and Human Services (HHS) Action Plan to Prevent Healthcare-Associated Infections. Preventing HAIs has become a national priority for public health and patient safety.

The National Quality Forum (NQF) inventory of endorsed measures includes more than 100 measures related to patient safety. Several of these measures focus specifically on HAIs, addressing UTIs, SSIs, pneumonia, and bloodstream infections. Similarly, the measures recommended for endorsement in this first report of patient safety measures include updated versions of previously HAI endorsed measures. Ultimately, the endorsement of these national standards for HAI measurement will provide states and other organizations with valuable resources for implementing comparable standards and will enable consumers to gain access to uniformly reported data that are reliable and useful for decision making.

Under this initial phase of NQF's most recent Patient Safety Measures project, five HAI measures are recommended for endorsement. These measures were submitted by the Centers for Disease Control and Prevention (CDC) and the American College of Surgeons (ACS) and are listed below:

RECOMMENDATIONS FOR ENDORSEMENT

- PSM-001-10: National Healthcare Safety Network (NHSN) Central line-associated bloodstream infection (CLABSI) outcome measure (CDC)
- PSM-002-10: National Healthcare Safety Network (NHSN) surgical site infection (SSI) outcome measure (CDC)
- PSM-006-10: Risk adjusted surgical site infection outcome measure (ACS)
- PSM-003-10: National Healthcare Safety Network (NHSN) catheter-associated urinary tract infection (CAUTI) Outcome (CDC)
- PSM-007-10: Risk adjusted urinary tract infection outcome measure (ACS)

NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PATIENT SAFETY, FIRST REPORT: A CONSENSUS REPORT

BACKGROUND

Healthcare-associated infections (HAIs) remain a significant public health issue in the United States. In hospitals alone, the incidence of HAI is estimated at 1.7 million infections, with 99,000 associated deaths.[1] Urinary tract infections (UTIs), surgical site infections (SSIs), pneumonia, and bloodstream infections account for 83 percent of HAIs[1]. In 1992, the estimated direct cost of these infections on the healthcare system was $4.5 billion in 1992 dollars; adjusting for inflation, this cost rose to $6.65 billion in 2007.[2]

Consumer, provider, purchaser, and regulatory and accreditation organizations are growing increasingly interested in HAIs.[3] Many of the stakeholders in healthcare have focused increased attention on both surveillance and public reporting of HAIs. From 1970 to the present, the Centers for Disease Control and Prevention (CDC) collected voluntary data on HAIs, clinical practices known to prevent HAIs, as well as information about multidrug-resistant organisms and other adverse events. Twenty-seven states are now requiring public reporting of certain HAIs.[4] Preventing HAIs has become a public health and patient safety priority issue. In 2009, the American Recovery and Reinvestment Act (ARRA) authorized $50 million in funding for states to engage in HAI planning and other activities in support of the HHS Action Plan to Prevent Healthcare-Associated Infections.[5] In October 2008, Medicare reduced reimbursement to facilities not collecting data on particular HAIs including catheter-associated urinary tract infection (CAUTI), central line-associated bloodstream infection (CLABSI), and SSI. The Patient Protection Affordable Care Act (PPAC) will extend these payment reductions to Medicaid providers in 2011. Beginning in 2013, hospitals' annual Medicare payment updates will be tied to submission of infection data, including CLABSIs and SSIs.[6]

Though HAI data have been collected for many years, use of the data for comparison of infection rates between hospitals and other healthcare facilities requires uniform measurement standards. Because methods for diagnosis and data collection on HAIs vary among institutions, the validity

of data comparisons between facilities or across geographic areas is questionable. Endorsement of national standards for HAI measurement allows states and other organizations to gain a valuable resource for implementing nationally comparable standards rather than going forward with separate, potentially discordant measurement efforts. Ultimately, consumers gain access to standardized data that are reliable and useful for decision making.

STRATEGIC DIRECTIONS FOR NQF

NQF's mission includes three parts: 1) setting national priorities and goals for performance improvement, 2) endorsing national consensus standards for measuring and publicly reporting on performance, and 3) promoting the attainment of national goals through education and outreach programs. As greater numbers of quality measures are developed and brought to NQF for consideration of endorsement, it is incumbent on NQF to assist stakeholders to "measure what makes a difference" and address what is important to achieve the best outcomes for patients and populations. For more information see www.qualityforum.org.

Several strategic issues have been identified to guide consideration of candidate consensus standards:

DRIVE TOWARD HIGH PERFORMANCE. Over time, the bar of performance expectations should be raised to encourage the achievement of higher levels of system performance.

EMPHASIZE COMPOSITES. Composite measures provide much needed summary information pertaining to multiple dimensions of performance and are more comprehensible to patients and consumers.

MOVE TOWARD OUTCOME MEASUREMENT. Outcome measures provide information of keen interest to consumers and purchasers, and when coupled with healthcare process measures, they provide useful and actionable information to providers. Outcome measures also focus attention on much needed system-level improvements, because achieving the best patient outcomes often requires carefully designed care processes, teamwork, and coordinated action on the part of many providers.

CONSIDER DISPARITIES IN ALL THAT WE DO. Some of the greatest performance gaps relate to care of minority populations. Particular attention should be focused on the most relevant race/ethnicity/language/socioeconomic strata to identify relevant measures for reporting.

NATIONAL PRIORITIES PARTNERSHIP

NQF seeks to endorse measures that address the National Priorities and Goals of the National Priorities Partnership.[7] The National Priorities Partnership represents those who receive, pay for, provide, and evaluate healthcare. The National Priorities and Goals focus on these areas:

- patient and family engagement,
- population health,
- safety,
- care coordination,
- palliative and end-of-life care,
- overuse,
- equitable access, and
- infrastructure support.

NQF'S CONSENSUS DEVELOPMENT PROCESS (CDP)

Patient Safety Measures Project[8]

The National Quality Forum's National Voluntary Consensus Standards for Patient Safety Measures project seeks to endorse patient safety-related measures that address healthcare-associated infections (HAIs), medication safety, and other areas. Potential consensus standards focus on a broad range of areas including but not limited to safety risk assessment and/or risk identification, hospital standardized mortality rates, reporting and follow-up or critical test results, and leadership and culture of safety. Additionally, the project will identify gaps in patient safety measures.

This report does not represent the entire scope of NQF work relevant to patient safety. NQF has endorsed over 100 measures related to patient safety through the National Voluntary Consensus Standards for Medication Management project[9], the National Voluntary Consensus Standards for

the Reporting of Healthcare-Associated Infection Data[10] and other projects. In addition the Safe Practices for Better Healthcare: 2010 Update[11] provides evidence based strategies to increase patient safety.

The full constellation of consensus standards, along with those presented in this report, provide a growing number of NQF-endorsed® voluntary consensus standards that directly reflect the importance of measuring and improving the quality of care provided to patients. Organizations that adopt these consensus standards will promote the delivery of safer and higher-quality care for patients.

Evaluating Potential Consensus Standards

Candidate standards were solicited though an open "Call for Measures" in January 2010 and were actively sought by NQF staff through literature reviews, a search of the National Quality Measures Clearinghouse, NQF Member websites, and an environmental scan. The measures were evaluated using NQF's standard evaluation criteria[12]. The HAI Technical Advisory Panel (TAP) rated the subcriteria for each candidate consensus standard and identified strengths and weaknesses to assist the project Steering Committee (Committee) in making recommendations. For this first report, the 21-member, multi-stakeholder Committee provided final evaluations of the four main criteria: importance to measure and report, scientific acceptability of the measure properties, usability, and feasibility. Measure developers participated in the TAP and Committee discussions to respond to questions and clarify any issues or concerns.

RECOMMENDATIONS FOR ENDORSEMENT

This first report of the Patient Safety Measures project presents the evaluation results of five HAI measures considered under NQF's Consensus Development Process. All five measures are recommended for endorsement as voluntary consensus standards suitable for public reporting and quality improvement.

Candidate Consensus Standards Recommended for Endorsement

PSM-001-10: National Healthcare Safety Network (NHSN) Central line-associated bloodstream infection (CLABSI) outcome measure (CDC) *This measure applies a standardized infection ratio (SIR) of healthcare-associated, central line-associated bloodstream infections (CLABSI) among patients in intensive care units (ICUs) and neonatal intensive care units (NICUs).PSM-001-10 is intended as a replacement for NQF-endorsed measure #0139 - Central line catheter-associated blood stream infection rate for ICU and high-risk nursery (HRN) patients.*

This measure was designed to capitalize on increased reporting to the National Healthcare Safety Network (NHSN), a voluntary, nationwide HAI surveillance system managed by the Centers for Disease Control and Prevention (CDC). Hospitals and other healthcare providers use standardized definitions and protocols to report HAI data to the NHSN regularly, allowing the CDC to estimate the prevalence of HAIs, recognize trends, and assist healthcare facilities in quality improvement activities. The measure uses a standardized infection ratio (SIR) to compare a given healthcare facility's observed CLABSI rate to that facility's expected CLABSI rate. The expected rate is based on standardized rates that account for length of stay, length of central line use, patient care location, and other factors.

This measure addresses a high impact area; approximately 80,000 CLABSIs occur in intensive care units (ICUs) each year, resulting in up to 20,000 deaths and up to $2 billion in additional costs.[13] Moreover, evidence-based interventions have shown significant reductions in CLABSI rates and improved health outcomes. For these reasons, the Committee agreed that this measure strongly meets the criteria of importance to measure and report.

While the Committee appreciated the detail within the measure specifications, members expressed concern about the absence of a risk adjustment model or specific exclusions that consider the variability of disease severity from unit to unit or within units. Committee members also requested clarification on the measure developer's unit type classifications. The developer explained that as part of the NHSN enrollment process, facilities must map internal location to pre-defined locations in the NHSN Patient Safety Manual. The criteria or unit designation are

included in the Manual. Although the measure is based on unit experience and not patient-level data, there are mechanisms to stratify patients by risk. Units with increased risk related to disease severity, are identified as "special care areas," separate from critical care units or intensive care units (ICUs). The developer noted that patient-level analysis would add to the data collection and manual calculation burden. The developer added that data could be stratified on several levels including by hospital type (i.e. teaching versus non-teaching hospital). Ultimately, the Committee and the developer acknowledged the inevitable variability from patient to patient that might be missed with this type of unit-based analysis.

The Committee raised several questions about how data are reported within the NHSN-specifically, the level of granularity used to report organism types and the specific reporting time period (i.e., whether reporting is cumulative, ongoing, annual, or quarterly). For public reporting, bloodstream infections are grouped together regardless of pathogen type. The developer stated that pathogen-specific data are captured on CLABSI events when available, and that appropriate exclusionary rules are applied to those events. Although annual data are published in the *American Journal of Infection Control*, the NHSN application also houses aggregate data, which provides facilities an opportunity to compare their performance with the national aggregate over specific time intervals. The developer acknowledged that they have not explored all potential issues associated with quarterly public reporting. The Committee recommended that the developer define a specific reporting timeframe, especially if the metric is adopted by a regulatory agency that requires quarterly reporting. No clarification has been received from the developer yet.

