



Measure Information

This document contains the information submitted by measure developers/stewards, but is organized according to NQF's measure evaluation criteria and process. The item numbers refer to those in the submission form but may be in a slightly different order here. In general, the item numbers also reference the related criteria (e.g., item 1b.1 relates to sub criterion 1b).

Brief Measure Information

NQF #: 0347

Corresponding Measures:

De.2. Measure Title: Death Rate in Low-Mortality Diagnosis Related Groups (PSI02)

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

De.3. Brief Description of Measure: In-hospital deaths per 1,000 discharges for low mortality (< 0.5%) Diagnosis Related Groups (DRGs) among patients ages 18 years and older or obstetric patients. Excludes cases with trauma, cases with cancer, cases with an immunocompromised state, and transfers to an acute care facility.

[NOTE: The software provides the rate per hospital discharge. However, common practice reports the measure as per 1,000 discharges. The user must multiply the rate obtained from the software by 1,000 to report in-hospital deaths per 1,000 hospital discharges.]

1b.1. Developer Rationale: This indicator is intended to identify in-hospital deaths among patients unlikely to die during their hospitalizations. The underlying assumption is that when patients admitted for an extremely low-mortality condition or procedure die, a health care error is more likely to be responsible. AHRQ views this measure as complementary to "death among surgical inpatients with serious treatable complications" (NQF-endorsed PSI04, NQF #0351), which also focuses on a subset of deaths that are more likely to reflect challenges and opportunities in the area of patient safety. In comparison with all-patient Hospital Standardized Mortality Ratios (HSMRs), PSI02 excludes patients with elevated risk of non-preventable mortality, such as patients who experienced trauma or who have an immunodeficiency condition or cancer. (As a result, the few remaining patients in low-mortality MS-DRGs such as "total mastectomy" actually have relatively benign conditions such as ductal carcinoma-in-situ).

Based on two-stage implicit review of 8,109 randomly selected records from 104 New York hospitals in 1985-86, Hannan et al. found that patients in low-mortality DRGs (<0.5%) were 5.2 (95% CI, 3.2-8.4) times more likely than non-targeted cases (9.8% versus 1.7%) to have received "care that departed from professionally recognized standards," after adjusting for patient demographic, geographic, and hospital characteristics.(1) In 15 of these 26 cases (58%) of substandard care, the patient's death was attributed to that care. The association with substandard care was stronger for the DRG-based definition of this indicator than for an alternative definition based on primary surgical procedures with similarly low mortality (9.8% versus 5.7%). Other outcome metrics, such as death within 1 day or 2 days of a surgical procedure, fluid or electrolyte imbalance complicating a surgical case, and cardiac and urinary complications of surgery, also had weaker associations with substandard care than death in low-mortality DRGs (e.g., 2.2% to 7.1%, odds ratios 1.1-3.2).

Hannan's study validated the concept that deaths in low-mortality DRGs represent an opportunity to identify safety-related problems and to intervene to improve patient outcomes. Mhrshani et al. reviewed all of the published literature on this indicator, including Hannan's paper and two other studies "that provide direct evidence that the quality of care gap is higher" in deaths flagged by PSI02 than in other patients.(2) They conclude that "the indicator has utility as a screening tool to enable institutions to quickly and easily identify a manageable number of medical records to investigate more fully, for example, by using chart reviews or a mortality review" but they emphasize the need for "robust analytic research" to understand better the indicator's current performance.

(1) Hannan EL, Bernard HR, O'Donnell JF, Kilburn H, Jr. A methodology for targeting hospital cases for quality of care record reviews. Am J Public Health 1989;79(4):430-436.

(2) Mhrshahi S, Brand C, Ibrahim JE, Evans S, Jolley D, Cameron P. Validity of the indicator 'death in low-mortality diagnosis-related

