NATIONAL QUALITY FORUM

Measure Submission and Evaluation Worksheet 5.0

This form contains the information submitted by measure developers/stewards, organized according to NQF's measure evaluation criteria and process. The evaluation criteria, evaluation guidance documents, and a blank online submission form are available on the submitting standards web page.

NQF #: 0346 **NQF Project:** Patient Safety Measures-Complications Project

(for Endorsement Maintenance Review)
Original Endorsement Date: May 15, 2008 **Most Recent Endorsement Date:** May 15, 2008

BRIEF MEASURE INFORMATION

De.1 **Measure Title:** Iatrogenic Pneumothorax Rate (PSI 6)

Co.1.1 **Measure Steward:** Agency for Healthcare Research and Quality

De.2 **Brief Description of Measure:** Percent of discharges with ICD-9-CM code for iatrogenic pneumothorax in any secondary diagnosis field among cases meeting the inclusion and exclusion rules for the denominator

2a1.1 **Numerator Statement:** Discharges with ICD-9-CM code for iatrogenic pneumothorax in any secondary diagnosis field among cases meeting the inclusion and exclusion rules for the denominator.

2a1.4 **Denominator Statement:** All surgical and medical discharges age 18 years and older defined by specific DRGs or MS-DRGs.

2a1.8 **Denominator Exclusions:** Exclude cases:
- with principal diagnosis of iatrogenic pneumothorax or secondary diagnosis present on admission
- MDC 14 (pregnancy, childbirth, and puerperium)
- with any diagnosis code of chest trauma or pleural effusion
- with a code of diaphragmatic surgery repair in any procedure field
- with any code indicating thoracic procedure, lung or pleural biopsy, or cardiac procedure
- with missing gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1=missing)

1.1 **Measure Type:** Outcome
2a1. 25-26 **Data Source:** Administrative claims
2a1.33 **Level of Analysis:** Facility

1.2-1.4 **Is this measure paired with another measure?** No

De.3 **If included in a composite, please identify the composite measure** (*title and NQF number if endorsed*)**:**
0531 Patient Safety for Selected Indicators (composite)

STAFF NOTES (*issues or questions regarding any criteria*)

Comments on Conditions for Consideration:

Is the measure untested? Yes☐ No☐ If untested, explain how it meets criteria for consideration for time-limited endorsement:

1a. Specific national health goal/priority identified by DHHS or NPP addressed by the measure (*check De.5*)**:**
5. Similar/related endorsed or submitted measures (*check 5.1*)**:**
Other Criteria:

Staff Reviewer Name(s):

1. IMPACT, OPPORTUITY, EVIDENCE - IMPORTANCE TO MEASURE AND REPORT

Importance to Measure and Report is a threshold criterion that must be met in order to recommend a measure for endorsement. All three subcriteria must be met to pass this criterion. See guidance on evidence.
Measures must be judged to be important to measure and report in order to be evaluated against the remaining criteria.
(evaluation criteria)

1a. High Impact: H☐ M☐ L☐ I ☐
(*The measure directly addresses a specific national health goal/priority identified by DHHS or NPP, or some other high impact aspect of healthcare.*)

De.4 **Subject/Topic Areas** *(Check all the areas that apply)*: Surgery : General Surgery
De.5 **Cross Cutting Areas** (*Check all the areas that apply*)**:** Safety : Complications

1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers

1a.2 **If "Other," please describe:**

1a.3 **Summary of Evidence of High Impact** *(Provide epidemiologic or resource use data)***:**
HealthGrades noted significant occurrence, cost and death with the occurrence of a patient safety event (http://www.healthgrades.com/business/img/HealthGradesPatientSafetyInAmericanHospitalsStudy2011.pdf). Additionally, this QI was included as part of an international consortium on the conversion of the PSI to ICD-10.31 Compared to other PSI, the four year trends for this QI were consistent.{Rosen, 2006}

An earlier study that used multivariable matching on the 2000 Nationwide Inpatient Sample database (Healthcare Cost and Utilization Project) attributed significant excess length of stay, charges and mortality to this QI. 18 More recently, propensity score matching was used to compare 4,140 surgeries with a PSI event on costs and readmission and death rates 19. Due to the small sample size, PSI were combined and examined by class. Iatrogenic pneumothorax was examined in combination with anesthesia, complication, accidental puncture or laceration, foreign body left during procedure and transfusion reaction in the "technical problems" classification. Such events total payments averaged $26,199 vs. $18,284 without a patient safety event or $66,879 with a patient safety event. Such events did not have a greater likelihood of death, excess 90-day readmissions or 90-day outpatient visits. Additionally, excess length of stay and mortality was attributed to this QI in an England study3 aimed at comparing their rates of patient safety events with a US study (see Zhan and Miller, 2003).

A specific examination of PSI #06 Iatrogenic pneumothorax using Nationwide Inpatient Sample data from 2000 (Healthcare Cost and Utilization Project) found variable rates across certain procedure types, notably: other vascular catheterization, not heart (27% of cases); thoracentesis (24% of cases); respiratory intubation and mechanical ventilation (21% of cases); and, insertion, revision, replacement, removal of cardiac pacemaker or cardioverter/defibrillator (12% of cases).49 Concerning hospital characteristics both payment status and efficiency may be related. Specifically, Iowa hospitals that converted to critical access hospitals, which changed their Medicare reimbursement mechanism to cost-based, had better performance on PSI #06 Iatrogenic pneumothorax than other Iowa hospitals with rural prospective payment system status4 and this QI was relevant to measuring hospital inefficiency and ultimate ranking by stochastic frontier analysis.{Mutter, 2008}

1a.4 **Citations for Evidence of High Impact cited in 1a.3:** (18) Zhan C, Miller MR. Excess length of stay, charges, and mortality attributable to medical injuries during hospitalization. JAMA 2003;290(14):1868-1874.
(19) Encinosa WE, Hellinger FJ. The impact of medical errors on ninety-day costs and outcomes: an examination of surgical patients. Health Serv Res 2008;43(6):2067-2085.
(31) Quan H, Drosler S, Sundararajan V et al. Adaptation of AHRQ Patient Safety Indicators for Use in ICD-10 Administrative Data by an International Consortium. 2008.
(49) Zhan C, Smith M, Stryer D. Accidental iatrogenic pneumothorax in hospitalized patients. Med Care 2006;44(2):182-186.

1b. Opportunity for Improvement: H☐ M☐ L☐ I ☐
(*There is a demonstrated performance gap - variability or overall less than optimal performance*)

1b.1 **Briefly explain the benefits (improvements in quality) envisioned by use of this measure:**
This indicator is intended to flag cases of complications that arise due to technical difficulties in medical care specifically, those involving an iatrogenic pneumothorax

1b.2 Summary of Data Demonstrating Performance Gap *(Variation or overall less than optimal performance across providers)*: **[*For Maintenance* –** *Descriptive statistics for performance results for this measure - distribution of scores for measured entities by quartile/decile, mean, median, SD, min, max, etc.***]**
In regard to figures below:
1st figure: estimate per 1,000, risk adjusted rates
2nd figure: standard error
3rd figure: p value relative to marked group (marked group = "c")
4th figure: p value: current year relative to prior year

Key:
"c": Reference for p-value test statistics
"*": Data do not meet criteria for statistical reliability, data quality, or confidentiality

Hospital characteristic:
Location of inpatient treatment:
Northeast c 0.686 0.011 0.000
Midwest 0.554 0.010 0.000 0.283
South 0.644 0.008 0.002 0.789
West 0.731 0.012 0.006 0.000

Ownership/control:
Private, not-for-profit c 0.639 0.006 0.000
Private, for-profit 0.610 0.013 0.041 0.447
Public 0.730 0.014 0.000 0.001

Teaching status:
Teaching 0.769 0.008 0.000 0.000
Nonteaching c 0.579 0.006 0.222

Location of hospital (NCHS):
Large central metropolitan 0.699 0.008 0.000 0.000
Large fringe metropolitan c 0.592 0.011 0.725
Medium metropolitan 0.681 0.011 0.000 0.508
Small metropolitan 0.677 0.015 0.000 0.029
Micropolitan 0.559 0.016 0.102 0.065
Not metropolitan or micropolitan 0.274 0.029 0.000 0.215

Bed size of hospital:
Less than 100 0.448 0.015 0.000 0.468
100 - 299 c 0.566 0.008 0.998
300 - 499 0.707 0.009 0.000 0.000
500 or more 0.805 0.011 0.000 0.000

1b.3 Citations for Data on Performance Gap: [*For Maintenance* – *Description of the data or sample for measure results reported in 1b.2 including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included***]**
Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2007, and AHRQ Quality Indicators, version 3.1.