On the issue of feasibility, the Committee voiced concerns about reporting a SIR rather than a rate, since several states already mandate the reporting of CLABSI rates. The Committee questioned the usability outside NHSN participation and believed that a SIR may also lead to increased manual data collection and entry. The measure developer stated that using the SIR creates significant added value by enabling comparisons of observed HAIs to expected HAIs based on nationally aggregated data.

This outcome measure replaces NQF-endorsed measure #0139 – Central line catheter-associated blood stream infections rate for ICU and high-risk nursery (HRN) patients and addresses the National Priority area of safety.

PSM-002-10: National Healthcare Safety Network (NHSN) surgical site infection (SSI) outcome measure (CDC) *Standardized infection ratio (SIR) of SSIs among patients who underwent any National Healthcare Safety Network (NHSN) surgical procedure corresponding to the Surgical Care Improvement Program (SCIP) coronary artery bypass graft, other cardiac, colon, hip or knee arthroplasty, abdominal and vaginal hysterectomy, or vascular procedures. This measure is intended as a replacement for NQF-endorsed measure #0299 – Surgical site infection rate.*

This measure captures deep incisional and organ/space surgical site infections and is currently used in the NHSN surveillance system. The selected procedure categories closely correspond with the Centers for Medicare and Medicaid Services' (CMS') SCIP quality reporting initiative and were included in the NHSN because they focus on higher risk and higher volume procedures. Consideration was also given to procedures with strong evidence-based data on care practices and related outcomes. The measure addresses a high impact area; each year, approximately 11 percent of all deaths in ICUs are associated with SSIs, resulting in up to 20,000 deaths and $2 billion in additional costs.[2] Moreover, evidence-based interventions have shown significant reductions in SSI rates and improved health outcomes. For these reasons, the Steering Committee agreed that this measure strongly meets the criteria of importance to measure and report.

Similar to the CDC's CLABSI outcome measure, data for this measure are published in NHSN reports as a standardized infection ratio (SIR). The SIR calculation considers the total number of observed SSI events and the expected number using the national aggregate rates within the NHSN system. Because several states mandate rate-based SSI reporting, TAP and Committee members debated the feasibility of calculating a SIR for facilities not participating in the NHSN. The measure developer acknowledged the concern, yet believed that the utility of a SIR as an

indirect standardization of cumulative SSI experiences across several stratified groups of data, specifically procedure categories, provides significant added value.

The Committee rated the measure favorably on the four major criteria and suggested broader application to ambulatory surgery centers in the future.
This outcome measure replaces NQF-endorsed measure #0299 – Surgical Site Infection Rate and addresses the National Priority area of safety.

PSM-006-10: Risk adjusted surgical site infection outcome measure (ACS) *This is a hospital-based, risk-adjusted, case-mix-adjusted surgical site infection measure of adults 18 years of age and over.*

Similar to measure #PSM-002-10, this measure counts the number of SSIs associated with a subset of procedures used in the American College of Surgeons (ACS) National Surgical Quality Improvement Program (NSQIP). Although the TAP and Committee recognized the opportunity for hospitals to benchmark against national aggregate data, both raised concerns about data collection and case load, which is estimated at 200-500 cases per facility annually, as well as concerns about the exclusion of trauma and transplant patients. The developer explained that data on trauma and transplant patients are not collected as part of the NSQIP system and are included in a separate database. At the TAP's recommendation, the measure developer modified the measure's specifications to include an explicit rationale for the exclusion of these patients, in addition to the following:

- confirmation on whether the measure is applicable to any ACS NSQIP listed CPT surgical procedure; and
- a list of specific CPT codes as indicated on the measure submission form.

The Committee agreed that this measure meets the criteria for scientific acceptability.

Committee members posed several questions about the data collection burden associated with this measure, especially related to patient follow-up 30 days post-procedure and the potential

burden for non-NSQIP facilities. The developer confirmed that only a phone call or letter is required post-procedure if no other follow-up is documented in the patient record. The developer provided an overview of the implementation plan for non-NSQIP participants. Essentially, CPT codes are specified, along with specific risk adjusters that all hospitals must collect. The developer assured the Committee that there would be no added analytical burden placed on non-NSQIP participating hospitals.

This outcome measure addresses the National Priority area of safety.

Head-to-Head Comparison of SSI Measures (#PSM-002-10 and #PSM-006-10)

The Committee compared the two SSI measures, measure #PSM-002-10 and measure #PSM-006-10, to determine if one measure could be considered best-in-class. The Committee noted that both measures capture similar information using different data sources. Steering Committee members acknowledged that each measure may offer benefits for quality improvement because they assess populations differently. Both measures are currently in use in the NSQIP and NHSN surveillance systems; however, it was difficult for the Committee to compare these measures, where the advantages and disadvantages of one measure may be offset by those of a competing measure without additional evidence from the field on their use. Committee members also discussed the possibility of harmonization.[14] The developers are collaborating to harmonize both measures in the very near future. Ultimately, the Committee recommended both measures for endorsement, independently, with the following suggestions:

- Harmonization of both measures should be complete by the first maintenance review; and
- The developers should conduct focus groups with current NSQIP and NSHN participating facilities to assess how both surveillance programs are working, with regard to feasibility and usability.

PSM-003-10: National Healthcare Safety Network (NHSN) Catheter-associated urinary tract Infection (CAUTI) outcome measure (CDC) *This measure applies a standardized infection ratio (SIR) of healthcare-associated, catheter-associated urinary tract infections (CAUTI) among patients in intensive care units (ICUs), excluding patients in neonatal ICUs*

(NICUs).This measure is intended as a replacement for NQF-endorsed measure #0138 - Urinary catheter-associated urinary tract infection for intensive care unit (ICU) patients.

Urinary tract infections are estimated to be the most frequently-occurring HAIs, accounting for approximately 36 percent of HAIs in U.S. hospitals.[15] UTIs can cause significant increases in morbidity, mortality, and costs. The Steering Committee agreed that this measure strongly meets the criteria for importance to measure and report.

Similar to the CDC's CLABSI and SSI outcome measures, this measure uses a SIR to compare a given healthcare facility's observed CAUTI rate to that facility's expected CAUTI rate. The expected rate is based on standardized rates that account for length of stay, length of urinary catheterization, patient care location, and other factors. As with previous discussions about the CDC's CLABSI and SSI measures, the Committee questioned the usability outside NHSN participation and believed that a SIR may also lead to increased manual data collection and entry. The developer reiterated the benefits of utilizing an indirect standardization of cumulative SSI experiences across several stratified groups of data.

Measure development in this topic area has generally focused on specific sites and/or settings like nursing homes. The Committee discussed the benefits of developing more cross-cutting measures and suggested broader application beyond the ICU (i.e., to long term care settings across the whole continuum of care) in the future.
This outcome measure addresses replaces NQF-endorsed measure #0138 - Urinary catheter-associated urinary tract infection for intensive care unit (ICU) patients and addresses the National Priority area of safety.

PSM-007-10: Risk Adjusted Urinary Tract Infection Outcome Measure (ACS) *This is a risk adjusted, case mix adjusted urinary tract infection outcome measure of adults 18+ years after surgical procedure.*
This measure is currently used in the ACS NSQIP surveillance system. The developer reiterated that the measure assesses UTIs within 30 days of surgical procedure and it is not catheter-

specific. Nonetheless, urinary catheterizations account for the vast majority of UTIs. In a recent study of 36,000 major surgery patients, 86 percent of the study cohort had perioperative urinary catheters. Patients who had indwelling catheters for longer than two days postoperative, were twice as likely to develop a catheter associated urinary tract infection (CAUTI).[16] In monetary terms, UTIs contribute to approximately $340-450 million in additional health care costs annually.[17] For these reasons, the Steering Committee agreed that this measure strongly meets the criteria for importance to measure and report.

Both TAP and Committee members were concerned that reliability and validity testing have only been conducted through modeling. The developer noted that inter-rater reliability is tested regularly. The Committee observed that, based on the model's estimates, a minimum case load of approximately 300 patients is required to achieve adequate reliability. Some members were concerned that the data collection associated with this requirement could impose a burden on providers

The 30-day patient follow-up, specifically the clinical expertise needed to identify and differentiate infections and all associated financial costs, were cited by TAP and Committee members as a barrier to data collection and implementation.

The Committee also discussed the benefits of developing more cross-cutting measures and suggested broader application beyond the surgical population.

This outcome measure addresses the National Priority area of safety.

Head-to-Head Comparison of UTI measures (#PSM-003-10 and #PSM-007-10)

The Steering Committee evaluated the benefits of potential harmonization between proposed measures #PSM-003-10 and #PSM-007-10. Although both measures address UTIs, the Committee noted that there are substantial differences between the targeted populations and data sources of the measures. Therefore, the Committee did not think that it was necessary to make a determination on best-in-class or render a recommendation for harmonization.

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Additional Recommendations

Steering Committee members presented the following recommendations for further research and measure development:

Increasing opportunities to harmonize would relieve some of the current reporting burden. In some cases, harmonization would be prudent and useful. However, it is important to note that harmonization may not be feasible in all circumstances. Therefore, clustering measures into meaningful topic categories that creates a suite of tools might assist the healthcare industry with evaluating measures at multiple levels. For example, in the case of urinary tract infections, a cluster of measures could be identified that uses any one of the following: lab results, physician diagnosis from empirical symptoms, a transfer diagnosis from hospital to long-term care, patient qualitative report, device usage patterns, or physician antibiotic orders. Defining the numerators and denominators would vary depending on the source and use of the data. The selection of the right measure would depend on the users' intentions.

As clinical information technologies become fully deployed throughout the healthcare system, antibiotics or lab result data may be useful from a surveillance perspective for public accountability, while clinical judgment and empirical symptoms may be more useful for improved patient care. Further discussion about this issue is needed to more clearly define the usability characteristics of each measure in relationship to other similar measures. Only by clustering the measures into groups can in-depth analysis of the similarities and the differences be obtained. From there, more thoughtful dialogue on the "value" of each measure can be assessed.

NOTES

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9. http://www.qualityforum.org/Publications/2010/05/National_Voluntary_Consensus_Standards_for_Medication_Management.aspx. Last accessed October 2010.
10. http://www.qualityforum.org/Publications/2008/03/National_Voluntary_Consensus_Standards_for_the_Reporting_of_Healthcare-Associated_Infection_Data.aspx. Last accessed October 2010.