groups' for measuring patient safety and healthcare quality in hospitals. Intern Med J 2010;40:250-7.
<p>S.4. Numerator Statement: Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.</p> <p>S.6. Denominator Statement: Discharges, for patients ages 18 years and older or MDC 14 (pregnancy, childbirth, and puerperium), with a low-mortality (less than 0.5% mortality) MS-DRG code (LOWMODR). If an MS-DRG is divided into "without/with (major) complications and comorbidities," both codes without complications/comorbidities and codes with (major) complications/comorbidities must have mortality rates below 0.5% in the reference population to qualify for inclusion.</p> <p>S.8. Denominator Exclusions: Exclude cases:</p> <ul style="list-style-type: none"> • with any listed ICD-10-CM diagnosis codes for trauma (Appendix G: TRAUMID) • with any listed ICD-10-CM diagnosis codes for cancer (Appendix H: CANCERID) • with any listed ICD-10-CM diagnosis codes for immunocompromised state (Appendix I: IMMUNID) • with any listed ICD-10-PCS procedure codes for immunocompromised state (Appendix I: IMMUNIP) • transfer to an acute care facility (DISP=2) • with missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing), or principal diagnosis (DX1=missing)
<p>De.1. Measure Type: Outcome</p> <p>S.17. Data Source: Claims</p> <p>S.20. Level of Analysis: Facility</p>
IF Endorsement Maintenance – Original Endorsement Date: May 15, 2008 Most Recent Endorsement Date: Dec 10, 2015
<p>IF this measure is included in a composite, NQF Composite#/title:</p> <p>IF this measure is paired/grouped, NQF#/title:</p> <p>De.4. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results? Not applicable</p>

1. Evidence, Performance Gap, Priority – Importance to Measure and Report
Extent to which the specific measure focus is evidence-based, important to making significant gains in healthcare quality, and improving health outcomes for a specific high-priority (high-impact) aspect of healthcare where there is variation in or overall less-than-optimal performance. <i>Measures must be judged to meet all sub criteria to pass this criterion and be evaluated against the remaining criteria.</i>
<p>1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form PSI02_NQF0347_Evidence_150402.docx</p> <p>1a.1 For Maintenance of Endorsement: Is there new evidence about the measure since the last update/submission? Do not remove any existing information. If there have been any changes to evidence, the Committee will consider the new evidence. Please use the most current version of the evidence attachment (v7.1). Please use red font to indicate updated evidence.</p>
<p>1b. Performance Gap Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating:</p> <ul style="list-style-type: none"> • considerable variation, or overall less-than-optimal performance, in the quality of care across providers; and/or • Disparities in care across population groups. <p>1b.1. Briefly explain the rationale for this measure (e.g., how the measure will improve the quality of care, the benefits or improvements in quality envisioned by use of this measure) <i>If a COMPOSITE (e.g., combination of component measure scores, all-or-none, any-or-none), SKIP this question and answer the composite questions.</i></p> <p>This indicator is intended to identify in-hospital deaths among patients unlikely to die during their hospitalizations. The underlying assumption is that when patients admitted for an extremely low-mortality condition or procedure die, a health care error is more likely to be responsible. AHRQ views this measure as complementary to "death among surgical inpatients with serious treatable complications" (NQF-endorsed PSI04, NQF #0351), which also focuses on a subset of deaths that are more likely to reflect challenges</p>

and opportunities in the area of patient safety. In comparison with all-patient Hospital Standardized Mortality Ratios (HSMRs), PSI02 excludes patients with elevated risk of non-preventable mortality, such as patients who experienced trauma or who have an immunodeficiency condition or cancer. (As a result, the few remaining patients in low-mortality MS-DRGs such as “total mastectomy” actually have relatively benign conditions such as ductal carcinoma-in-situ).

Based on two-stage implicit review of 8,109 randomly selected records from 104 New York hospitals in 1985-86, Hannan et al. found that patients in low-mortality DRGs (<0.5%) were 5.2 (95% CI, 3.2-8.4) times more likely than non-targeted cases (9.8% versus 1.7%) to have received “care that departed from professionally recognized standards,” after adjusting for patient demographic, geographic, and hospital characteristics.(1) In 15 of these 26 cases (58%) of substandard care, the patient’s death was attributed to that care. The association with substandard care was stronger for the DRG-based definition of this indicator than for an alternative definition based on primary surgical procedures with similarly low mortality (9.8% versus 5.7%). Other outcome metrics, such as death within 1 day or 2 days of a surgical procedure, fluid or electrolyte imbalance complicating a surgical case, and cardiac and urinary complications of surgery, also had weaker associations with substandard care than death in low-mortality DRGs (e.g., 2.2% to 7.1%, odds ratios 1.1-3.2).