1b.4 Summary of Data on Disparities by Population Group: [*For Maintenance* –*Descriptive statistics for performance results for this measure by population group***]**
In regard to figures below:
1st figure: estimate per 1,000, risk adjusted rates
2nd figure: standard error

3rd figure: p value relative to marked group (marked group = "c")
4th figure: p value: current year relative to prior year

Key:
"c": Reference for p-value test statistics
"*": Data do not meet criteria for statistical reliability, data quality, or confidentiality

Patient characteristic:
Age groups for conditions affecting any age:
18-44 c 0.479 0.009 0.004
45-64 0.636 0.008 0.000 0.000
65 and over 0.743 0.008 0.000 0.013

Age groups for conditions affecting primarily elderly:
65-69 c 0.728 0.017 0.000
70-74 0.729 0.018 0.969 0.018
75-79 0.826 0.018 0.000 0.802
80-84 0.813 0.019 0.001 0.333
85 and over 0.631 0.016 0.000 0.417

Gender:
Male c 0.593 0.007 0.000
Female 0.706 0.007 0.000 0.000

Median income of patient´s ZIP code:
First quartile (lowest income) 0.651 0.009 0.795 0.000
Second quartile 0.596 0.010 0.000 0.248
Third quartile 0.692 0.010 0.011 0.000
Fourth quartile (highest income) c 0.654 0.011 0.340

Location of patient residence (NCHS):
Large central metropolitan 0.651 0.009 0.832 0.000
Large fringe metropolitan c 0.654 0.010 0.010
Medium metropolitan 0.659 0.011 0.767 0.744
Small metropolitan 0.653 0.016 0.951 0.245
Micropolitan 0.598 0.015 0.002 0.030
Not metropolitan or micropolitan 0.641 0.018 0.508 0.013

Expected payment source:
Private insurance c 0.724 0.010 0.000
Medicare 0.615 0.006 0.000 0.010
Medicaid 0.791 0.018 0.001 0.003
Other insurance 0.609 0.030 0.000 0.250
Uninsured / self-pay / no charge 0.456 0.025 0.000 0.071

1b.5 Citations for Data on Disparities Cited in 1b.4: [*For Maintenance* – *Description of the data or sample for measure results reported in 1b.4 including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*]
Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2007, and AHRQ Quality Indicators, version 3.1.

1c. Evidence (*Measure focus is a health outcome OR meets the criteria for quantity, quality, consistency of the body of evidence.*)
Is the measure focus a health outcome? Yes☐ No☐ If not a health outcome, rate the body of evidence.

Quantity: H☐ M☐ L☐ I☐	**Quality: H☐ M☐ L☐ I☐**	**Consistency: H☐ M☐ L☐ I☐**	
Quantity	**Quality**	**Consistency**	**Does the measure pass subcriterion1c?**
M-H	**M-H**	**M-H**	**Yes☐**
L	**M-H**	**M**	**Yes☐** IF additional research unlikely to change conclusion that benefits to patients outweigh harms: otherwise **No☐**
M-H	**L**	**M-H**	**Yes☐** IF potential benefits to patients clearly outweigh potential harms: otherwise **No☐**
L-M-H	**L-M-H**	**L**	**No ☐**

Health outcome – rationale supports relationship to at least one healthcare structure, process, intervention, or service	**Does the measure pass subcriterion1c?** **Yes☐** IF rationale supports relationship

1c.1 Structure-Process-Outcome Relationship *(Briefly state the measure focus, e.g., health outcome, intermediate clinical outcome, process, structure; then identify the appropriate links, e.g., structure-process-health outcome; process- health outcome; intermediate clinical outcome-health outcome)*:
Postoperative

•If fascia/pleura was traumatized intraoperatively, a chest radiograph may be necessary.
•If the patient complains of shortness of breath/difficulty breathing following procedure, breath sounds and oxygen saturation should be assessed before discharge.
•If there is a suspicion of pneumothorax, a chest radiograph should be obtained.
•If pneumothorax occurs, follow an acceptable treatment plan (e.g., inserting chest tube or Heimlich valve).
•Patient/family should be instructed to monitor for shortness of breath and difficulty breathing after discharge.

Evidence-based patient safety advisory: patient assessment and prevention of pulmonary side effects in surgery. Part 2 - patient and procedural risk factors.
Bibliographic Source(s)

Haeck PC, Swanson JA, Iverson RE, Lynch DJ, ASPS Patient Safety Committee. Evidence-based patient safety advisory: patient assessment and prevention of pulmonary side effects in surgery. Part 2--patient and procedural risk factors. Plast Reconstr Surg 2009 Oct;124(4 Suppl):57S-67S. [63 references]

1c.2-3 Type of Evidence *(Check all that apply)*:
Clinical Practice Guideline

1c.4 Directness of Evidence to the Specified Measure *(State the central topic, population, and outcomes addressed in the body of evidence and identify any differences from the measure focus and measure target population)*:
Not applicable

1c.5 Quantity of Studies in the Body of Evidence *(Total number of studies, not articles)*: Not applicable

1c.6 Quality of Body of Evidence *(Summarize the certainty or confidence in the estimates of benefits and harms to patients across studies in the body of evidence resulting from study factors. Please address: a) study design/flaws; b) directness/indirectness of the evidence to this measure (e.g., interventions, comparisons, outcomes assessed, population included in the evidence); and c) imprecision/wide confidence intervals due to few patients or events)*: Not applicable

1c.7 Consistency of Results across Studies *(Summarize the consistency of the magnitude and direction of the effect)*: Not applicable

1c.8 Net Benefit *(Provide estimates of effect for benefit/outcome; identify harms addressed and estimates of effect; and net benefit - benefit over harms)*:
Not applicable

1c.9 **Grading of Strength/Quality of the Body of Evidence**. Has the body of evidence been graded? No

1c.10 **If body of evidence graded, identify the entity that graded the evidence including balance of representation and any disclosures regarding bias:** Not applicable

1c.11 **System Used for Grading the Body of Evidence:** Other

1c.12 **If other, identify and describe the grading scale with definitions:** Not applicable

1c.13 **Grade Assigned to the Body of Evidence:** Not applicable

1c.14 **Summary of Controversy/Contradictory Evidence:** Not applicable

1c.15 **Citations for Evidence other than Guidelines*(Guidelines addressed below)*:**
Not applicable

1c.16 **Quote verbatim, the specific guideline recommendation** *(Including guideline # and/or page #)*:
Not applicable

1c.17 **Clinical Practice Guideline Citation:** Not applicable

1c.18 **National Guideline Clearinghouse or other URL:** Not applicable

1c.19 **Grading of Strength of Guideline Recommendation.** Has the recommendation been graded? No

1c.20 **If guideline recommendation graded, identify the entity that graded the evidence including balance of representation and any disclosures regarding bias:**

1c.21 **System Used for Grading the Strength of Guideline Recommendation:** Other

1c.22 **If other, identify and describe the grading scale with definitions:** Not applicable

1c.23 **Grade Assigned to the Recommendation:** Not applicable

1c.24 **Rationale for Using this Guideline Over Others:** Not applicable

Based on the NQF descriptions for rating the evidence, what was the developer's assessment of the quantity, quality, and consistency of the body of evidence?
1c.25 Quantity: Moderate 1c.26 Quality: Moderate1c.27 Consistency: Moderate

Was the threshold criterion, *Importance to Measure and Report*, met?
(*1a & 1b must be rated moderate or high and 1c yes*) Yes☐ No☐
Provide rationale based on specific subcriteria:

For a new measure if the Committee votes NO, then STOP.
For a measure undergoing endorsement maintenance, if the Committee votes NO because of 1b. (no opportunity for improvement), it may be considered for continued endorsement and all criteria need to be evaluated.

2. RELIABILITY & VALIDITY - SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. **(evaluation criteria)**
Measure testing must demonstrate adequate reliability and validity in order to be recommended for endorsement. Testing may be conducted for data elements and/or the computed measure score. Testing information and results should be entered in the appropriate field. Supplemental materials may be referenced or attached in item 2.1. See guidance on measure testing.

S.1 Measure Web Page *(In the future, NQF will require measure stewards to provide a URL link to a web page where current detailed specifications can be obtained*). Do you have a web page where current detailed specifications for this measure can be obtained? Yes

S.2 If yes, provide web page URL: http://qualityindicators.ahrq.gov/modules/psi_resources.aspx

2a. RELIABILITY. Precise Specifications and Reliability Testing: H☐ M☐ L☐ I ☐

2a1. Precise Measure Specifications. (*The measure specifications precise and unambiguous.*)

2a1.1 Numerator Statement *(Brief, narrative description of the measure focus or what is being measured about the target population, e.g., cases from the target population with the target process, condition, event, or outcome)*:
Discharges with ICD-9-CM code for iatrogenic pneumothorax in any secondary diagnosis field among cases meeting the inclusion and exclusion rules for the denominator.

2a1.2 Numerator Time Window *(The time period in which the target process, condition, event, or outcome is eligible for inclusion)*:
User may specify the time window; generally one calendar year

2a1.3 Numerator Details *(All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, codes with descriptors, and/or specific data collection items/responses*:
ICD-9-CM Iatrogenic Pneumothorax diagnosis code:
5121
IATROGENIC PNEUMOTHORAX

2a1.4 Denominator Statement *(Brief, narrative description of the target population being measured)*:
All surgical and medical discharges age 18 years and older defined by specific DRGs or MS-DRGs.