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14. Harmonization refers to the standardization of specifications for similar measures on the same topic (e.g., *influenza immunization* of patients in hospitals or nursing homes), or related measures for the same target population (e.g., eye exam and HbA1c for *patients with diabetes*), or definitions applicable to many measures (e.g., age designation for children) so that they are uniform or compatible, unless differences are dictated by the evidence. The dimensions of harmonization can include numerator, denominator, exclusions, and data source and collection instructions. The extent of harmonization depends on the relationship of the measures, the evidence for the specific measure focus, and differences in data sources.
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16. Wald HL, Ma A, Bratzler DW, Kramer AM. "Indwelling urinary catheter use in the postoperative period: analysis of the national surgical infection prevention project data." *Archives of Surgery*. June 2008;143(6):551-557.
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NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PATIENT SAFETY MEAURES: A CONSENSUS REPORT
APPENDIX A: MEASURE SPECIFICATIONS

The following table presents the detailed specifications for the National Quality Forum (NQF)-endorsed® *National Voluntary Consensus Standards for Patient Safety*. All information presented has been derived directly from measure sources/developers without modifications or alteration (except when the measure developer agreed to such modifications during the NQF Consensus Development Process) and is current as of October 8, 2010. All NQF-endorsed voluntary consensus standards are open source, meaning they are fully accessible and disclosed. Measures were developed by the Centers for Disease Control and Prevention, and the American College of Surgeons.

Measure Numbers	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions	Data Source	Level of Analysis
PSM-001-10	National Healthcare Safety Network (NHSN) Central line-associated Bloodstream Infection (CLABSI) Outcome Measure	Centers for Disease Control and Prevention	Standardized Infection Ratio (SIR) of healthcare-associated, central line-associated bloodstream infections (CLABSI) among patients in intensive care units (ICUs) and Neonatal Intensive Care Units (NICUs)	Total number of observed healthcare-associated CLABSI among patients in ICUs and NICUs	Total number of expected CLABSIs, calculated by multiplying the number of central line device days for each location under surveillance for CLABSI during the period by the CLABSI rate for the same types of locations obtained from the standard population. Central line device-day denominator data that are collected differ according to the location of the patients being monitored. See 2a.8.	1. Pacemaker wires and other nonlumened devices inserted into central blood vessels or the heart are excluded as central lines 2. Peripheral intravenous lines are excluded from this measure	Electronic clinical data; Electronic Health/ Medical Record; Lab data; Paper medical record/ flow-sheet; Special or unique data	Population: states; Facility/ Agency; Population: national

Measure Numbers	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions	Data Source	Level of Analysis
PSM-002-10	National Healthcare Safety Network (NHSN) Surgical Site Infection (SSI) Outcome Measure	Centers for Disease Control and Prevention	Standardized Infection Ratio (SIR) of deep incisional and organ/space Surgical Site Infections (SSI) at the primary incision site among patients undergoing selected inpatient operative procedure categories.	Total number of observed deep incisional primary (DIP) and organ/space SSIs detected during admission or readmission among patients who have undergone the following inpatient NHSN operative procedure categories: 1. Abdominal Aortic Aneurysm Repair (AAA) 2. Coronary Artery Bypass Graft with both chest and donor site incisions (CBGB); only SSI from the chest (primary site) are included 3. Coronary Artery Bypass Graft with chest incision only (CBGC) 4. Colon surgery (COLO) 5. Hip Arthroplasty (HPRO) 6. Abdominal Hysterectomy (HYST) 7. Knee Arthroplasty (KPRO) 8. Peripheral Vascular Bypass surgery (PVBY) 9. Rectal surgery (REC) 10. Vaginal Hysterectomy (VHYS)	Using multivariable procedure-specific logistic regression models, the expected number of SSIs is obtained. These expected numbers are summed across strata (e.g., procedure categories, surgeons, etc) and used as the denominator of this measure (see also 2a.8).	None	Electronic clinical data; Electronic Health/ Medical Record; Lab data; Paper medical record/ flow-sheet; Special or unique data	Facility/ Agency; Population: national; Population: states

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APPENDIX A: MEASURE SPECIFICATIONS

Measure Numbers	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions	Data Source	Level of Analysis
PSM-006-10	Risk Adjusted Surgical Site Infection Outcome Measure	American College of Surgeons	This is a hospital based, risk adjusted, case mix adjusted surgical site infection measure of adults 18 years of age and over.	The outcome of interest is a hospital-specific risk-adjusted Deep Incisional Surgical Site Infection (SSI) or Organ/Space SSI as defined by American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP), occurring within 30 days of any of the listed CPT surgical procedures. The list of eligible CPT codes is attached.	Patients undergoing any of the specified list of eligible CPT surgical procedure codes. See separate attached list of eligible CPT codes.	Major trauma and transplant surgeries are excluded as are surgeries not on the supplied CPT list as eligible for selection. Patients who are ASA 6 (brain-death organ donor) are not eligible surgical cases. A patient who has a second surgical procedure performed within 30 days after an index procedure cannot be accrued into the measure as a new (second) index procedure since the measure is based on 30 day outcomes.	Documentation of original self-assessment; Paper medical record/ flow-sheet; Pharmacy data; Electronic clinical data; Electronic Health/ Medical Record; Lab data; Management data	Facility/ Agency; Population: national; Population: regional/ network; Population: states

Measure Numbers	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions	Data Source	Level of Analysis
PSM-003-10	National Healthcare Safety Network (NHSN) Catheter-associated Urinary Tract Infection (CAUTI) Outcome Measure	Centers for Disease Control and Prevention	Standardized Infection Ratio (SIR) of healthcare-associated, catheter-associated urinary tract infections (CAUTI) among patients in intensive care units (ICUs), excluding patients in neonatal ICUs (NICUs)	Total number of observed healthcare-associated CAUTI among patients in ICUs (excluding patients in NICUs)	Total number of expected CAUTIs, which is calculated by multiplying the number of urinary catheter days for each location under surveillance for CAUTI during the period by the CAUTI rate for the same types of locations obtained from the standard population. These expected numbers are summed across locations and used as the denominator of this measure (see also 2a.8).	Non-indwelling catheters by NHSN definitions: 1.Suprapubic catheters 2.Condom catheters 3."In and out" catheterizations	Electronic clinical data; Electronic Health/ Medical Record; Lab data; Paper medical record/ flow-sheet; Special or unique data	Population: states; Population: national; Facility/ Agency

Measure Numbers	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions	Data Source	Level of Analysis
PSM-007-10	Risk Adjusted Urinary Tract Infection Outcome Measure After Surgery	American College of Surgeons	Risk adjusted, case mix adjusted urinary tract infection outcome measure of adults 18+ years after surgical procedure.	The outcome of interest is a hospital-specific assessment of risk-adjusted Urinary Tract Infection (UTI: as defined by American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP)defined below) within 30 days of any listed (CPT) surgical procedure: the list of eligible CPT codes is attached separately.	Patients undergoing any of the listed (CPT) surgical procedures-list is attached separately. Specifically excluded are certain CPTs involving the urinary tract (excluded: 50220, 50545, 50400, 50205, 51040, 54640, 53852, 55866, 52450, 52234). See attached submitted list of eligible CPT codes.	Major trauma and transplant surgeries are excluded as are surgeries not on the supplied CPT list as eligible for selection. Patients who are ASA 6 (brain-death organ donor) are not eligible surgical cases. A patient who has a second surgical procedure performed within 30 days after an index procedure cannot be accrued into the measure as a new (second) index procedure since the measure is based on 30 day outcomes.	Documentation of original self-assessment; Paper medical record/ flow-sheet; Pharmacy data; Electronic clinical data; Electronic Health/ Medical Record; Lab data; Management data	Facility/ Agency; Population: national; Population: regional/ network; Population: states

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NQF-endorsed® Patient Safety Measures

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Measure# 0019: Documentation of medication list in the outpatient record	
Steward	Centers for Medicare & Medicaid Services, National Committee for Quality Assurance
Description	Percentage of patients having a medication list in the medical record.
Numerator	Patients with a medication list in their medical record
Denominator	All patients who were continuously enrolled during the measurement year.
Exclusions	
Risk Adjustment	
Data Source	Paper Medical Record
Level	Individual clinician (physician, nurse)
Setting	Ambulatory Care (office/clinic)
Measure# 0020: Documentation of allergies and adverse reactions in the outpatient record	
Steward	Centers for Medicare & Medicaid Services, National Committee for Quality Assurance
Description	Percentage of patients having documentation of allergies and adverse reactions in the medical record.
Numerator	Patients with allergy and adverse reaction status present in medical record
Denominator	All patients who were continuously enrolled during the measurement year.
Exclusions	
Risk Adjustment	
Data Source	Paper Medical Record
Level	Individual clinician (physician, nurse)
Setting	Ambulatory Care (office/clinic)
Measure# 0021: Therapeutic monitoring: Annual monitoring for patients on persistent medications	
Steward	National Committee for Quality Assurance
Description	Percentage of patients 18 years and older who received at least 180-day supply of medication therapy for the selected therapeutic agent and who received annual monitoring for the therapeutic agent. Percentage of patients on ACE inhibitors or ARBs with a
Numerator	a: The number of patients with at least one serum potassium and either a serum creatinine or a blood urea nitrogen therapeutic monitoring test in the measurement year. b: The number of patients with at least one serum potassium and either a serum creatinine or a blood urea nitrogen therapeutic monitoring test in the measurement year. c: The number of patients with at least one serum potassium and either a serum creatinine or a blood urea nitrogen therapeutic monitoring test in the measurement year. Note: The two tests do not need to occur on the same service date, only within the measurement year. d: The number of patients with at least one drug serum concentration level monitoring test for the prescribed drug in the measurement year. If a patient received only one type of anticonvulsant, the drug serum concentration level test must be for the specific drug taken as a persistent medication. If a patient persistently received multiple types of anticonvulsants, each anticonvulsant medication and drug monitoring test combination is counted as a unique event (i.e., a patient on both phenytoin and valproic acid with at least a 180-days supply for each drug in the measurement year must separately show evidence of receiving drug serum concentration tests for each drug to be considered numerator-compliant for each drug). e: The number of patients with both an ALT and an AST liver enzyme test in the measurement year. A hepatic function panel (which includes both a ALT and AST) also counts as numerator compliant. F: Sum of the five numerators (a-e)
Denominator	a: The number of patients ages 18 years and older who received at least a 180-days supply of ACE inhibitors or ARBs, including any combination products during the measurement year. b: The number of patients ages 18 years and older who received at least a 180-days supply of digoxin, including any combination products, during the measurement year. c: The number of patients ages 18 years and older who received at least a 180-days supply of a diuretic, including any combination products, during the measurement year