Hannan’s study validated the concept that deaths in low-mortality DRGs represent an opportunity to identify safety-related problems and to intervene to improve patient outcomes. Mahrshani et al. reviewed all of the published literature on this indicator, including Hannan’s paper and two other studies “that provide direct evidence that the quality of care gap is higher” in deaths flagged by PSI02 than in other patients.(2) They conclude that “the indicator has utility as a screening tool to enable institutions to quickly and easily identify a manageable number of medical records to investigate more fully, for example, by using chart reviews or a mortality review” but they emphasize the need for “robust analytic research” to understand better the indicator’s current performance.

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(2) Mahrshahi S, Brand C, Ibrahim JE, Evans S, Jolley D, Cameron P. Validity of the indicator ‘death in low-mortality diagnosis-related groups’ for measuring patient safety and healthcare quality in hospitals. *Intern Med J* 2010;40:250-7.

1b.2. Provide performance scores on the measure as specified (current and over time) at the specified level of analysis. *(This is required for maintenance of endorsement. Include mean, std dev, min, max, interquartile range, scores by decile. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include.) This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.*

Note – a copy of this table appears in the supplemental files.

Table 1. Reference Population Rate and Distribution of Hospital Performance PSI 02 Death Rate in Low-Mortality Diagnosis Related Groups

Overall Reference Population Rate

Year	Number Hospitals	Outcome of Interest
(Numerator)(1)	Population at Risk	
(Denominator)(1)	Observed Rate	
Per 1000(1)		

2012	3,356	1,888	5,809,773	0.33
2011	3,187	2,052	5,726,474	0.36
2010(3)	4,939	1,937	7,161,487	0.27
2009(3)	4,847	1,957	7,323,968	0.27
2008(3)	4,781	2,100	7,418,086	0.28

Distribution of Hospital-level Observed Rates in Reference Population

Year	Number of Hospitals	Distribution of Observed Hospital-level Rates per 1000 (p=percentile)(2)						
		Mean	SD	p5	p25	Median	p75	p95
2012	3,356	01.24	10.72	0.00	0.00	0.00	00.30	2.49
2011	3,187	01.04	6.10	0.00	0.00	0.00	0.39	3.24

Source: HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2008-2012. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/sidoverview.jsp. (AHRQ QI Software Version 4.5 and 5.0)

(1)The observed rate refers to the total rate for all observations included in the reference population data (numerator) divided the total combined population of all hospitals included in the reference population data (denominator).

(2)The distribution of hospital rates reports the mean and standard deviation (SD) of the observed rates for all hospitals included in the dataset, as well as the observed rate for hospitals in the 5th, 25th, 50th (median), 75th, and 95th percentile.

(3)2008-2010 data are calculated using Version 4.5 of the QI Software and all states included in the SID for those years. Version 4.5 includes a “prediction module” which is used to account for missing present on admission flags. In Version 5.0, the “prediction module” has been removed and the reference population is limited to states and hospitals with present on admission data. These differences may lead to some discontinuity in the observed rates between 2010 and 2011, since many states did not report POA data prior to 2011. The number of states reporting consistent POA has increased from 2008-2012.

1b.3. If no or limited performance data on the measure as specified is reported in 1b2, then provide a summary of data from the literature that indicates opportunity for improvement or overall less than optimal performance on the specific focus of measurement.

Not applicable

1b.4. Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability. (*This is required for maintenance of endorsement. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included.*) For measures that show high levels of performance, i.e., “topped out”, disparities data may demonstrate an opportunity for improvement/gap in care for certain sub-populations. This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.

Note – a copy of this table appears in the supplemental files.