2a1.5 Target Population Category *(Check all the populations for which the measure is specified and tested if any)*: Adult/Elderly Care

2a1.6 Denominator Time Window *(The time period in which cases are eligible for inclusion)*:
User may specify the time window; generally one calendar year

2a1.7 Denominator Details (*All information required to identify and calculate the target population/denominator such as definitions, codes with descriptors, and/or specific data collection items/responses)*:
See Patient Safety Indicators Appendices:
- Appendix B – Medical Discharge DRGs
- Appendix C – Medical Discharge MS-DRGs
- Appendix D – Surgical Discharge DRGs
- Appendix E – Surgical Discharge MS-DRGs

Link to PSI appendices:
http://qualityindicators.ahrq.gov/Downloads/Software/SAS/V43/TechnicalSpecifications/PSI%20Appendices.pdf

2a1.8 Denominator Exclusions *(Brief narrative description of exclusions from the target population)*:
Exclude cases:
- with principal diagnosis of iatrogenic pneumothorax or secondary diagnosis present on admission
- MDC 14 (pregnancy, childbirth, and puerperium)
- with any diagnosis code of chest trauma or pleural effusion
- with a code of diaphragmatic surgery repair in any procedure field
- with any code indicating thoracic procedure, lung or pleural biopsy, or cardiac procedure
- with missing gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1=missing)

2a1.9 Denominator Exclusion Details *(All information required to identify and calculate exclusions from the denominator such as definitions, codes with descriptors, and/or specific data collection items/responses)*:

ICD-9-CM Chest trauma diagnosis codes:
80700
FRACTURE RIB NOS-CLOSED
80701
FRACTURE ONE RIB-CLOSED
80702
FRACTURE TWO RIBS-CLOSED
80703
FRACTURE THREE RIBS-CLOS
80704
FRACTURE FOUR RIBS-CLOSE
80705
FRACTURE FIVE RIBS-CLOSE
80706
FRACTURE SIX RIBS-CLOSED
80707
FRACTURE SEVEN RIBS-CLOS
80708
FX EIGHT/MORE RIB-CLOSED
80709
FX MULT RIBS NOS-CLOSED
80710
FRACTURE RIB NOS-OPEN
80711
FRACTURE ONE RIB-OPEN
80712
FRACTURE TWO RIBS-OPEN
80713
FRACTURE THREE RIBS-OPEN
80714
FRACTURE FOUR RIBS-OPEN
80715
FRACTURE FIVE RIBS-OPEN
80716
FRACTURE SIX RIBS-OPEN
80717
FRACTURE SEVEN RIBS-OPEN
80718
FX EIGHT/MORE RIBS-OPEN
80719
FX MULT RIBS NOS-OPEN
8072
FRACTURE OF STERNUM-CLOS
8073
FRACTURE OF STERNUM-OPEN
8074
FLAIL CHEST
8075
FX LARYNX/TRACHEA-CLOSED
8076
FX LARYNX/TRACHEA-OPEN
8090
FRACTURE TRUNK BONE-CLOS
8091

FRACTURE TRUNK BONE-OPEN
8600
TRAUM PNEUMOTHORAX-CLOSE
8601
TRAUM PNEUMOTHORAX-OPEN
8602
TRAUM HEMOTHORAX-CLOSED
8603
TRAUM HEMOTHORAX-OPEN
8604
TRAUM PNEUMOHEMOTHOR-CL
8605
TRAUM PNEUMOHEMOTHOR-OPN
86100
HEART INJURY NOS-CLOSED
86101
HEART CONTUSION-CLOSED
86102
HEART LACERATION-CLOSED
86103
HEART CHAMBER LACERAT-CL
86110
HEART INJURY NOS-OPEN
86111
HEART CONTUSION-OPEN
86112
HEART LACERATION-OPEN
86113
HEART CHAMBER LACER-OPN
86120
LUNG INJURY NOS-CLOSED
86121
LUNG CONTUSION-CLOSED
86122
LUNG LACERATION-CLOSED
86130
LUNG INJURY NOS-OPEN
86131
LUNG CONTUSION-OPEN
86132
LUNG LACERATION-OPEN
8620
DIAPHRAGM INJURY-CLOSED
8621
DIAPHRAGM INJURY-OPEN
86221
BRONCHUS INJURY-CLOSED
86222
ESOPHAGUS INJURY-CLOSED
86229
INTRATHORACIC INJ NEC-CL
86231
BRONCHUS INJURY-OPEN
86232

ESOPHAGUS INJURY-OPEN
86239
INTRATHORAC INJ NEC-OPEN
8628
INTRATHORACIC INJ NOS-CL
8629
INTRATHORAC INJ NOS-OPEN
8750
OPEN WOUND OF CHEST
8751
OPEN WOUND CHEST-COMPL
8760
OPEN WOUND OF BACK
8761
OPEN WOUND BACK-COMPL
9010
INJURY THORACIC AORTA
9011
INJ INNOMIN/SUBCLAV ART
9012
INJ SUPERIOR VENA CAVA
9013
INJ INNOMIN/SUBCLAV VEIN
90140
INJ PULMONARY VESSEL NOS
90141
INJURY PULMONARY ARTERY
90142
INJURY PULMONARY VEIN
90181
INJ INTERCOSTAL ART/VEIN
90182
INJ INT MAMMARY ART/VEIN
90183
INJ MULT THORACIC VESSEL
90189
INJ THORACIC VESSEL NEC
9019
INJ THORACIC VESSEL NOS
9110
ABRASION TRUNK
9111
ABRASION TRUNK-INFECTED
9118
SUPERFIC INJU TRUNK NEC
9119
SUPERFIC INJU TRUNK NEC-INF
9220
CONTUSION OF BREAST
9221
CONTUSION OF CHEST WALL
9223
BACK CONTUSION
92231

BACK CONTUSION
92233
INTERSCPLR REG CONTUSION
9228
MULIPLE CONTUSION TRUNK
9229
CONTUSION OF TRUNK
92611
CRUSHING INJURY BACK
92619
CRUSHING INJ TRUNK NEC
9268
MULT CRUSHING INJ TRUNK
9269
CRUSHING INJ TRUNK NOS
9290
CRUSH INJ MULT SITE NEC
9299
CRUSHING INJURY NOS
9541
INJ SYMPA NERVE NEC
9548
INJURY TRUNK NERVE NEC
9549
INJURY TRUNK NERVE NOS
95911
INJURY OF CHEST WALL NEC
95919
TRUNK INJURY-SITES NEC
9599
INJURY-SITE NOS

ICD-9-CM Pleural effusion diagnosis codes:
0101
TUBERCULOUS PLEURISY IN PRIMARY PROGRESSIVE TUBERCULOSIS
01010
TUBERCULOUS PLEURISY IN PRIMARY PROGRESSIVE TUBERCULOSIS, UNSPECIFIED
01011
TPIPPT, BACTERIAL OR HISTOLOGICAL EXAM NOT DONE
01012
TPIPPT, BACTERIAL OR HISTOLOGICAL EXAM UNKNOWN
01013
TPIPPT, TUBERCLE BACILI FOUND BY MICROSCOPY
01014
TPIPPT, TUBERCLE BACILI NOT FOUND BY MICROSCOPY BUT BY BACTERIAL CULTURE
01015
TPIPPT, TUBERCLE BACILI NOT FOUND BY BACTERIOLOGICAL BUT CONFIRMED HISTOLOGICALLY
01016
TPIPPT, TUBERCLE BACILI NOT FOUND BY BACTERILOGICAL OR HISTOLOGICAL BUT CONFIRMED OTHER METHODS
0117
TUBRCULOUS PNEUMOTHORAX
01170
TUBRCULOUS PNEUMOTHORAX, UNSPECIFIED
01171

TPNEU, BACTERIAL OR HISTOLOGICAL EXAM NOT DONE
01172
TPNEU, BACTERIAL OR HISTOLOGICAL EXAM UNKNOWN
01173
TPNEU, TUBERCLE BACILI FOUND BY MICROSCOPY
01174
TPNEU, TUBERCLE BACILI NOT FOUND BY MICROSCOPY BUT BY BACTERIAL CULTURE
01175
TPNEU, TUBERCLE BACILI NOT FOUND BY BACTERIOLOGICAL BUT CONFIRMED HISTOLOGICALLY
01176
TPENU, TUBERCLE BACILI NOT FOUND BY BACTERILOGICAL OR HISTOLOGICAL BUT CONFIRMED OTHER METHODS
0120
TUBERCULOUS PLEURISY
01200
TUBERCULOUS PLEURISY, UNSPECIFIED
01201
TP, BACTERIAL OR HISTOLOGICAL EXAM NOT DONE
01202
TP, BACTERIAL OR HISTOLOGICAL EXAM UNKNOWN
01203
TP, TUBERCLE BACILI FOUND BY MICROSCOPY
01204
TP, TUBERCLE BACILI NOT FOUND BY MICROSCOPY BUT BY BACTERIAL CULTURE
01205
TP, TUBERCLE BACILI NOT FOUND BY BACTERIOLOGICAL BUT CONFIRMED HISTOLOGICALLY
01206
TP, TUBERCLE BACILI NOT FOUND BY BACTERILOGICAL OR HISTOLOGICAL BUT CONFIRMED OTHER METHODS
1972
SECOND MALIG NEO PLEURA