	d: The number of patients in the denominator who received at least a 180-days supply for any anticonvulsant for phenytoin, phenobarbital, valproic acid or carbamazepine during the measurement year. Each patient-drug combination is considered a unique event. e: The number of patients in the denominator who received at least a 180-days supply for any statin (HMG CoA Reductase Inhibitors), including any combination product, during the measurement year. F: Sum of the five denominators (a-e)
Exclusions	a. Exclude patients from each rate denominator with a hospitalization in the measurement year. These patients may have received a monitoring event during the hospitalization which may not be captured Hospitalizations can be identified using either codes for inpatient discharges or non acute care or through the medical record. B. Exclude patients from each rate denominator with a hospitalization in the measurement year. These patients may have received a monitoring event during the hospitalization which may not be captured. Hospitalizations can be identified using either codes for inpatient discharges or non acute care or through medical records. C. Exclude patients from each rate denominator with a hospitalization in the measurement year. These patients may have received a monitoring event during the hospitalization which may not be captured. Hospitalizations can be identified using either codes for inpatient discharges or non acute care or medical records. D. Exclude patients from each rate denominator with a hospitalization in the measurement year. These patients may have received a monitoring event during the hospitalization which may not be captured. Hospitalizations can be identified using either codes for inpatient discharges or non acute care. E. Exclude patients from each rate denominator with a hospitalization in the measurement year. These patients may have received a monitoring event during the hospitalization which may not be captured. Hospitalizations can be identified using either codes for inpatient discharges or non acute care or medical records.
Risk Adjustment	
Data Source	Electronic Claims
Level	Individual clinician (physician, nurse)
Setting	Ambulatory Care (office/clinic)
Measure# 0022: Drugs to be avoided in the elderly: a. Patients who receive at least one drug to be avoided, b. Patients who receive at least two different drugs to be avoided.	
Steward	National Committee for Quality Assurance
Description	Percentage of patients ages 65 years and older who received at least one drug to be avoided in the elderly in the measurement year. Percentage of patients 65 years of age and older who received at least two different drugs to be avoided in the elderly in
Numerator	a: at least one prescription for any drug to be avoided in the elderly in the measurement year. b: At least two different drugs to be avoided in the elderly in the measurement year.
Denominator	All patients ages 65 years and older as of December 31 of the measurement year.
Exclusions	
Risk Adjustment	
Data Source	Electronic Claims
Level	Individual clinician (physician, nurse)
Setting	Ambulatory Care (office/clinic)
Measure# 0035: Fall risk management in older adults: a. Discussing fall risk, b.Managing fall risk	
Steward	National Committee for Quality Assurance
Description	Percentage of patients aged 75 and older who reported that their doctor or other health provider talked with them about falling or problems with balance or walking Percentage of patients aged 75 and older who reported that their doctor or other health pr
Numerator	a- Discussing Fall Risk: The number of patients in the denominator a who responded "yes" to the question, "A fall is when your body goes to the ground without being pushed. In the past 12 months, did your doctor or other health provider talk with you about falling or problems with balance or walking?

	b- Managing Fall Risk: The number of patients in the denominatorb who responded "yes" to the question, "Has your doctor or other health provider done these or anything else to help prevent falls or treat problems with balance or walking? "
Denominator	a- Discussing Fall Risk: All patients 75 years and older as of December 31 of the measurement year, AND patients 65 years to 74 years as of December 31 of the measurement year who responded "yes" to either of the questions, "Did you fall in the past 12 months?" - - Q2 OR "yes" to the question, "In the past 12 months, have you had problems with balance or walking?" - - Q3 and who indicated they were seen by a provider during the measurement year. b- Managing Fall Risk: Patients 65 years and older as of December 31 of the measurement year who responded "yes" to either of the questions, "Did you fall in the past 12 months?" - - Q2 OR "yes" to the question, "In the past 12 months, have you had problems with balance or walking?" - - Q3 and who indicated they were seen by a provider during the measurement year.
Exclusions	
Risk Adjustment	
Data Source	Electronic Claims
Level	Individual clinician (physician, nurse)
Setting	Ambulatory Care (office/clinic)
Measure# 0101: Falls: Screening for Fall Risk	
Steward	American Geriatrics Society, American Medical Association, National Committee for Quality Assurance, American Medical Association - Physician Consortium for Performance Improvement
Description	Percentage of patients aged 65 years and older who were screened for fall risk (2 or more falls in the past year or any fall with injury in the past year) at least once within 12 months
Numerator	Patients who were screened for future fall risk (patients are considered at risk for future falls if they have had 2 or more falls in the past year or any fall with injury in the past year) at least once within 12 months Definition: A fall is defined as a sudden, unintentional change in position causing an individual to land at a lower level, on an object, the floor, or the ground, other than as a consequence of sudden onset of paralysis, epileptic seizure, or overwhelming external force (Tinetti).
Denominator	All patients aged 65 years and older
Exclusions	Documentation of medical reason(s) for not screening for future fall risk (e.g., patient is not ambulatory) Exclude patients for whom patient was not an eligible candidate for fall risk screening by reason of medical exclusion.
Risk Adjustment	
Data Source	Electronic Claims
Level	Individual clinician (physician, nurse)
Setting	Ambulatory Care (office/clinic)

Measure# 0138: Urinary catheter-associated urinary tract infection for intensive care unit (ICU) patients	
Steward	Centers for Disease Control and Prevention
Description	Percentage of intensive care unit patients with urinary catheter-associated urinary tract infections
Numerator	Number of indwelling urinary catheter-associated UTIs (defined by CDC case definitions of symptomatic UTI or asymptomatic bacteriuria, excludes other infections of the urinary tract) x 1,000
Denominator	Number of indwelling urinary catheter days for ICU patients ?Reported by type of ICU (coronary, cardiothoracic, medical, medical-surgical (major teaching and all others), neurosurgical, pediatric, surgical, trauma, burn, and respiratory)
Exclusions	
Risk Adjustment	Comparisons are made among ICUs of similar type: Coronary, Cardiothoracic, medical, medical-surgical (major teaching and all others), Neurosurgical, Pediatric, Surgical, Trauma, Burn and Respiratory
Data Source	Electronic Clinical Database
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital
Measure# 0139: Central line catheter-associated blood stream infection rate for ICU and high-risk nursery (HRN) patients	
Steward	Centers for Disease Control and Prevention
Description	Percentage of ICU and high-risk nursery patients, who over a certain amount of days acquired a central line catheter-associated blood stream infections over a specified amount of line-days
Numerator	Number of central line-associated blood stream infections (laboratory-confirmed bloodstream infection or clinical sepsis) x 1,000 Number of umbilical and central line-associated blood stream infections (laboratory-confirmed bloodstream infection or clinical sepsis) x 1,000
Denominator	Number of central line-days for ICU patients. Reported by type of ICU (coronary, cardiothoracic, medical, medical-surgical (major teaching and all others), neurosurgical, pediatric, surgical, trauma, burn, and respiratory) Number of central-line days for HRN patients ?Reported for HRNs by birth weight category (<1,000, 1,001-1,500, 1,501-2,500, and >2,500g)
Exclusions	
Risk Adjustment	The measure is reported stratified by ICU-type, and the denominator as stated per 1,000 line days adjusts for the increased risk over time after a central line is inserted
Data Source	Electronic Clinical Database
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital
Measure# 0140: Ventilator-associated pneumonia for ICU and high-risk nursery (HRN) patients	
Steward	Centers for Disease Control and Prevention
Description	Percentage of ICU and HRN patients who over a certain amoint of days have ventilator-associated pneumonia
Numerator	Number of ventilator-associated pneumonias x 1,000
Denominator	Number of ventilator-days for ICU patients: Reported by type of ICU (coronary, cardiothoracic, medical, medical-surgical (major teaching and all others), neurosurgical, pediatric, surgical, trauma, burn, and respiratory) Number of ventilator days for HRN patients: Reported for HRNs by birth weight category (<1,000, 1,001-1,500, 1,501-2,500, and >2,500g)
Exclusions	
Risk Adjustment	Risk Adjustment: This measure of ventilator-associated pneumonias per ventilator days is adjusted for the major risk factor, which is use of catheters, as well as length of stay.
Data Source	Electronic Clinical Database
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital

Measure# 0141: Patient Fall Rate	
Steward	American Nurses Association
Description	All documented falls, with or without injury, experienced by patients on an eligible unit in a calendar quarter.
Numerator	Total number of patient falls (with or without injury to the patient and whether or not assisted by a staff member) by hospital Unit during the month X 1000. Time window: Month Fall Definition: A patient fall is an unplanned descent to the floor (or extension of the floor, e.g., trash can or other equipment) with or without injury to the patient, and occurs on an eligible reporting nursing unit. All types of falls are to be included whether they result from physiological reasons (fainting) or environmental reasons (slippery floor). Include assisted falls – when a staff member attempts to minimize the impact of the fall. Included Populations: • Patient falls occurring while on an eligible reporting unit • Assisted falls • Repeat falls Excluded Populations: Falls by: •Visitors •Students •Staff members •Falls by patients from eligible reporting unit, however patient was not on unit at time of fall (e.g., patients falls in radiology department) •Falls on other unit types (e.g., pediatric, psychiatric, obstetrical, rehab, etc) Data Elements: Collected at a patient level • Month • Year • Age • Gender • Event Type (fall, assisted fall, repeat fall) • Type of Unit • Fall Risk Assessment • Fall Risk • Fall Prevention Protocol
Denominator	Patient days by hospital Unit during the calendar month Time window: Calendar Month Included Populations: •Inpatients, short stay patients, observation patients and same day surgery patients who receive care on eligible in-patient units for all or part of a day. •Adult critical care, step-down, medical, surgical, medical-surgical combined units. •Any age patient on an eligible reporting unit is included in the patient day count. Four (4) Patient Days reporting methods are recognized: •Method 1-Midnight Census This is adequate for units that have all in-patient admissions. It is the least accurate method for units that have both in-patient and short stay patients. The daily number should be summed for every day in the month. •Method 2-Midnight Census + Patient Days from Actual Hours for Short Stay Patients This is an accurate method for units that have both in-patients and short stay patients. The short stay "days" should be reported separately from midnight census and will be summed to obtain patient days. The total daily hours for short stay patients should be summed for the month and divided by 24. •Method 3-from Average Hours for Short Stay Patients This method has been eliminated from the list of acceptable reporting methods. •Method 4-Patient Days from Actual Hours This is the most accurate method. An increasing number of facilities have accounting systems that track the actual time spent in the facility by each patient. Sum actual hours for all patients, whether in-patient or short stay, and divide by 24. •Method 5-Patient Days from Multiple Census Reports Some facilities collect censuses multiple times per day (e.g., every 4 hours or each shift). This method is more