Table 2. Risk-Adjusted Death in Low-Mortality DRG Rates per 1,000 Elective Surgery Admissions, Age 18 and Over (PSI02), by Patient and Hospital Characteristics, 2012

Patient/hospital characteristic	Estimate	Std Error	p-value	(Ref Grp = *)
Total U.S.	0.324	0.008		
Patient Characteristics				
Age Groups:				
18-44*	0.236	0.016		
45-64	0.522	0.024	0.000	
65 and over	0.325	0.009	0.000	
Gender:				
Male*	0.327	0.012		
Female	0.322	0.010	0.642	
Patient Zip Code Median Income				
First quartile (lowest income)	0.395	0.015	0.000	
Second quartile	0.321	0.015	0.009	
Third quartile	0.308	0.015	0.037	
Fourth quartile (highest income)*	0.270	0.015		
Location of patient residence (NCHS):				
Large central metropolitan	0.270	0.013	0.972	
Large fringe metropolitan*	0.308	0.015		
Medium metropolitan	0.353	0.018	0.026	
Small metropolitan	0.334	0.025	0.181	
Micropolitan	0.387	0.026	0.004	
Noncore	0.524	0.032	0.000	
Expected payment source:				
Private insurance*	0.261	0.017		
Medicare	0.313	0.009	0.004	
Medicaid	0.426	0.023	0.000	
Other insurance	0.532	0.053	0.000	
Uninsured / self-pay / no charge	0.501	0.052	0.000	
Location of Care:				
Northeast*	0.254	0.015		

Midwest 0.307 0.017 0.011
 South 0.355 0.013 0.000
 West 0.367 0.015 0.000

Source: HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2012. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/sidoverview.jsp. (AHRQ QI Software Version 5.0)

*Reference for p-value test statistics.

NCHS - National Center for Health Statistics designation for urban-rural locations.

1b.5. If no or limited data on disparities from the measure as specified is reported in 1b.4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations. Not necessary if performance data provided in 1b.4

See 1b.4

2. Reliability and 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. **Measures must be judged to meet the sub criteria for both reliability and validity to pass this criterion and be evaluated against the remaining criteria.**

2a.1. Specifications The measure is well defined and precisely specified so it can be implemented consistently within and across organizations and allows for comparability. eMeasures should be specified in the Health Quality Measures Format (HQMF) and the Quality Data Model (QDM).

De.5. Subject/Topic Area (check all the areas that apply):

Surgery : General Surgery

De.6. Non-Condition Specific(check all the areas that apply):

Safety, Safety : Complications

De.7. Target Population Category (Check all the populations for which the measure is specified and tested if any):

Populations at Risk : Veterans, Women

S.1. Measure-specific Web Page (Provide a URL link to a web page specific for this measure that contains current detailed specifications including code lists, risk model details, and supplemental materials. Do not enter a URL linking to a home page or to general information.)

http://www.qualityindicators.ahrq.gov/Modules/psi_resources.aspx

S.2a. If this is an eMeasure, HQMF specifications must be attached. Attach the zipped output from the eMeasure authoring tool (MAT) - if the MAT was not used, contact staff. (Use the specification fields in this online form for the plain-language description of the specifications)

This is not an eMeasure Attachment:

S.2b. Data Dictionary, Code Table, or Value Sets (and risk model codes and coefficients when applicable) must be attached. (Excel or csv file in the suggested format preferred - if not, contact staff)

Attachment Attachment: [PSI_02_Death_Rate_in_Low-Mortality_Diagnosis_Related_Groups_-DRGs_-_Editable.xlsx](#)

S.2c. Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

No, this is not an instrument-based measure Attachment:

S.2d. Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

Not an instrument-based measure

S.3.1. For maintenance of endorsement: Are there changes to the specifications since the last updates/submission. If yes, update

the specifications for S1-2 and S4-22 and explain reasons for the changes in S3.2.

Yes

S.3.2. For maintenance of endorsement, please briefly describe any important changes to the measure specifications since last measure update and explain the reasons.

As standard protocol, the AHRQ QI program annually updates all measures with Fiscal Year coding changes, refinements based on stakeholder input, refinements to improve specificity and sensitivity based on additional analyses, and necessary software changes. In addition, approximately every two years, AHRQ updates the risk adjustment parameter estimates and composite weights based on the most recent year of data (i.e., the most current reference population possible). The refined measures are tested and confirmed to be valid and reliable prior to release of the updated software.

S.4. Numerator Statement (Brief, narrative description of the measure focus or what is being measured about the target population, i.e., cases from the target population with the target process, condition, event, or outcome) DO NOT include the rationale for the measure.

IF an OUTCOME MEASURE, state the outcome being measured. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.