ICD9-CM Diaphragmatic surgery repair codes:
537
ABD REPAIR-DIAPHR HERNIA
5371
LAPAROSCOPIC REPAIR OF DIAPHRAGMATIC HERNIA, ABDOMINAL APPROACH (OCT08)
5372
OTHER AND OPEN REPAIR OF DIAPHRAGMATIC HERNIA, ABDOMINAL APPROACH (OCT08)
5375
REPAIR OF DIAPHRAGMATIC HERNIA, ABDOMINAL APPROACH, NOS (OCT08)
5380
THOR REP-DIAPH HERN NOS
5381
DIAPHRAGMATIC PLICATION
5382
PARASTERN HERNIA REPAIR
5583
LAPAROSCOPIC REPAIR OF DIAPHRAGMATIC HERNIA, WITH THORACIC APPROACH (OCT08)
5584
OTHER AND OPEN REPAIR OF DIAPHRAGMATIC HERNIA, WITH THORACIC APPROACH (OCT08)

ICD-9-CM Thoracic surgery procedure codes:
0522
SYMPATHECTOMY CERVICAL
0523

SYMPATHECTOMY LUMBAR
0529
OTHER SYMPATHECTOMY AND GANGLIONECTOMY
0780
THYMECTOMY, NOT OTHERWISE SPECIFIED
0781
OTHER PARTIAL EXCISION OF THYMUS
0782
OTHER TOTAL EXCISION OF THYMUS
0783
THORACOSCOPIC PARTIAL EXCISION OF THYMUS
0784
THORACOSCOPIC TOTAL EXCISION OF THYMUS
3121
MEDIASTINAL TRACHEOSTOMY
3145
OPEN BIOPSY OF LARYNX OR TRACHEA
3173
CLOSURE OF OTHER FISTULA OF TRACHEA
3179
OTHER REPAIR AND PLASTIC OPERATIONS ON TRACHEA
3199
OTHER OPERATIONS ON TRACHEA
3209
OTHER LOCAL EXCISION OR DESTRUCTION OF LESION OR TISSUE OF BRONCHUS
321
OTHER EXCISION OF BRONCHUS
3220
THORAC EXC LUNG LESION
Local excision or destruction of lesion or tissue of lung
3221
PLICATION OF EMPHYSEMATIOUS BLEB
3222
LUNG VOLUME REDUCTION SURGERY
3223
OPEN ABLTN LUNG LES/TISS (OCT06)
3224
PERC ABLTN LUNG LES/TISS (OCT06)
3225
THOR ABLTN LUNG LES/TISS (OCT06)
3226
ABLTN LUNG TISS NEC/NOS (OCT06)
3227
BRNC THRMPLSTY, ABLT MSCL
3228
ENDOSCOPIC EXCISION OR DESTRUCTION OF LESION OR TISSUE OF LUNG
3229
OTHER LOCAL EXCISION OR DESTRUCTION OF LESION OR TISSUE OF LUNG
323
SEGMENTAL RESECTION OF LUNG
3230
THORAC SEG LUNG RESECT
3239
OTH SEG LUNG RESECT NOS

324
LOBECTOMY OF LUNG
3241
THORAC LOBECTOMY LUNG
3249
OTHER LOBECTOMY OF LUNG
325
COMPLETE PNEUMONECTOMY
3250
THORACOSPC PNEUMONECTOMY
3259
OTHER PNEUMONECTOMY NOS
326
RADICAL DISSECTION OF THORACIC STRUCTURES
329
OTHER EXCISION OF LUNG
330
INCISION OF BRONCHUS
331
INCISION OF LUNG
3320
THORACOSCOPC LUNG BIOPSY
3325
OPEN BIOPSY OF BRONCHUS
3327
CLOSED ENDOSCOPIC BIOPSY OF LUNG
3331
DESTRUCTION OF PHRENIC NERVE FOR COLLAPSE OF LUNG (NO LONGER PERFORMED)
3332
ARTIFICIAL PNEUMOTHORAX FOR COLLAPSE OF LUNG
3334
THORACOPLASTY
3339
OTHER SURGICAL COLLAPSE OF LUNG
Repair and plastic operation on lung and bronchus
3341
SUTURE OF LACERATION OF BRONCHUS
3342
CLOSURE OF BRONCHIAL FISTULA
3343
CLOSURE OF LACERATION OF LUNG
3348
OTHER REPAIR AND PLASTIC OPERATIONS ON BRONCHUS
3349
OTHER REPAIR AND PLASTIC OPERATIONS ON LUNG
Lung transplant
335
LUNG TRANSPLANTATION
3350
LUNG TRANSPLANTATION, NOS
3351
UNILATERAL LUNG TRANSPLANTATION
3352
BILATERAL LUNG TRANSPLANTATION

336
COMBINED HEART-LUNG TRANSPLANTATION
3392
LIGATION OF BRONCHUS
3393
PUNCTURE OF LUNG
3398
OTHER OPERATIONS ON BRONCHUS
3399
OTHER OPERATIONS ON LUNG
3329
OTHER DIAGNOSTIC PROCEDURE ON LUNG AND BRONCHUS
3333
PNEUMOPERITONEUM FOR COLLAPSE OF LUNG
3401
INCISION OF CHEST WALL
3402
EXPLORATORY THORACOTOMY
3403
REOPENING OF RECENT THORACOTOMY SITE
3405
CREATION OF PLEUROPERITONEAL SHUNT
3409
OTHER INCISION OF PLEURA
341
INCISION OF MEDIASTINUM
Diagnostic procedures on chest wall, pleura, mediastinum, and diaphragm
3420
THORACOSCOPIC PLEURAL BX
3421
TRANSPLEURAL THORACOSOCOPY
3422
MEDIASTINOSCOPY
3423
BIOPSY OF CHEST WALL
3425
CLOSED [PERCUTANEOUS][NEEDLE] BIOPSY OF MEDIASTINUM
3426
OPEN BIOPSY OF MEDIASTINUM
3427
BIOPSY OF DIAPHRAGM
3428
OTHER DIAGNOSTIC PROCEDURES ON CHEST WALL, PLEURA, AND DIAPHRAGM
3429
OTHER DIAGNOSTIC PROCEDURES ON MEDIASTINUM
343
EXCISION OR DESTRUCTION OF LESION OR TISSUE OF MEDIASTINUM
344
EXCISION OR DESTRUCTION OF LESION OF CHEST WALL
3451
DECORTICATION OF LUNG
3452
THORACOSCOPC DECORT LUNG
3459

OTHER EXCISION OF PLEURA
Repair of chest wall
3471
SUTURE OF LACERATION OF CHEST WALL
3472
CLOSURE OF THORACOSTOMY
3473
CLOSURE OF OTHER FISTULA OF THORAX
3474
REPAIR OF PECTUS DEFORMITY
3479
OTHER REPAIR OF CHEST WALL
Operations on diaphragm
3481
EXCISION OF LESION OR TISSUE OF DIAPHRAGM
3482
SUTURE OF LACERATION OF DIAPHRAGM
3483
CLOSURE OF FISTULA OF DIAPHRAGM
3484
OTHER REPAIR OF DIAPHRAGM
3485
IMPLANTATION OF DIAPHRAGMATIC PACEMAKER
3489
OTHER OPERATIONS ON DIAPHRAGM
3493
REPAIR OF PLEURA
3499
OTHER OPERATIONS ON THORAX, OTHER
Operations on thoracic duct
4061
CANNULATION OF THORACIC DUCT
4062
FISTULIZATION OF THORACIC DUCT
4063
CLOSURE OF FISTULA OF THORACIC DUCT
4064
LIGATION OF THORACIC DUCT
4069
OTHER OPERATIONS ON THORACIC DUCT
Esophagotomy
4201
INCISION OF ESOPHAGEAL WEB
4209
OTHER INCISION OF ESOPHAGUS
4210
ESOPHAGOSTOMY, NOS
4211
CERVICAL ESOPHAGOSTOMY
4212
EXTERIORIZATION OF ESOPHAGEAL POUCH
4219
OTHER EXTERNAL FISTULIZATION OF ESOPHAGUS
4221

OPERATIVE ESOPHAGOSCOPY BY INCISION
4225
OPEN BIOPSY OF ESOPHAGUS
4231
LOCAL EXCISION OF ESOPHAGEAL DIVERTICULUM
4232
LOCAL EXCISION OF OTHER LESION OR TISSUE OF ESOPHAGUS
Excision of esophagus
4239
OTHER DESTRUCTION OF LESION OR TISSUE OF ESOPHAGUS
4240
ESOPHAGECTOMY, NOS
4241
PARTIAL ESOPHAGECTOMY
4242
TOTAL ESOPHAGECTOMY
Intrathoracic anastomosis of exophagus
4251
INTRATHORACIC ESOPHAGOESOPHAGOSTOMY
4252
INTRATHORACIC ESOPHAGOGASTROSTOMY
4253
INTRATHORACIC ESOPHAGEAL ANASTOMOSIS W/ INTERPOSITION OF SMALL BOWEL
4254
OTHER INTRATHORACIC ESOPHAGOENTEROSTOMY
4255
INTRATHORACIC ESOPHAGEAL ANASTOMOSIS W/ INTERPOSITION OF COLON
4256
OTHER INTRATHORACIC ESOPHAGOCOLOSTOMY
4258
INTRATHORACIC ESOPHAGEAL ANASTOMOSIS W/ OTHER INTERPOSITION
4259
OTHER INTRATHORACIC ANASTOMOSIS OF ESOPHAGUS
Antesternal anastomosis
4261
ANTESTERNAL ESOPHAGOESOPHAGOSTOMY
4262
ANTESTERNAL ESOPHAGOGASTROSTOMY
4263
ANTESTERNAL ESOPHAGEAL ANASTOMOSIS W/ INTERPOSITION OF SMALL BOWEL
4264
OTHER ANTESTERNAL ESOPHAGOENTEROSTOMY
4265
ANTESTERNAL ESOPHAGEAL ANASTOMOSIS W/ INTERPOSITION OF COLON
4266
OTHER ANTESTERNAL ESOPHAGOCOLOSTOMY
4268
OTHER ANTESTERNAL ESOPHAGEAL ANASTOMOSIS W/ INTERPOSITION
4269
OTHER ANTESTERNAL ANASTOMOSIS OF ESOPHAGUS
Other repair of esophagus
427
ESOPHAGOMYOTOMY
4281