	accurate than the Midnight Census, but not as accurate as Midnight Census + Actual Short Stay hours, or as Actual Patient Hours. A sum of the daily average censuses can be calculated to determine patient days for the month on the unit. For all patient day reporting methods, it is recommended that hospitals consistently use the same method for a reporting unit over time. However, units with short stay patients should transition either to Method 2 or Method 4 when it becomes feasible. Data Elements: • Month • Year • Patient Days Reporting method which includes midnight census and short stay patient days • Type of Unit
Exclusions	Excluded Populations: Other unit types (e.g., pediatric, psychiatric, obstetrical, rehab, etc)
Risk Adjustment	Stratification by facility size and unit; documentation of falls risk assessment on admission; fall protocol implementation; level of patient activity prior to fall
Data Source	Paper Medical Record, Electronic Health/Medical Record, Electronic source – Other, Other
Level	Group of clinicians (facility, dept/unit, group)
Setting	Hospital
Measure# 0184: Residents who have a catheter in the bladder at any time during the 14-day assessment period. (risk adjusted)	
Steward	Centers for Medicare & Medicaid Services
Description	Percentage of residents with a valid target assessment who have a catheter in the bladder at any time during the 14-day assessment period.
Numerator	Indwelling catheter on target assessment (H3d=checked)
Denominator	All residents with a valid target assessment.
Exclusions	Exclusions: Residents satisfying any of the following conditions: 1. The target assessment is an admission (AA8a = 01). 2. H3d is missing on the target assessment. 3. The resident is in a facility with a Chronic Care Admission Sample size of 0 (i.e., there are no admission assessments with AA8a = 01 in the facility over the previous 12 months). Covariates: 1. Indicator of bowel incontinence on the prior assessment: Covariate =1 if H1a =4. Covariate =0 if H1a = 0,1,2, or 3. 2. Indicator of pressure ulcers on the prior assessment: Covariate =1 if M2a = 3 or 4. Covariate =0 if M2a = 0.
Risk Adjustment	Risk adjustment: For each of the five risk-adjusted QMs, a resident- level logistic regression was estimated. Data came from the chronic or post acute residents in the 20 percent random samples of all facilities for a one-year period, Quarter 4 of 2001 (Q4 2001) through Quarter 3 of 2002 (Q3 2002). The resident- level observed QM score was the dependent variable. The predictor variables were one or more resident- level covariates associated with the QM. More information is available here: http://www.cms.hhs.gov/NursingHomeQualityInits/Downloads/NHQIQMUsersManual.pdf
Data Source	Standardized clinical instrument
Level	Facility (e.g., hospital, nursing home)
Setting	Nursing home/ Skilled Nursing Facility (SNF)

Measure# 0187: Recently hospitalized residents with pressure ulcers (risk adjusted)	
Steward	Centers for Medicare & Medicaid Services
Description	Recently hospitalized residents with pressure ulcers
Numerator	SNF PPS Patients who satisfy either of the following conditions: 1. On the SNF PPS 5-day assessment, the patient had no pressure ulcers (M2a[t-1]=0) AND, on the SNF PPS 14-day assessment, the patient has at least a stage 1 pressure ulcer (M2a[t]=1,2,3, or 4). 2. On the SNF PPS 5-day assessment, the patient had a pressure ulcer (M2a[t-1] = 1,2,3, or 4) AND on the SNF PPS 14-day assessment, pressure ulcers worsened or failed to improve (M2a[t]>=M2a[t-1]).
Denominator	All patients with a valid SNF PPS 14-day assessment (AA8b=7) AND a valid preceding SNF PPS 5-day assessment (AA8b=1).
Exclusions	Exclusions: Patients satisfying the following condition: 1.M2a is missing on the 14-day assessment [t 2. M2a is missing on the 5-day assessment [t-1] and M2a shows presence of pressure ulcers on the 14-day assessment (M2a=1,2,3, or 4. 3. The Patient is in a facility with a Post Acute Care Admission Sample size of 0 (i.e., there are no SNF PPS 5-day assessments with AA8b =1 in the facility over the previous 12 months) Covariates: 1. Indicator of history of unresolved pressure ulcer on the SNF PPS 5-day assessment. Covariate =1 if M3 =1. Covariate =0 if M3 =0. 2. Indicator of requiring limited or more assistance in bed mobility on the SNF PPS 5-day assessment: Covariate = 1 if G1a(A) = 2,3,4, or8. Covariate = 0 if G1a(A) =0 or 1. 3. Indicator of bowel incontinence at least one/week on the SNF PPS 5-day assessment: Covariate =1 if H1a 2,3, or 4. Covariate =0 if H1a = 0 or 1. 4. Indicator of diabetes or peripheral vascular disease on the SNF PPS 5-day assessment: Covariate =1 if I1a checked (value 1) or I1j checked (value 1). Covariate =0 if I1a not checked (value 0) and I1j not checked (value 0). 5. Indicator of Low Body Mass Index (BMI) on the SNF PPS 5-day assessment: Covariate = 1 if BMI >=12 and <=19. Covariate = 0 if BMI > 19 and <= 40. Where: BMI = weight(kg)/height2 (m2) = ((K2b*0.45)/(((K2a)*.0254)^2)) (Note: An implausible BMI value <12 or >40 will be treated as a missing value on this covariate.
Risk Adjustment	Risk adjustment: For each of the five risk-adjusted QMs, a resident- level logistic regression was estimated. Data came from the chronic or post acute residents in the 20 percent random samples of all facilities for a one-year period, Quarter 4 of 2001 (Q4 2001) through Quarter 3 of 2002 (Q3 2002). The resident- level observed QM score was the dependent variable. The predictor variables were one or more resident- level covariates associated with the QM. More information is available here: http://www.cms.hhs.gov/NursingHomeQualityInits/Downloads/NHQIQMUsersManual.pdf
Data Source	Standardized clinical instrument
Level	Facility (e.g., hospital, nursing home)
Setting	Nursing home/ Skilled Nursing Facility (SNF)

Measure# 0193: Residents who were physically restrained daily during the 7-day assessment period	
Steward	Centers for Medicare & Medicaid Services
Description	Percentage of residents on most recent assessments who were physically restrained daily during the 7-day assessment period
Numerator	Residents who were physically restrained daily on most recent assessment.
Denominator	All residents on most recent assessments.
Exclusions	
Risk Adjustment	
Data Source	Standardized clinical instrument
Level	Facility (e.g., hospital, nursing home)
Setting	Nursing home/ Skilled Nursing Facility (SNF)
Measure# 0196: Residents with a urinary tract infection	
Steward	Centers for Medicare & Medicaid Services
Description	Percentage of residents on most recent assessment with a urinary tract infection
Numerator	Residents with urinary tract infection on target assessment. (I2j = checked)
Denominator	All residents with a valid target assessment.
Exclusions	Exclusions: Residents satisfying any of the following conditions: 1. The target assessment is an admission (AA8a = 01) assessment. 2. I2j is missing on the target assessment.
Risk Adjustment	
Data Source	Standardized clinical instrument
Level	Facility (e.g., hospital, nursing home)
Setting	Nursing home/ Skilled Nursing Facility (SNF)

Measure# 0198: High-risk residents with pressure ulcers	
Steward	Centers for Medicare & Medicaid Services
Description	Percentage of residents with a valid target assessment and one of the following inclusion criteria: 1.Impaired in mobility or transfer on the target assessment 2. Comatose on the target assessment 3. Suffer malnutrition on the target assessment who
Numerator	Residents with pressure ulcers (Stage 1-4) on target assessment (M2a >0 OR I3a-3 =707.0)
Denominator	All residents with a valid target assessment and any one of the following inclusion criteria 1.Impaired in mobility or transfer on the target assessment as indicated by G1a(A) = 3, 4, or 8 OR G1b(A) = 3, 4, or 8. 2. Comatose on the target assessment as indicated by B1 = 1. 3. Suffer malnutrition on the target assessment as indicated by I3a through I3e = 260, 261, 262, 263.0, 263.1, 263.2, 263.8, or 263.9.
Exclusions	Exclusions for both measures: Residents satisfying any of the following conditions are excluded from all risk groups (high and low, high, and low)—this is 1, with 1, 2, and 3 below being 1.1, 1.2, and 1.3: 1. The target assessment is an admission (AA8a = 01) assessment. 2. The QM did not trigger (resident is not included in the QM numerator) AND the value of M2a is missing on the target assessment. 3. The resident is in a facility with a Chronic Care Admission Sample size of 0 (i.e., there are no admission assessments with AA8a = 01 in the facility over the previous 12 months. 4. The resident does not qualify as high-risk AND the value of G1a(A) or G1b(A) is missing on the target assessment. 5. The resident does not qualify as high-risk AND the Value of B1 is missing on the target assessment.
Risk Adjustment	None.
Data Source	Standardized clinical instrument
Level	Facility (e.g., hospital, nursing home)
Setting	Nursing home/ Skilled Nursing Facility (SNF)
Measure# 0199: Average-risk residents with pressure ulcers	
Steward	Centers for Medicare & Medicaid Services
Description	Percetage of residents with a valid target assessment and not qualifying as high risk with pressure ulcers
Numerator	Residents with pressure ulcers (Stage 1-4) on target assessment (M2a >0 OR I3a-e =707.0)
Denominator	All residents with a valid target assessment and not qualifying as high risk.
Exclusions	Exclusions for both measures: Residents satisfying any of the following conditions are excluded from all risk groups (high and low, high, and low)—this is 1, with 1, 2, and 3 below being 1.1, 1.2, and 1.3: 1. The target assessment is an admission (AA8a = 01) assessment. 2. The QM did not trigger (resident is not included in the QM numerator) AND the value of M2a is missing on the target assessment. 3. The resident is in a facility with a Chronic Care Admission Sample size of 0 (i.e., there are no admission assessments with AA8a = 01 in the facility over the previous 12 months. 4. The resident does not qualify as high-risk AND the value of G1a(A) or G1b(A) is missing on the target assessment. 5. The resident does not qualify as high-risk AND the Value of B1 is missing on the target assessment.
Risk Adjustment	None.
Data Source	Standardized clinical instrument
Level	Facility (e.g., hospital, nursing home)
Setting	Nursing home/ Skilled Nursing Facility (SNF)