INSERTION OF PERMANENT TUBE INTO ESOPHAGUS
4282
SUTURE OF LACERATION OF ESOPHAGUS
4283
CLOSURE OF ESOPHAGOSTOMY
4284
REPAIR OF ESOPHAGEAL FISTULA, NEC
4285
REPAIR OF ESOPHAGEAL STRICTURE
4286
PRODUCTION OF SUBCUTANEOUS TUNNEL W/O ESOPHAGEAL ANASTOMOSIS
4287
OTHER GRAFT OF ESOPHAGUS
4289
OTHER REPAIR OF ESOPHAGUS
435
PROXIMAL GASTRECTOMY
4399
TOTAL GASTRECTOMY NEC
4465
ESOPHAGOGASTROPLASTY
4466
OTHER PROCEDURES FOR CREATION OF ESOPHAGOGASTRIC SPHINCTERIC COMPETENCE
4467
LAP CREAT ESOPH SPHINCT
7781
OTH CHEST CAGE OSTECTOMY
7791
TOT CHEST CAGE OSTECTOMY
8104
DORSAL AND DORSO-LUMBAR FUSION, ANTERIOR TECHNIQUE
8134
REFUSION OF DORSAL AND DORSOLUMBAR SPINE, ANTERIOR TECHNIQUE

ICD-9-CM Lung or pleural biopsy procedure codes:
3326
CLOSED [PERCUTANEOUS] [NEEDLE] BIOPSY OF LUNG
3328
OPEN BIOPSY OF LUNG
3424
PLEURAL BIOPSY

ICD9-CM Cardiac procedure codes:
3510
OPEN HEART VALVULOPLASTY WITHOUT REPLACEMENT, UNSPECIFIED VALVE
3511
OPEN HEART VALVULOPLASTY OF AORTIC VALVE WITHOUT REPLACEMENT
3512
OPEN HEART VALVULOPLASTY OF MITRAL VALVE WITHOUT REPLACEMENT
3513
OPEN HEART VALVULOPLASTY OF PULMONARY VALVE WITHOUT REPLACEMENT
3514
OPEN HEART VALVULOPLASTY OF TRICUSPID VALVE WITHOUT REPLACEMENT
3520

REPLACEMENT OF UNSPECIFIED HEART VALVE
3521
REPLACEMENT OF AORTIC VALVE WITH TISSUE GRAFT
3522
OTHER REPLACEMENT OF AORTIC VALVE
3523
REPLACEMENT OF MITRAL VALVE WITH TISSUE GRAFT
3524
OTHER REPLACEMENT OF MITRAL VALVE
3525
REPLACEMENT OF PULMONARY VALVE WITH TISSUE GRAFT
3526
OTHER REPLACEMENT OF PULMONARY VALVE
3527
REPLACEMENT OF TRICUSPID VALVE WITH TISSUE GRAFT
3528
OTHER REPLACEMENT OF TRICUSPID VALVE
3531
OPERATIONS ON PAPILLARY MUSCLE
3532
OPERATIONS ON CHORDAE TENDINEAE
3533
ANNULOPLASTY
3534
INFUNDIBULECTOMY
3535
OPERATIONS ON TRABECULAE CARNEAE CORDIS
3539
OPERATIONS ON OTHER STRUCTURES ADJACENT TO VALVES OF HEART
3550
REPAIR OF UNSPECIFIED SEPTAL DEFECT OF HEART WITH PROSTHESIS
3551
REPAIR OF ATRIAL SEPTAL DEFECT WITH PROSTHESIS, OPEN TECHNIQUE
3553
REPAIR OF VENTRICULAR SEPTAL DEFECT WITH PROSTHESIS, OPEN TECHNIQUE
3554
REPAIR OF ENDOCARDIAL CUSHION DEFECT WITH PROSTHESIS
3560
REPAIR OF UNSPECIFIED SEPTAL DEFECT OF HEART WITH TISSUE GRAFT
3561
REPAIR OF ATRIAL SEPTAL DEFECT WITH TISSUE GRAFT
3562
REPAIR OF VENTRICULAR SEPTAL DEFECT WITH TISSUE GRAFT
3563
REPAIR OF ENDOCARDIAL CUSHION DEFECT WITH TISSUE GRAFT
3570
OTHER AND UNSPECIFIED REPAIR OF UNSPECIFIED SEPTAL DEFECT OF HEART
3571
OTHER AND UNSPECIFIED REPAIR OF ATRIAL SEPTAL DEFECT
3572
OTHER AND UNSPECIFIED REPAIR OF VENTRICULAR SEPTAL DEFECT
3573
OTHER AND UNSPECIFIED REPAIR OF ENDOCARDIAL CUSHION DEFECT
3581

TOTAL REPAIR OF TETRALOGY OF FALLOT
3582
TOTAL REPAIR OF TOTAL ANOMALOUS PULMONARY VENOUS CONNECTION
3583
TOTAL REPAIR OF TRUNCUS ARTERIOSUS
3584
TOTAL CORRECTION OF TRANSPOSITION OF GREAT VESSELS, NOT ELSEWHERE CLASSIFIED
3591
INTERATRIAL TRANSPOSITION OF VENOUS RETURN
3592
CREATION OF CONDUIT BETWEEN RIGHT VENTRICLE AND PULMONARY ARTERY
3593
CREATION OF CONDUIT BETWEEN LEFT VENTRICLE AND AORTA
3594
CREATION OF CONDUIT BETWEEN ATRIUM AND PULMONARY ARTERY
3595
REVISION OF CORRECTIVE PROCEDURE ON HEART
3597
PERC MTRL VLV REPR W IMP
3598
OTHER OPERATIONS ON SEPTA OF HEART
3599
OTHER OPERATIONS ON VALVES OF HEART
3603
OPEN CHEST CORONARY ARTERY ANGIOPLASTY
3610
AORTOCORONARY BYPASS FOR HEART REVASCULARIZATION, NOT OTHERWISE SPECIFIED
3611
(AORTO)CORONARY BYPASS OF ONE CORONARY ARTERY
3612
(AORTO)CORONARY BYPASS OF TWO CORONARY ARTERIES
3613
(AORTO)CORONARY BYPASS OF THREE CORONARY ARTERIES
3614
(AORTO)CORONARY BYPASS OF FOUR OR MORE CORONARY ARTERIES
3615
SINGLE INTERNAL MAMMARY-CORONARY ARTERY BYPASS
3616
DOUBLE INTERNAL MAMMARY-CORONARY ARTERY BYPASS
3617
ABDOMINAL -CORONARY ARTERY BYPASS
3619
OTHER BYPASS ANASTOMOSIS FOR HEART REVASCULARIZATION
362
HEART REVASCULARIZATION BY ARTERIAL IMPLANT
3631
OPEN CHEST TRANSMYOCARDIAL REVASCULARIZATION
3632
OTHER TRANSMYOCARDIAL REVASCULARIZATION
3639
OTHER HEART REVASCULARIZATION
3691
REPAIR OF ANEURYSM OF CORONARY VESSEL
3699

OTHER OPERATIONS ON VESSELS OF HEART
370
PERICARDIOCENTESIS
3710
INCISION OF HEART, NOT OTHERWISE SPECIFIED
3711
CARDIOTOMY
3712
PERICARDIOTOMY
3731
PERICARDIECTOMY
3732
EXCISION OF ANEURYSM OF HEART
3733
EXCISION OR DESTRUCTION OF OTHER LESION OR TISSUE OF HEART, OPEN APPROACH
3735
PARTIAL VENTRICULECTOMY
3736
EXCISION OR DESTRUCTION OF LEFT ATRIAL APPENDAGE (LAA) (OCT08)
3737
EXC/DEST HRT LES, THRSPC
3741
IMPLANTATION OF PROSTHETIC CARDIAC SUPPORT DEVICE AROUND THE HEART
3749
OTHER REPAIR OF HEART AND PERICARDIUM
3751
HEART TRANSPLANTATION
3752
IMPLANTATION OF TOTAL REPLACEMENT HEART SYSTEM
3753
REPLACEMENT OF REPAIR OF THORACIC UNIT OF TOTAL REPLACEMENT HEART SYSTEM
3754
REPLACEMENT OR REPAIR OF OTHER IMPLANTABLE COMPONENT OF TOTAL REPLACEMENT HEART SYSTEM
3755
REMOVAL OF INTERNAL BIVENTRICULAR HEART REPLACEMENT SYSTEM (OCT08)
3760
IMPLANTATION OR INSERTION OF BIVENTRICULAR EXTERNAL HEART ASSIST SYSTEM (OCT08)
3761
IMPLANT OF PULSATION BALLOON
3762
INSERTION OF NON-IMPLANTABLE HEART ASSIST SYSTEM
3763
REPAIR OF HEART ASSIST SYSTEM
3764
REMOVAL OF HEART ASSIST SYSTEM
3765
IMPLANT OF EXTERNAL HEART ASSIST SYSTEM
3766
INSERTION OF IMPLANTABLE HEART ASSIST SYSTEM
3767
IMPLANTATION OF CARDIOMYOSTIMULATION SYSTEM
3791
OPEN CHEST CARDIAC MASSAGE
3804

INCISION OF VESSEL, AORTA
3805
INCISION OF VESSEL, OTHER THORACIC
3844
RESECTION OF ABDOMINAL AORTA WITH GRAFT REPLACEMENT
3845
RESECTION OF THORACIC VESSEL WITH GRAFT REPLACEMENT
3864
EXCISION OF LESION OF AORTA
3865
EXCISION OF LESION OTHER THORACIC VESSEL
3884
LIGATION , DIVISION OF AORTA
3885
LIGATION, DIVISION OF OTHER THORACIC VESSELS
390
SYSTEMIC TO PULMONARY ARTERY SHUNT
3921
CAVAL-PULMONARY ARTERY ANASTOMOSIS
3922
AORTA-SUBCLAVIAN-CAROTID BYPASS
3923
OTHER INTRATHORACIC VASCULAR SHUNT OR BYPASS

2a1.10 Stratification Details/Variables *(All information required to stratify the measure results including the stratification variables, codes with descriptors, definitions, and/or specific data collection items/responses)*:
Not applicable

2a1.11 Risk Adjustment Type *(Select type. Provide specifications for risk stratification in 2a1.10 and for statistical model in 2a1.13)*: Statistical risk model **2a1.12 If "Other," please describe:**

2a1.13 Statistical Risk Model and Variables *(Name the statistical method - e.g., logistic regression and list all the risk factor variables. Note - risk model development should be addressed in 2b4.)*:
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 2008, a database consisting of 42 states and approximately 30 million adult 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). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate.

Sex	Female
Age	65 to 85+
MDRG	416
MDRG	504
MDRG	510
MDRG	601
MDRG	602
MDRG	1103
MDRG	1801
MDRG	1807
MDC	1
MDC	6
MDC	8
MDC	25

NOPRDAY Procedure Days Data Not Available
COMORB HTN_C
COMORB NEURO
COMORB CHRNLUNG
COMORB DM
COMORB DMCX
COMORB METS
COMORB OBESE
COMORB WGHTLOSS
COMORB DRUG

2a1.14-16 Detailed Risk Model Available at Web page URL (or attachment). Include coefficients, equations, codes with descriptors, definitions, and/or specific data collection items/responses. Attach documents only if they are not available on a webpage and keep attached file to 5 MB or less. NQF strongly prefers you make documents available at a Web page URL**.** Please supply login/password if needed**:**
URL
http://qualityindicators.ahrq.gov/Downloads/Software/SAS/V43/Risk%20Adjustment%20Tables%20PSI%204.3.pdf
Not applicable

2a1.17-18. Type of Score: Rate/proportion

2a1.19 Interpretation of Score *(Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score)***:** Better quality = Lower score

2a1.20 Calculation Algorithm/Measure Logic*(Describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; aggregating data; risk adjustment; etc.)***:**
Each indicator is expressed as a rate, is defined as outcome of interest / population at risk or numerator / denominator. The AHRQ Quality Indicators (AHRQ QI) software performs six steps to produce the rates. 1) Discharge-level data is used to mark inpatient records containing the outcome of interest and 2) the population at risk. For provider indicators, the population at risk is also derived from hospital discharge records; for area indicators, the population at risk is derived from U.S. Census data. 3) Calculate observed rates. Using output from steps 1 and 2, rates are calculated for user-specified combinations of stratifiers. 4) Calculate expected rates. Regression coefficients from a reference population database are applied to the discharge records and aggregated to the provider or area level. For indicators that are not risk-adjusted, this is the reference population rate. 5) Calculate risk-adjusted rate. Use the indirect standardization to account for case-mix. For indicators that are not risk-adjusted, this is the same as the observed rate. 6) Calculate smoothed rate. A Univariate shrinkage factor is applied to the risk-adjusted rates. The shrinkage estimate reflects a reliability adjustment unique to each indicator

2a1.21-23 Calculation Algorithm/Measure Logic Diagram URL or attachment:
URL
http://qualityindicators.ahrq.gov/Downloads/Resources/Publications/2011/QI%20Empirical%20Methods%2005-03-11.pdf
Not applicable

2a1.24 Sampling (Survey) Methodology. If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)**:**
Not applicable

2a1.25 Data Source *(Check all the sources for which the measure is specified and tested*). If other, please describe**:**
Administrative claims

2a1.26 Data Source/Data Collection Instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.*)**:** HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). Agency for Healthcare Research and Quality, Rockville, MD.

2a1.27-29 Data Source/data Collection Instrument Reference Web Page URL or Attachment: URL
http://www.hcup-us.ahrq.gov/sidoverview.jsp
Not applicable

2a1.30-32 Data Dictionary/Code Table Web Page URL or Attachment:
URL
http://qualityindicators.ahrq.gov/Downloads/Software/WinQI/V43/AHRQ%20QI%20Software%20Instructions,%20WinQI.pdf
Not applicable

2a1.33 Level of Analysis (*Check the levels of analysis for which the measure is specified and tested)*: Facility

2a1.34-35 Care Setting *(Check all the settings for which the measure is specified and tested)*: Hospital/Acute Care Facility

2a. Reliability Testing. (*Reliability testing was conducted with appropriate method, scope, and adequate demonstration of reliability*.)

2a2.1 Data/Sample *(Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2008. Agency for Healthcare Research and Quality, Rockville, MD. Consists of approximatley 30 million adult discharges and 4,000 hospitals.

2a2.2 Analytic Method *(Describe method of reliability testing & rationale)*:
The signal to noise ratio is the ratio of the between hospital variance (signal) to the within hospital variance (noise). The formula is signal / (signal + noise). The ratio itself is only a diagnostic for the degree of variance in the risk-adjusted rate systematically associated with the provider. Therefore, what matters is the magnitude of the variance in the "smoothed" rate (that is, the variance in the risk-adjusted rate after the application of the univariate shrinkage estimator based on the signal ratio).

2a2.3 Testing Results *(Reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
What the data demonstrate is systematic variation in the provider level rate of 0.128 to 0.841 per 1,000 from the 5th to 95th percentile after a signal ratio of 0.463 is applied as the shrinkage estimator (that is, after accounting for variation due to random factors).

2b. VALIDITY. Validity, Testing, including all Threats to Validity: H☐ M☐ L☐ I ☐

2b1.1 Describe how the measure specifications *(measure focus, target population, and exclusions)* **are consistent with the evidence cited in support of the measure focus (***criterion 1c)* **and identify any differences from the evidence:**
No identified differences

2b2. Validity Testing. (*Validity testing was conducted with appropriate method, scope, and adequate demonstration of validity.)*

2b2.1 Data/Sample *(Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
The first study examined the criterion validity, specifically the positive predictive value (PPV), of 12 selected PSIs using clinical data abstracted from the Veterans Health Administration (VA) electronic medical record (EMR) as the gold standard.

The second study recruited hospitals for participation in the Validation Pilot Project through the AHRQ Quality Indicators (QI) technical support listserve and conducted web-based informational sessions to introduce the study and outline expectations of participants. Participation was voluntary and without compensation. We asked participants to commit to test the IP indicator as well as four other PSIs included in Phase I of the Validation Pilot Project. The 47 participating hospitals from 29 states included a spectrum of different sizes,
21 ownership types, and academic affiliations

2b2.2 Analytic Method *(Describe method of validity testing and rationale; if face validity, describe systematic assessment)*:
Calculation of the postive predictive value which is defined as the [number of true positives / (number of true positives + number of false positives)] where a "true positive" is the event that the test makes a positive prediction, and the subject has a positive result under the gold standard, and a "false positive" is the event that the test makes a positive prediction, and the subject has a negative result under the gold standard

2b2.3 Testing Results *(Statistical results, assessment of adequacy in the context of norms for the test conducted; if face validity, describe results of systematic assessment)*:
The two studies estimated a PPV of 79.6% and 83.9%, respectively

POTENTIAL THREATS TO VALIDITY. (*All potential threats to validity were appropriately tested with adequate results.*)

2b3. Measure Exclusions. (*Exclusions were supported by the clinical evidence in 1c or appropriately tested with results demonstrating the need to specify them.*)

2b3.1 Data/Sample for analysis of exclusions *(Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2008. Agency for Healthcare Research and Quality, Rockville, MD. Consists of approximately 30 million adult discharges and 4,000 hospitals.