Measure# 0201: Pressure ulcer prevalence	
Steward	The Joint Commission, California Nursing Outcome Coalition
Description	The total number of patients that have hospital-acquired (nosocomial) stage II or greater pressure ulcers on the day of the prevalence study.
Numerator	Patients surveyed on an eligible reporting unit that have at least one stage II or greater [National Pressure Ulcer Advisory Panel (NPUAP)] hospital-acquired pressure ulcer on the day of the prevalence study. Time Window: Quarterly Prevalence Study Day Eligible reporting units are those units meeting the requirements as defined in the Type of Unit data element and listed in the strata definitions provided under section number 10. See study methodology in item #9 below. Included Populations: • Hospital-Acquired Pressure Ulcers – Pressure Ulcers of Stage II or greater AND the ulcer is discovered or documented after the first 24 hours from the time of inpatient admission. Data Elements: • Observed Pressure Ulcer • Observed Pressure Ulcer – Hospital-Acquired • Observed Pressure Ulcer – Stage
Denominator	All patients on the selected unit at the time of the study who are surveyed for the study by Type of Unit and overall. Time window: Quarterly Prevalence Study Day The current language "selected units" is not suggesting that hospitals "choose" units for survey. Rather, inherent in prevalence study method is that ALL eligible units are surveyed at the same point in time (note labor, delivery, post partum and psychiatry units are excluded). Hospitals do not choose units to be surveyed; units surveyed are standardized across institutions by those eligible reporting units as defined in the Type of Unit data element and listed in the strata definitions provided under section number 10. The word "selected" will be deleted for clarity. Included Populations: Patients 18 years or older who are admitted to critical care, step-down, medical, surgical and medical-surgical combined units that are surveyed for the study. Data Elements: • Admission Date • Birthdate • Sex • Type of Unit • Prevalence Study Date
Exclusions	Excluded Populations: • Patients less than 18 years of age • Patients who refuse to be assessed • Patients who are off the unit at the time of the prevalence study, i.e., surgery, x-ray, physical therapy, etc. • Patients who are medically unstable at the time of the study for whom assessment would be contraindicated at the time of the study, i.e., unstable blood pressure, uncontrolled pain, or fracture waiting repair. • Patients who are actively dying and pressure ulcer prevention is no longer a treatment goal.
Risk Adjustment	Stratified by hospital size.
Data Source	Paper Medical Record, Electronic Health/Medical Record, Other
Level	Group of clinicians (facility, dept/unit, group), Facility (e.g., hospital, nursing home)
Setting	Hospital

Measure# 0202: Falls with injury	
Steward	American Nurses Association
Description	All documented patient falls with an injury level of minor (2) or greater.
Numerator	Total number of patient falls of injury level minor or great (whether or not assisted by a staff member) by hospital unit during month x 1000. Included Populations: • Falls with Fall Injury Level of 2 "minor" or greater, including assisted and repeat falls with an Injury level of 2 or greater • Patient injury falls occurring while on an eligible reporting unit Excluded Populations: Falls by: •Visitors •Students •Staff members •Falls by patients from eligible reporting unit, however patient was not on unit at time of fall (e.g., patients falls in radiology department) •Falls on other unit types (e.g., pediatric, obstetrical, rehab, etc) •Falls with Fall Injury Level of 1 "none" Data Elements: Collected at a patient level • Month • Year • Age • Gender • Event Type (fall, assisted fall, or repeat fall) • Fall Injury Level • Type of Unit • Fall Risk Assessment • Fall Risk • Fall Prevention Protocol
Denominator	Denominator Statement: Patient days by Type of Unit during the calendar month. Time Window: Calendar Month Included Populations: • Inpatients, short stay patients, observation patients and same day surgery patients who receive care on in-patient units for all or part of a day. • Adult critical care, step-down, medical, surgical, medical-surgical combined units Four (4) Patient Days reporting methods are recognized: Method 1-Midnight Census This is adequate for units that have all in-patient admissions. It is the least accurate method for units that have both in-patient and short stay patients. The daily number should be summed for every day in the month. Method 2-Midnight Census + Patient Days from Actual Hours for Short Stay Patients This is an accurate method for units that have both in-patients and short stay patients. The short stay "days" should be reported separately from midnight census and will be summed to obtain patient days. The total daily hours for short stay patients should be summed for the month and divided by 24. Method 3-Midnight Census + Patient Days from Average Hours for Short Stay Patients This method has been eliminated from the list of acceptable reporting methods. Method 4-Patient Days from Actual Hours This is the most accurate method. An increasing number of facilities have accounting systems that track the actual time spent in the facility by each patient. Sum actual hours for all patients, whether in-patient or short stay, and divide by 24. Method 5-Patient Days from Multiple Census Reports Some facilities collect censuses multiple times per day (e.g., every 4 hours or each shift). This method is more accurate than the Midnight Census, but not as accurate as Midnight Census + Actual Short Stay hours, or as Actual Patient Hours. A sum of the daily average censuses can be calculated to determine patient days for the

	month on the unit. It is recommended that data colectors consistently use the same method for reporting patient days. However, units with short stay patients should transtion from MIdnight Census to Method 2 or Method 4 when it becomes feasbile. Data Elements: • Month • Year • Patient Days Reporting method which includes midnight census and short stay patient days • Type of Unit
Exclusions	Excluded Populations: Other unit types (e.g., pediatric, psychiatric, obstetrical, rehab, etc.)
Risk Adjustment	Stratification by facility size and unit; documentation of falls risk assessment on admission; fall protocol implementation; level of patient activity prior to fall
Data Source	Paper Medical Record, Electronic Health/Medical Record, Electronic source – Other, Other
Level	Group of clinicians (facility, dept/unit, group)
Setting	Hospital
Measure# 0203: Restraint prevalence (vest and limb only)	
Steward	The Joint Commission, California Nursing Outcome Coalition
Description	Total number of patients that have vest and/or limb restraint (upper or lower body or both) on the day of the prevalence study.
Numerator	Patients surveyed on the eligible reporting unit that have a vest restraint and/or limb restraint (upper or lower or both) on the day of the prevalence study. Time Window: Quarterly Prevalence Study Day Excluded Populations: • Restraints that are only associated with medical, dental, diagnostic, or surgical procedures and is based on standard practice for the procedure (sometimes referred to as "treatment restraints") • seclusion • restraint uses that are forensic or correctional restrictions used for security purposes unrelated to clinical care • devices used to meet the assessed needs of a patient who requires adaptive support or a medical protective device Data Elements: • Physical Restraint • Type of Restraint
Denominator	All patients on an eligible reporting unit at the time of the study and are surveyed for the study by Type of Unit. Time Window: Quarterly Prevalence Study Day Eligible reporting units are those units meeting the requirements as defined in the Type of Unit data element and listed in the strata definitions provided below section number 10 Stratification Details. Included Populations: Patients 18 years or older who are admitted to critical care, step-down, medical, surgical and medical-surgical combined units that are surveyed for the study. Data Elements: • Admission Date • Birthdate • Prevalence Study Date • Sex • Type of Unit
Exclusions	Excluded Populations: • Patients less than 18 years of age • Patients who are off the unit at the time of the prevalence study, i.e. surgery, x-ray, physical therapy, etc.
Risk Adjustment	
Data Source	Paper Medical Record, Electronic Health/Medical Record
Level	Group of clinicians (facility, dept/unit, group), Facility (e.g., hospital, nursing home)
Setting	Hospital

Measure# 0239: Venous Thromboembolism (VTE) Prophylaxis	
Steward	American College of Emergency Physicians, American Medical Association, National Committee for Quality Assurance, American Medical Association - Physician Consortium for Performance Improvement
Description	Percentage of patients aged 18 years and older undergoing procedures for which VTE prophylaxis is indicated in all patients, who had an order for Low Molecular Weight Heparin (LMWH), Low-Dose Unfractionated Heparin (LDUH), adjusted-dose warfarin, fondapar
Numerator	Surgical patients, who had an order for VTE prophylaxis (low molecular weight heparin (LMWH), low-dose unfractionated heparin (LDUH), adjusted-dose warfarin, fondaparinux or mechanical prophylaxis) to be given within 24 hours prior to incision time or within 24 hours after surgery end time.
Denominator	All surgical patients aged 18 years and older undergoing procedures for which VTE prophylaxis is indicated in all patients.
Exclusions	Documentation of medical reason(s) for patient not receiving any accepted form of VTE prophylaxis (LMWH, LDUH, adjusted-dose warfarin, fondaparinux or mechanical prophylaxis) within 24 hours prior to incision time or 24 hours after surgery end time Exclude patients for whom VTE prophylaxis was not ordered by reason of appropriate denominator exclusion. If using electronic data, exclude patients using the following code: Append a modifier (1P) to the CPT Category II code to report patients with documented circumstances that meet the denominator exclusion criteria.
Risk Adjustment	
Data Source	Electronic Claims
Level	Individual clinician (physician, nurse)
Setting	Hospital
Measure# 0263: Patient Burn	
Steward	Ambulatory Surgical Centers Quality Collaborative
Description	Percentage of ASC admissions experiencing a burn prior to discharge
Numerator	Ambulatory surgical center (ASC) admissions experiencing a burn prior to discharge.
Denominator	All ASC admissions.
Exclusions	None
Risk Adjustment	None.
Data Source	Paper Medical Record, Electronic Claims, Other
Level	Individual clinician (physician, nurse)
Setting	Hospital, Ambulatory Surgical Centers
Measure# 0265: Hospital Transfer/Admission	
Steward	Ambulatory Surgical Centers Quality Collaborative
Description	Percentage of ASC admissions requiring a hospital transfer or hospital admission prior to being discharged from the ASC.
Numerator	ASC admissions requiring a hospital transfer or hospital admission prior to being discharged from the ASC.
Denominator	All ASC admissions
Exclusions	None.
Risk Adjustment	
Data Source	Other
Level	Individual clinician (physician, nurse)
Setting	Hospital, Ambulatory Surgical Centers

Measure# 0266: Patient Fall	
Steward	Ambulatory Surgical Centers Quality Collaborative
Description	Percentage of ASC admissions experiencing a fall in the ASC.
Numerator	ASC admissions experiencing a fall in the ASC.
Denominator	All ASC admissions.
Exclusions	ASC admissions experiencing a fall outside the ASC.
Risk Adjustment	None
Data Source	Other
Level	Individual clinician (physician, nurse)
Setting	Hospital, Ambulatory Surgical Centers
Measure# 0267: Wrong Site, Wrong Side, Wrong Patient, Wrong Procedure, Wrong Implant	
Steward	Ambulatory Surgical Centers Quality Collaborative
Description	Percentage of ASC admissions experiencing a wrong site, wrong side, wrong patient, wrong procedure, or wrong implant.
Numerator	ASC admissions experiencing a wrong site, wrong side, wrong patient, wrong procedure, or wrong implant.
Denominator	All ASC admissions.
Exclusions	None
Risk Adjustment	None.
Data Source	Other
Level	Individual clinician (physician, nurse)
Setting	Hospital, Ambulatory Surgical Centers
Measure# 0298: Central Line Bundle Compliance	
Steward	Institute for Healthcare Improvement
Description	Percentage of intensive care patients with central lines for whom all elements of the central line bundle are documented and in place. The central line bundle elements include: •Hand hygiene , •Maximal barrier precautions upon insertion •Chlorhex
Numerator	Number of intensive care patients with central lines for whom all elements of the central line bundle are documented and in place. The central line bundle elements include: • Hand hygiene , • Maximal barrier precautions upon insertion • Chlorhexidine skin antisepsis • Optimal catheter site selection, with subclavian vein as the preferred site for non-tunneled catheters in patients 18 years and older • Daily review of line necessity with prompt removal of unnecessary lines
Denominator	Total number of intensive care patients with central lines on day of week of sample.
Exclusions	Exclude patients less than 18 years of age at the date of ICU admission and patients outside the intensive care unit and patients whose lines were not placed in the intensive care unit
Risk Adjustment	
Data Source	Paper Medical Record
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital

Measure# 0299: Surgical Site Infection Rate	
Steward	Centers for Disease Control and Prevention, Centers for Medicare & Medicaid Services
Description	Percentage of surgical site infections occurring within thirty days after the operative procedure if no implant is left in place or with one year if an implant is in place in patients who had an NHSN operative procedure performed during a specified time
Numerator	Number of surgical site infections occurring within thirty days after the operative procedure if no implant is left in place or with one year if an implant is in place in patients who had an NHSN operative procedure performed during a specified time period and the infection appears to be related to the operative procedure. Infections are identified on original admission or upon readmission to the facility of original operative procedure within the relevant time frame (30 days for no implants; within 1 year for implants). Two types of CDC-defined SSIs are included: (1) A deep incisional SSI must meet the following criteria: • Infection occurs within 30 days after the operative procedure if no implant is left or within one year if implant is in place and the infection appears to be related to the operative procedure and • involves deep soft tissues (e.g., fascial and muscle layers) of the incision and • patient has at least one of the following: a) purulent drainage from the deep incision but not from the organ/space component of the surgical site b) a deep incision spontaneously dehisces or is deliberately opened by a surgeon and is culture-positive or not cultured when the patient has at least one of the following signs or symptoms: fever (>38°C), or localized pain or tenderness. A culture-negative finding does not meet this criterion. c) an abscess or other evidence of infection involving the deep incision is found on direct examination, during reoperation, or by histopathologic or radiologic examination d) diagnosis of a deep incisional SSI by a surgeon or attending physician. Note: There are two specific types of deep incisional SSIs: 1) Deep Incisional Primary (DIP) – a deep incisional SSI that is identified in a primary incision in a patient that has had an operation with one or more incisions (e.g., C-section incision or chest incision for CABG) 2) Deep Incisional Secondary (DIS) - a deep incisional SSI that is identified in the secondary incision in a patient that has had an operation with more than one incision (e.g., donor site [leg] incision for CBGB) (2) An organ/space SSI must meet the following critieria: • Infection occurs within 30 days after the operative procedure if no implant is left or within one year if implant is in place and the infection appears to be related to the operative procedure and • infection involves any part of the body, excluding the skin incision, fascia, or muscle layers, that is opened or manipulated during the operative procedure and • patient has at least one of the following: a). purulent drainage from a drain that is placed through a stab wound into the organ/space b). organisms isolated from an aseptically obtained culture of fluid or tissue in the organ/space c). an abscess or other evidence of infection involving the organ/space that is found on direct examination, during reoperation, or by histopathologic or radiologic examination d) diagnosis of an organ/space SSI by a surgeon or attending physician. Specific sites of an organ/space SSI may be identified11
Denominator	Number of NHSN operative procedures performed during a specified time period stratified by: • Type of NHSN operative procedure and • NNIS SSI risk index: Every patient having the selected procedure is assigned one (1) risk point for each of the following three factors: o Surgical wound classification = clean contaminated or dirty

	o American Society of Anesthesiologists (ASA) preoperative severity of illness score = 3, 4, or 5 o Duration of operation >t hours, where t varies by type of NHSN operative procedure and is the approximate 75th percentile of the duration of the procedure rounded to the nearest whole number of hours. Note: For operative procedures performed using lapyroscopes and endoscopes the use of a lapyroscope is an additional factor that modifies the risk index.
Exclusions	Exclude Procedures Not Included Under The Definition Of NHSN Operative Procedure And Excludes Superficial SSI.
Risk Adjustment	
Data Source	Paper Medical Record
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital
Measure# 0301: Surgery patients with appropriate hair removal	
Steward	The Joint Commission
Description	Percentage of surgery patients with surgical hair site removal with clippers or depilatory or no surgical site hair removal
Numerator	Surgery patients with surgical hair site removal with clippers or depilatory or no surgical site hair removal
Denominator	All selected surgery patients Include patients with an ICD-9-CM Principal Procedure code or ICD-9-CM Other Procedure Codes of selected surgeries.
Exclusions	Exclude the following patients: • less than 18 years of age; • performed their own hair removal; and • patients whose mode of hair removal could not be determined.
Risk Adjustment	
Data Source	Paper Medical Record, Electronic Claims
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital

Measure# 0302: Ventilator Bundle	
Steward	Institute for Healthcare Improvement
Description	Percentage of intensive care unit patients on mechanical ventilation at time of survey for whom all four elements of the ventilator bundle are documented and in place. The ventilator bundle elements are: •Head of bed (HOB) elevation 30 degrees or great
Numerator	Number of intensive care unit patients on mechanical ventilation at time of survey for whom all four elements of the ventilator bundle are documented and in place. The ventilator bundle elements are: • Head of bed (HOB) elevation 30 degrees or greater (unless medically contraindicated); noted on 2 different shifts within a 24 hour period • Daily ""sedation interruption" and daily assessment of readiness to extubate; process includes interrupting sedation until patient follow commands and patient is assessed for discontinuation of mechanical ventilation; Parameters of discontinuation include: resolution of reason for intubation; inspired oxygen content roughly 40%; assessment of patients ability to defend airway after extubation due to heavy sedation; minute ventilation less than equal to 15 liters/minute; and respiratory rate/tidal volume less than or equal to 105/min/L(RR/TV< 105) • SUD (peptic ulcer disease) prophylaxis • DVT (deep venous thrombosis) prophylaxis
Denominator	Total number of intensive care unit patients on mechanical ventilation.
Exclusions	Patients less than 18 years of age at the date of ICU admission.
Risk Adjustment	
Data Source	Paper Medical Record
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital
Measure# 0337: Decubitus Ulcer (PDI 2)	
Steward	Agency for Healthcare Research and Quality
Description	Percent of surgical and medical discharges under 18 years with ICD-9-CM code for decubitus ulcer in secondary diagnosis field.
Numerator	All discharges, age under 18 years, with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes denoting decubitus ulcer in any secondary diagnosis field
Denominator	All surgical and medical discharges age under 18 years defined by specific Surgical and Medical Diagnosis Related Group (DRG), include only patients with a length of stay of 5 or more days
Exclusions	Exclude patients with an ICD-9-CM code of decubitus ulcer in the principal diagnosis field; with an ICD-9-CM procedure code for debridement or pedicle graft before or on the same day as a major operating room procedure (surgical cases only); with an ICD-9-CM procedure code for debridement or pedicle graft as the only major operating room procedure (surgical cases only); Major Diagnostic Category (MDC) 9 (Skin, Subcutaneous Tissue, and Breast) or MDC 14 (Pregnancy, Childbirth and the Puerperium); newborns less than 500 grams; Neonates (age < 28 days) and patients transferring in from long term care facility (ASOURCE =3) or an acute care facility (ASOURCE = 2)
Risk Adjustment	
Data Source	Electronic Claims
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital

Measure# 0345: Accidental Puncture or Laceration (PSI 15)	
Steward	Agency for Healthcare Research and Quality
Description	Percent of medical and surgical discharges, 18 years and older, with ICD-9-CM code denoting accidental cut, puncture, perforation, or laceration in any secondary diagnosis field.
Numerator	Medical and surgical discharges with ICD-9-CM code denoting accidental cut, puncture, perforation, or laceration in any secondary diagnosis field.
Denominator	Discharges, age 18 years and older, defined by specific DRGs
Exclusions	• with ICD-9-CM code denoting technical difficulty (e.g., accidental cut, puncture, perforation, or laceration) in the principal diagnosis field or secondary diagnosis present on admission, if known • MDC 14 (pregnancy, childbirth, and puerperium). • with ICD-9-CM code for spine surgery
Risk Adjustment	The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, age (in 5-year age groups), modified CMS DRG, and the AHRQ Comorbidity category. The reference population used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Data (SID) for the years 2002-2004 (combined), a database consisting of 37 states and approximately 90 million discharges. 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., hospital, state, and region). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. Required data elements: CMS Diagnosis Related Group (DRG); CMS Major Diagnostic Category (MDC); patient gender; age in years at admission; International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) principal and secondary diagnosis codes.
Data Source	Electronic Claims
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital
Measure# 0346: Iatrogenic Pneumothorax (PSI 6) (risk adjusted)	
Steward	Agency for Healthcare Research and Quality
Description	Percent of medical and surgical discharges, 18 years and older, with ICD-9-CM code of iatrogenic pneumothorax in any secondary diagnosis field.
Numerator	Discharges with ICD-9-CM code of iatrogenic pneumothorax in any secondary diagnosis field
Denominator	Discharges, age 18 years and older, defined by specific surgical and medical DRGs
Exclusions	Patients in MDC 14 (pregnancy, childbirth and puerperium); with principal diagnosis (ICD-9-CM) code of iatrogenic pneumothorax (secondary diagnosis field if present on admission); with an ICD-9-CM diagnosis code of chest trauma or pleural effusion; with an ICD-9-CM procedure code of diaphragmatic surgery; and with an ICD-9-CM procedure code indicating thoracic surgery, lung or pleural biopsy, or assigned to cardiac surgery DRGs
Risk Adjustment	The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, age (in 5-year age groups), modified CMS DRG, and the AHRQ Comorbidity category. The reference population used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Data (SID) for the years 2002-2004 (combined), a database consisting of 37 states and approximately 90 million discharges. 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., hospital, state, and region). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. Required data elements: CMS Diagnosis Related Group (DRG); CMS Major Diagnostic Category (MDC); patient gender; age in years at admission; International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) principal and secondary diagnosis codes.
Data Source	Electronic Claims
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital

Measure# 0347: Death in Low Mortality DRGs (PSI 2)	
Steward	Agency for Healthcare Research and Quality
Description	Percent of in-hospital deaths, age 18 years and older, in DRGs with less than 0.5% mortality rate.
Numerator	Number of in-hospital deaths
Denominator	Discharges, age 18 years and older, in DRGs with less than 0.5% mortality rate. If a DRG is divided into "without/with complications," both DRGs must qualify as low mortality for inclusion
Exclusions	Patients with any ICD-9-CM code for trauma, immunocompromised state or cancer
Risk Adjustment	None.
Data Source	Electronic Claims
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital
Measure# 0348: Iatrogenic Pneumothorax in Non-Neonates (PDI 5) (risk adjusted)	
Steward	Agency for Healthcare Research and Quality
Description	Percent of medical and surgical discharges, age under 18 years, with ICD-9-CM code of iatrogenic pneumothorax in any secondary diagnosis field.
Numerator	Discharges with ICD-9-CM code of iatrogenic pneumothorax in any secondary diagnosis field
Denominator	Discharges, age under 18 years, defined by specific surgical and medical DRGs
Exclusions	Neonates (birth weight less than 2500 grams); patients with an ICD-9-CM code of iatrogenic pneumothorax in neonates in the principal diagnosis field (secondary diagnosis field if present on admission); with an ICD-9-CM code of thoracic surgery, lung or pleural biopsy or diaphragmatic surgery repair or assigned to a cardiac surgery DRG; with a diagnosis code of chest trauma or pleural effusion; MDC of 14 (pregnancy, childbirth, puerperium) normal newborn and newborns less than 500 grams
Risk Adjustment	The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, birthweight (500g groups), age in days (29-60, 61-90, 91+), age in years (in 5-year age groups), modified CMS DRG and AHRQ CCS comorbities. The reference population used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Data (SID) for the years 2002-2004 (combined), a database consisting of 37 states and approximately 20 million pediatric discharges. 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., hospital, state, and region). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. Required data elements: CMS Diagnosis Related Group (DRG); CMS Major Diagnostic Category (MDC); age in days up to 364, then age years at admission; International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) principal and secondary diagnosis codes.
Data Source	Electronic Claims
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital

Measure# 0349: Transfusion Reaction (PSI 16)	
Steward	Agency for Healthcare Research and Quality
Description	Percent of medical and surgical discharges, 18 years and older, with ICD-9-CM code for transfucsion reaction in any secondary diagnosis field.
Numerator	Discharges with an ICD-9-CM code for transfusion reaction in any secondary diagnosis field
Denominator	Discharges, age 18 years and older, defined by specific surgical and medical DRGs
Exclusions	Patients with an ICD-9-CM code for transfusion reaction in the principal diagnosis field (secondary diagnosis field if present on admission)
Risk Adjustment	None.
Data Source	Electronic Claims
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital
Measure# 0350: Transfusion Reaction (PDI 13)	
Steward	Agency for Healthcare Research and Quality
Description	Percent of medical and surgical discharges, under 18 years of age, with an ICD-9-CM code for transfusion reaction in any secondary diagnosis field.
Numerator	Discharges with an ICD-9-CM code for transfusion reaction in any secondary diagnosis field
Denominator	Discharges, age under 18 years, defined by specific surgical and medical DRGs
Exclusions	Patients with MDC 14 (pregnancy, childbirth, pueperium); with an ICD-9-CM code for transfusion reaction in the principal diagnosis field (secondary diagnosis field if present on admission); and neonates less than 500 grams
Risk Adjustment	
Data Source	Electronic Claims
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital

Measure# 0352: Failure to Rescue In-Hospital Mortality (risk adjusted)	
Steward	Children's Hospital of Philadelphia
Description	Percentage of patients who died with a complications in the hospital.
Numerator	Patients who died with a complication plus patients who died without documented complications. Death is defined as death in the hospital. All patients in an FTR analysis have developed a complication (by definition). Complicated patient has at least one of the complications defined in Appendix B. Complications are defined using the secondary ICD9 diagnosis and procedure codes and the DRG code of the current admission. Comorbidities are defined in Appendix C using secondary ICD9 diagnosis codes of the current admission and primary or secondary ICD9 diagnosis codes of previous admission within 90 days of the admission date of the current admission. *When physician part B is available, the definition of complications and comorbidities are augmented to include CPT codes.
Denominator	General Surgery, Orthopedic and Vascular patients in specific DRGs with complications plus patients who died in the hospital without complications. Inclusions: adult patients admitted for one of the procedures in the General Surgery, Orthopedic or Vascular DRGs (see appendix A)
Exclusions	Patients over age 90, under age 18.
Risk Adjustment	Risk Adjustment: Model was developed using logistic regression analysis. Associated data elements: age in years, sex, race, comorbidities, DRGs (combined with and without complications) and procedure codes within DRGs, transfer status. Failure to rescue is adjusted using a logistic regression model where y is a failure and the total N is composed of patients who develop a complication and patients who died without a complication. According to developer: The model adjustment variables can vary. We have found that FTR results are fairly stable, even with little adjustment, since all patients in an FTR analysis have developed a complication (by definition), they are a more homogenous group of patients than the entire population. Hence severity adjustment plays somewhat less of a role than in other outcome measures.
Data Source	Electronic Claims
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital

Measure# 0353: Failure to Rescue 30-Day Mortality (risk adjusted)	
Steward	Children's Hospital of Philadelphia
Description	Percentage of patients who died with a complication within 30 days from admission.
Numerator	Patients who died with a complication plus patients who died without documented complications. Death is defined as death within 30 days from admission. Complicated patient has at least one of the complications defined in Appendix B. Complications are defined using the secondary ICD9 diagnosis and procedure codes and the DRG code of the current admission. Comorbidities are defined in Appendix C using secondary ICD9 diagnosis codes of the current admission and primary or secondary ICD9 diagnosis codes of previous admission within 90 days of the admission date of the current admission. *When physician part B is available, the definition of complications and comorbidities are augmented to include CPT codes.
Denominator	General Surgery, Orthopedic and Vascular patients in specific DRGs with complications plus patients who died without complications within 30 days of admission. Inclusions: adult patients admitted for one of the procedures in the General Surgery, Orthopedic or Vascular DRGs (see appendix A)
Exclusions	Patients over age 90, under age 18.
Risk Adjustment	Risk Adjustment: Model was developed using logistic regression analysis. Associated data elements: age in years, sex, race, comorbidities, DRGs (combined with and without complications) and procedure codes within DRGs, transfer status. Failure to rescue is adjusted using a logistic regression model where y is a failure and the total N is composed of patients who develop a complication and patients who died without a complication. According to developer: The model adjustment variables can vary. We have found that FTR results are fairly stable, even with little adjustment, since all patients in an FTR analysis have developed a complication (by definition), they are a more homogenous group of patients than the entire population. Hence severity adjustment plays somewhat less of a role than in other outcome measures.
Data Source	Electronic Claims
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital
Measure# 0362: Foreign Body left after procedure (PDI 3)	
Steward	Agency for Healthcare Research and Quality
Description	Discharges with foreign body accidentally left in during procedure per 1,000 discharges
Numerator	All discharges, age under 18 years, with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes for foreign body left in during a procedure in any secondary diagnosis field
Denominator	All surgical and medical discharges age under 18 years defined by specific Surgical and Medical Diagnosis Related Group (DRG)
Exclusions	Exclude patients with an ICD-9-CM code of foreign body left in during a procedure in the principal diagnosis field, Major Diagnostic Category (MDC) 14 (Pregnancy, Childbirth and the Puerperium), newborns less than 500 grams and neonates (age < 28 days)
Risk Adjustment	None.
Data Source	Electronic Claims
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital

Measure# 0363: Foreign Body Left in During Procedure (PSI 5)	
Steward	Agency for Healthcare Research and Quality
Description	Discharges with foreign body accidentally left in during procedure per 1,000 discharges
Numerator	Number of discharges, age 18 years and older, with an International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code for foreign body in any secondary diagnosis field
Denominator	All surgical and medical discharges age 18 years and older defined by specific Surgical and Medical Diagnosis Related Group (DRG) Include patients in MDC 14
Exclusions	Exclude patients with principal diagnosis (ICD-9-CM) code of foreign body
Risk Adjustment	None.
Data Source	Electronic Claims
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital
Measure# 0371: Venous Thromboembolism (VTE) Prophylaxis	
Steward	The Joint Commission
Description	This measure assesses the number of patients who received VTE prophylaxis or have documentation why no VTE prophylaxis was given the day of or the day after hospital admission or surgery end date for surgeries that start the day of or the day after hosp
Numerator	Patients who received VTE prophylaxis or have documentation why no VTE prophylaxis was given: ? the day of or the day after hospital admission ? the day of or the day after surgery end date for surgeries that start the day of or the day after hospital admission
Denominator	All patients Inclusions: Not applicable
Exclusions	Patients: ? Patients less than 18 years of age ? Patients who have a length of stay (LOS) < two days and > 120 days ? Patients with Comfort Measures Only documented ? Patients enrolled in clinical trials ? Patients who are direct admits to intensive care unit (ICU), or transferred to ICU the day of or the day after hospital admission with ICU LOS = one day ? Patients with ICD-9-CM Principal Diagnosis Code of Mental Disorders or Stroke as defined in Appendix A, Table 7.01, 8.1 or 8.2 ? Patients with ICD-9-CM Principal or Other Diagnosis Codes of Obstetrics or VTE as defined in Appendix A, Table 7.02, 7.03 or 7.04 ? Patients with ICD-9-CM Principal Procedure Code of Surgical Care Improvement Project (SCIP) VTE selected surgeries as defined in Appendix A, Tables 5.17, 5.19, 5.20, 5.21, 5.22, 5.23, 5.24
Risk Adjustment	
Data Source	Paper Medical Record, Electronic Claims, Electronic Health/Medical Record
Level	Facility (e.g., hospital, nursing home)
Setting	Hospital

Measure# 0589: Rheumatoid Arthritis New DMARD Baseline Serum Creatinine	
Steward	Resolution Health, Inc.
Description	This measure identifies adult patients with a diagnosis of rheumatoid arthritis who received appropriate baseline serum creatinine testing within 90 days before to 14 days after the new start of methotrexate, leflunomide, azathioprine, D-Penicillamine, i
Numerator	Patients in the denominator who received serum creatinine testing within 90 days before to 14 days after the new start of methotrexate, leflunomide, azathioprine, D-Penicillamine, intramuscular gold, cyclosporine, or cyclophosphamide during the measurement year.
Denominator	Patients >=18 years old with a history of rheumatoid arthritis and a new start of methotrexate, leflunomide, azathioprine, D-Penicillamine, intramuscular gold, cyclosporine, or cyclophosphamide anytime from the beginning of the measurement year to 14 days prior to the end of the measurement year. (This list of DMARDs will hereafter be refered to as 'DMARD needing baseline SCr')
Exclusions	The measure excludes patients who have had an inpatient hospitalization during the measurement year because UB04 claims do not document individual lab tests ordered during an inpatient stay.
Risk Adjustment	no
Data Source	Electronic Claims, Electronic Pharmacy Data, Other
Level	Individual clinician (physician, nurse), Community/Population, Health Plan, Group of clinicians (facility, dept/unit, group), Integrated delivery system
Setting	Ambulatory Care (office/clinic), Community Healthcare, Health Plan