2b3.2 Analytic Method (*Describe type of analysis and rationale for examining exclusions, including exclusion related to patient preference)*:
We conducted an analysis of each exclusion to determine whether the exclusion was still necessary give the availability of present on admission data. Only those exclusion that are "related to POA" were evaluated.

Exclusion Criterion	Related to POA	Related to Preventability	Little or No Risk
Exclusion 1 (Exclude Chest Trauma)	X	-	-
Exclusion 2 (Pleural Effusion)	X	X	-
Exclusion 3 (Exclude MDC 14)	-	-	X
Exclusion 4 (Exclude Thoracic Surgery)	-	X	-
Exclusion 5 (Exclude Lung or Pleural Biopsy)	-	-	X
Exclusion 6 (Exclude Cardiac Surgery)	-	X	-
Exclusion 7 (Exclude Diaphragmatic Surgery Repair)	-	X	-

If the user´s data lacks present on admission information, then the likelihood that the outcome of interest and the covariates are present on admission is estimated using a Markov Chain Monte Carlo (MCMC) estimation procedure. That likelihood is then used to adjust the observed and expected rates.

2b3.3 Results *(Provide statistical results for analysis of exclusions, e.g., frequency, variability, sensitivity analyses):*
Based on the analysis, we have made the following recommendations for future revisions of this indicator

- Drop exclusion 1 because it is not POA enhanced.
- Retain exclusions 2 and 4-6 because of difficulty of preventing the adverse event.
- Retain exclusion 3; the MDC 14 exclusions are not candidates to be dropped in this work.

2b4. Risk Adjustment Strategy. (*For outcome measures, adjustment for differences in case mix (severity) across measured entities was appropriately tested with adequate results.*)

2b4.1 Data/Sample *(Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2008. Agency for Healthcare Research and Quality, Rockville, MD. Consists of approximately 30 million adult discharges and 4,000 hospitals.

2b4.2 Analytic Method (*Describe methods and rationale for development and testing of risk model or risk stratification including selection of factors/variables)*:
Risk-adjustment models use a standard set of categories based on readily available classification systems for demographics, severity of illness and comorbidities. Within each category, covariates are initially selected based on a minimum of 30 cases in the outcome of interest. Then a stepwise regression process on a development sample is used to select a parsimonious set of covariates where $p<.05$. Model is then tested on a validation sample.

If the user´s data lacks present on admission information, then the likelihood that the outcome of interest and the covariates are present on admission is estimated using a Markov Chain Monte Carlo (MCMC) estimation procedure. That likelihood is then used to adjust the observed and expected rates.

2b4.3 Testing Results *(Statistical risk model: Provide quantitative assessment of relative contribution of model risk factors; risk model performance metrics including cross-validation discrimination and calibration statistics, calibration curve and risk decile plot, and assessment of adequacy in the context of norms for risk models. Risk stratification: Provide quantitative assessment of relationship of risk factors to the outcome and differences in outcomes among the strata)***:**
c-statistic 0.803

2b4.4 If outcome or resource use measure is not risk adjusted, provide rationale and analyses to justify lack of adjustment: Not applicable

2b5. Identification of Meaningful Differences in Performance. (*The performance measure scores were appropriately analyzed and discriminated meaningful differences in quality.*)

2b5.1 Data/Sample *(Describe the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)***:**
HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2008. Agency for Healthcare Research and Quality, Rockville, MD. Consists of approximatley 30 million adult discharges and 4,000 hospitals.

2b5.2 Analytic Method *(Describe methods and rationale to identify statistically significant and practically/meaningfully differences in performance)***:**
Posterior probability distribution parameterized using the Gamma distribution

2b5.3 Results *(Provide measure performance results/scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*:
Raw Rates (numerator / denominator):

5th	25th	Median	75th	95th
0.000128	0.000252	0.000378	0.000539	0.000841

2b6. Comparability of Multiple Data Sources/Methods. (*If specified for more than one data source, the various approaches result in comparable scores.*)

2b6.1 Data/Sample *(Describe the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)***:**
Not applicable

2b6.2 Analytic Method *(Describe methods and rationale for testing comparability of scores produced by the different data sources specified in the measure)***:**
Not applicable

2b6.3 Testing Results *(Provide statistical results, e.g., correlation statistics, comparison of rankings; assessment of adequacy in the context of norms for the test conducted)***:**
Not applicable

2c. Disparities in Care: H☐ M☐ L☐ I ☐ NA☐ (*If applicable, the measure specifications allow identification of disparities.*)

2c.1 If measure is stratified for disparities, provide stratified results *(Scores by stratified categories/cohorts)***:** In regard to figures below:
1st figure: estimate per 1,000, risk adjusted rates
2nd figure: standard error
3rd figure: p value relative to marked group (marked group = “c”)
4th figure: p value: current year relative to prior year

Key:
"c": Reference for p-value test statistics
"*": Data do not meet criteria for statistical reliability, data quality, or confidentiality

Patient characteristic:

Age groups for conditions affecting any age
18-44 c 0.479 0.009 0.004
45-64 0.636 0.008 0.000 0.000
65 and over 0.743 0.008 0.000 0.013

Age groups for conditions affecting primarily elderly
65-69 c 0.728 0.017 0.000
70-74 0.729 0.018 0.969 0.018
75-79 0.826 0.018 0.000 0.802
80-84 0.813 0.019 0.001 0.333
85 and over 0.631 0.016 0.000 0.417

Gender:
Male c 0.593 0.007 0.000
Female 0.706 0.007 0.000 0.000

Median income of patient´s ZIP code:
First quartile (lowest income) 0.651 0.009 0.795 0.000
Second quartile 0.596 0.010 0.000 0.248
Third quartile 0.692 0.010 0.011 0.000
Fourth quartile (highest income) c 0.654 0.011 0.340

Location of patient residence (NCHS):
Large central metropolitan 0.651 0.009 0.832 0.000
Large fringe metropolitan c 0.654 0.010 0.010
Medium metropolitan 0.659 0.011 0.767 0.744
Small metropolitan 0.653 0.016 0.951 0.245
Micropolitan 0.598 0.015 0.002 0.030
Not metropolitan or micropolitan 0.641 0.018 0.508 0.013

Expected payment source:
Private insurance c 0.724 0.010 0.000
Medicare 0.615 0.006 0.000 0.010
Medicaid 0.791 0.018 0.001 0.003
Other insurance 0.609 0.030 0.000 0.250
Uninsured / self-pay / no charge 0.456 0.025 0.000 0.071

2c.2 **If disparities have been reported/identified (e.g., in 1b), but measure is not specified to detect disparities, please explain:**
Not applicable

2.1-2.3 **Supplemental Testing Methodology Information:**
URL
http://qualityindicators.ahrq.gov/Downloads/Modules_Non_Software/Modules%20Development%20Bullet/psi_development.zip
Not applicable

Steering Committee: Overall, was the criterion, *Scientific Acceptability of Measure Properties*, met?
(*Reliability and Validity must be rated moderate or high*) Yes☐ No☐
Provide rationale based on specific subcriteria:

If the Committee votes No, STOP

3. USABILITY

Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the

measure and are likely to find them useful for decision making. **(evaluation criteria)**

C.1 **Intended Purpose/ Use** *(Check all the purposes and/or uses for which the measure is intended)*: Public Reporting, Quality Improvement (Internal to the specific organization)

3.1 **Current Use** *(Check all that apply; for any that are checked, provide the specific program information in the following questions)*: Public Reporting, Quality Improvement (Internal to the specific organization)

3a. Usefulness for Public Reporting: H☐ M☐ L☐ I ☐
(*The measure is meaningful, understandable and useful for public reporting.*)

3a.1. **Use in Public Reporting - disclosure of performance results to the public at large** *(If used in a public reporting program, provide name of program(s), locations, Web page URL(s))*. If not publicly reported in a national or community program, state the reason AND plans to achieve public reporting, potential reporting programs or commitments, and timeline, e.g., within 3 years of endorsement: **[*For Maintenance* –** *If not publicly reported, describe progress made toward achieving disclosure of performance results to the public at large and expected date for public reporting; provide rationale why continued endorsement should be considered.***]**
This measure is used for public reporting in 14 realms.

Florida (state)
Florida Health Finder
http://www.floridahealthfinder.gov/

Illinois (state hospital association)
Illinois Hospitals Caring for You
www.illinoishospitals.org

Iowa (Iowa Healthcare Collaborative)
Iowa Healthcare Collaborative
http://www.ihconline.org/aspx/publicreporting/iowareport.aspx

Kentucky (Norton Healthcare, a hospital system)
Norton Healthcare Quality Report
http://www.nortonhealthcare.com/body.cfm?id=157

Kentucky (state hospital association)
Kentucky Hospital Association Quality Data
http://info.kyha.com/QualityData/IQISite/

Louisiana (state)
Louisiana Health Finder
http://www.healthfinderla.gov/default.aspx

Maine (state)
Maine Health Data Organization
http://gateway.maine.gov/mhdo2008Monahrq/home.html

Missouri (health care coalition)
St Louis Area Business Health Coalition
http://www.stlbhc.org/c_healthcare_4_3026553713.pdf

Nevada (state hospital association)
Nevada Hospital Association Hospital Performance
http://www.nvhospitalquality.net/

New Jersey (state)
Find and Compare Quality Care in NJ Hospitals
http://www.nj.gov/health/healthcarequality/

New York (health care coalition)
New York State Hospital Report Card
http://www.myhealthfinder.com/

Ohio (state)
Hospital Data
http://www.odh.ohio.gov/healthstats/hlthserv/hospitaldata/datahosp.aspx

Oklahoma (state)
Oklahoma Hospital Report
http://www.ok.gov/health/documents/08%20Hospital%20AR.pdf

Wisconsin (state hospital association)
CheckPoint
http://www.wicheckpoint.org/index.aspx

3a.2.**Provide a rationale for why the measure performance results are meaningful, understandable, and useful for public reporting**. If usefulness was demonstrated (e.g., focus group, cognitive testing), describe the data, method, and results**:** A research team from the School of Public Affairs, Baruch College, under contracts with the Department of Public Health, Weill Medical College and Battelle, Inc., has developed a pair of Hospital Quality Model Reports at the request of the Agency for Healthcare Research & Quality (AHRQ). These reports are designed specifically to report comparative information on hospital performance based on the AHRQ Quality Indicators (QIs). The work was done in close collaboration with AHRQ staff and the AHRQ Quality Indicators team. The Model Reports (discussed immediately above) are based on:
• Extensive search and analysis of the literature on hospital quality measurement and reporting, as well as public reporting on health care quality more broadly;
• Interviews with quality measurement and reporting experts, purchasers, staff of purchasing coalitions, and executives of integrated health care delivery systems who are responsible for quality in their facilities;
• Two focus groups with chief medical officers of hospitals and/or systems and two focus groups with quality managers from a broad mix of hospitals;
• Four focus groups with members of the public who had recently experienced a hospital admission; and
• Four rounds of cognitive interviews (a total of 62 interviews) to test draft versions of the two Model Reports with members of the public with recent hospital experience, basic computer literacy but widely varying levels of education

3.2 **Use for other Accountability Functions (payment, certification, accreditation).** If used in a public accountability program, provide name of program(s), locations, Web page URL(s)**:** Not applicable

3b. Usefulness for Quality Improvement: H☐ M☐ L☐ I ☐
(*The measure is meaningful, understandable and useful for quality improvement.*)

3b.1. **Use in QI.** If used in quality improvement program, provide name of program(s), locations, Web page URL(s):
[*For Maintenance* – *If not used for QI, indicate the reasons and describe progress toward using performance results for improvement***]**.
The Patient Safety Indicators (PSIs) are a set of indicators providing information on potential in hospital complications and adverse events following surgeries, procedures, and childbirth. The PSIs were developed after a comprehensive literature review, analysis of ICD-9-CM codes, review by a clinician panel, implementation of risk adjustment, and empirical analyses.

The PSIs can be used to help hospitals identify potential adverse events that might need further study; provide the opportunity to assess the incidence of adverse events and in hospital complications using administrative data found in the typical discharge record; include indicators for complications occurring in hospital that may represent patient safety events; and, indicators also have area level analogs designed to detect patient safety events on a regional level.
http://qualityindicators.ahrq.gov/modules/psi_overview.aspx

The following are several entities that use the measure in quality improvement:

1) University Healthcare Consortium (UHC)
UHC is an alliance of 103 academic medical centers and 219 of their affiliated hospitals. UHC reports this and other AHRQ QIs to their member hospitals for their internal quality improvement purposes.

2) Minnesota Hospital Association

3) Premier
Premier uses the measure in their "QUEST" tool, which is used by hundreds of hospitals in their quality assurance and improvement work.

3b.2. Provide rationale for why the measure performance results are meaningful, understandable, and useful for quality improvement. If usefulness was demonstrated *(e.g., QI initiative),* describe the data, method and results:
The AHRQ QI support line receives approximately 150 user queries per month and almost 50 user per month download the AHRQ QI PSI software. Users have used the PSI since the release in 2003.

Users can readily use the risk-adjusted rate and the observed to expected results to identify opportunities for improvment for specific patient populations based on default stratifiers or risk adjustment model covariates. In addition, comparative data from the AHRQ SID and NIS databases provides relative performance information.

Overall, to what extent was the criterion, *Usability*, met? H☐ M☐ L☐ I ☐
Provide rationale based on specific subcriteria:

4. FEASIBILITY

Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. **(evaluation criteria)**

4a. Data Generated as a Byproduct of Care Processes: H☐ M☐ L☐ I ☐

4a.1-2 How are the data elements needed to compute measure scores generated? *(Check all that apply).*
Data used in the measure are**:**
Coded by someone other than person obtaining original information (e.g., DRG, ICD-9 codes on claims)

4b. Electronic Sources: H☐ M☐ L☐ I ☐

4b.1 Are the data elements needed for the measure as specified available electronically *(Elements that are needed to compute measure scores are in defined, computer-readable fields)***:** ALL data elements in electronic claims

4b.2 If ALL data elements are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources:

4c. Susceptibility to Inaccuracies, Errors, or Unintended Consequences: H☐ M☐ L☐ I ☐

4c.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measurement identified during testing and/or operational use and strategies to prevent, minimize, or detect. If audited, provide results:
Coding professionals follow detail guidelines, are subject to training and credentialing requirements, peer review and audit.

4d. Data Collection Strategy/Implementation: H☐ M☐ L☐ I ☐

A.2 Please check if either of the following apply (*regarding proprietary measures*)**:**
4d.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues *(e.g., fees for use of proprietary measures)***:**
The AHRQ QI software has been publicly available at no cost since 2001; Users have over ten years of experience using the AHRQ

QI software in SAS and Windows.

Overall, to what extent was the criterion, *Feasibility*, met? H☐ M☐ L☐ I ☐
Provide rationale based on specific subcriteria:

OVERALL SUITABILITY FOR ENDORSEMENT

Does the measure meet all the NQF criteria for endorsement? Yes☐ No☐
Rationale:

If the Committee votes No, STOP.
If the Committee votes Yes, the final recommendation is contingent on comparison to related and competing measures.

5. COMPARISON TO RELATED AND COMPETING MEASURES

If a measure meets the above criteria and there are endorsed or new related measures (either the same measure focus or the same target population) or competing measures (both the same measure focus and the same target population), the measures are compared to address harmonization and/or selection of the best measure before a final recommendation is made.

5.1 **If there are related measures *(either same measure focus or target population)* or competing measures *(both the same measure focus and same target population*), list the NQF # and title of all related and/or competing measures:**

5a. Harmonization

5a.1 **If this measure has EITHER the same measure focus OR the same target population as NQF-endorsed measure(s): Are the measure specifications completely harmonized?**

5a.2 **If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden:**

5b. Competing Measure(s)

5b.1 **If this measure has both the same measure focus and the same target population as NQF-endorsed measure(s): Describe why this measure is superior to competing measures** *(e.g., a more valid or efficient way to measure quality)***; OR provide a rationale for the additive value of endorsing an additional measure.** *(Provide analyses when possible)*:

CONTACT INFORMATION

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

Co.2 **Point of Contact:** John, Bott, Contractor, AHRQ Quality Indicators Measure Expert Center for Delivery, Organization and Markets, John.Bott@ahrq.hhs.gov, 301-427-1317-

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

Co.4 **Point of Contact:** John, Bott, Contractor, AHRQ Quality Indicators Measure Expert Center for Delivery, Organization and Markets, John.Bott@ahrq.hhs.gov, 301-427-1317-

Co.5 **Submitter:** John, Bott, Contractor, AHRQ Quality Indicators Measure Expert Center for Delivery, Organization and Markets, John.Bott@ahrq.hhs.gov, 301-427-1317-, Agency for Healthcare Research and Quality

Co.6 **Additional organizations that sponsored/participated in measure development:**
University of California-Davis

Stanford University Battelle Memorial Institute
Co.7 Public Contact: John, Bott, Contractor, AHRQ Quality Indicators Measure Expert Center for Delivery, Organization and Markets, John.Bott@ahrq.hhs.gov, 301-427-1317-, Agency for Healthcare Research and Quality

ADDITIONAL INFORMATION
Workgroup/Expert Panel involved in measure development **Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.** Multi-specialty Panel and Surgical Panel members are listed in the technical report: http://qualityindicators.ahrq.gov/Downloads/Modules_Non_Software/Modules%20Development%20Bullet/psi_development.zip
Ad.2 If adapted, provide title of original measure, NQF # if endorsed, and measure steward. Briefly describe the reasons for adapting the original measure and any work with the original measure steward: This indicator was originally proposed by Iezzoni et al. as part of the Complications Screening Program (CSP "sentinel events")
Measure Developer/Steward Updates and Ongoing Maintenance **Ad.3 Year the measure was first released:** 2003 **Ad.4 Month and Year of most recent revision:** 08, 2011 **Ad.5 What is your frequency for review/update of this measure?** Annual **Ad.6 When is the next scheduled review/update for this measure?** 12, 2011
Ad.7 Copyright statement: Not applicable
Ad.8 Disclaimers: Not applicable
Ad.9 Additional Information/Comments: Not applicable
Date of Submission (*MM/DD/YY*)**:** 09/14/2011