S.5. 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, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)

IF an OUTCOME MEASURE, describe how the observed outcome is identified/counted. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

Not applicable

S.6. Denominator Statement (Brief, narrative description of the target population being measured)

Discharges, for patients ages 18 years and older or MDC 14 (pregnancy, childbirth, and puerperium), with a low-mortality (less than 0.5% mortality) MS-DRG code (LOWMODR). If an MS-DRG is divided into “without/with (major) complications and comorbidities,” both codes without complications/comorbidities and codes with (major) complications/comorbidities must have mortality rates below 0.5% in the reference population to qualify for inclusion.

S.7. Denominator Details (All information required to identify and calculate the target population/denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)

IF an OUTCOME MEASURE, describe how the target population is identified. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

LOWMODR: Low-mortality (less than 0.5%) MS-DRG codes
(See attached technical specifications for detailed list of codes.)

S.8. Denominator Exclusions (Brief narrative description of exclusions from the target population)

Exclude cases:

- with any listed ICD-10-CM diagnosis codes for trauma (Appendix G: TRAUMID)
- with any listed ICD-10-CM diagnosis codes for cancer (Appendix H: CANCEID)
- with any listed ICD-10-CM diagnosis codes for immunocompromised state (Appendix I: IMMUNID)
- with any listed ICD-10-PCS procedure codes for immunocompromised state (Appendix I: IMMUNIP)
- transfer to an acute care facility (DISP=2)
- with missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing), or principal diagnosis (DX1=missing)

S.9. Denominator Exclusion Details (All information required to identify and calculate exclusions from the denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)

Appendix G: Trauma Diagnosis Codes

Appendix H: Cancer Diagnosis Codes

Appendix I: Immunocompromised State Diagnosis and Procedure Codes
(See attached Appendix G, Appendix H, and Appendix I for detailed list of codes.)

S.10. Stratification Information (Provide all information required to stratify the measure results, if necessary, including the stratification variables, definitions, specific data collection items/responses, code/value sets, and the risk-model covariates and coefficients for the clinically-adjusted version of the measure when appropriate – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format with at S.2b.)
Not applicable

S.11. Risk Adjustment Type (Select type. Provide specifications for risk stratification in measure testing attachment)
No risk adjustment or risk stratification
If other:

S.12. Type of score:
Rate/proportion
If other:

S.13. 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

S.14. Calculation Algorithm/Measure Logic (Diagram or 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; time period for data, aggregating data; risk adjustment; etc.)
Risk adjustment is not currently included in the ICD-10-CM/PCS v2018 of the AHRQ QI specifications, due to the transition to ICD-10-CM/PCS (October 1, 2015). At least one full year of data coded in ICD-10-CM/PCS is needed in order to develop robust risk adjustment models. A full year of ICD-10-CM/PCS coded all-payer data will not be available until mid-2019. AHRQ will announce an anticipated date as soon as one is known.

S.15. Sampling (If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)
IF an instrument-based performance measure (e.g., PRO-PM), identify whether (and how) proxy responses are allowed.
Not applicable

S.16. Survey/Patient-reported data (If measure is based on a survey or instrument, provide instructions for data collection and guidance on minimum response rate.)
Specify calculation of response rates to be reported with performance measure results.
Not applicable

S.17. Data Source (Check ONLY the sources for which the measure is SPECIFIED AND TESTED).
If other, please describe in S.18.
Claims

S.18. Data Source or Collection Instrument (Identify the specific data source/data collection instrument (e.g. name of database, clinical registry, collection instrument, etc., and describe how data are collected.)
IF instrument-based, identify the specific instrument(s) and standard methods, modes, and languages of administration.
While the measure is tested and specified using data from the Healthcare Cost and Utilization Project (HCUP) (see section 1.1 and 1.2 of the measure testing form), the measure specifications and software are specified to be used with any ICD-9-CM-coded administrative billing/claims/discharge dataset with Present on Admission (POA) information. Note that in Version 5.0 (April 2015), the AHRQ QI software will no longer support prediction of POA status using an embedded prediction module. Users are expected to provide POA data.

S.19. Data Source or Collection Instrument (available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)
Available at measure-specific web page URL identified in S.1

S.20. Level of Analysis (Check ONLY the levels of analysis for which the measure is SPECIFIED AND TESTED)

<p>Facility</p> <p>S.21. Care Setting (Check <i>ONLY</i> the settings for which the measure is SPECIFIED AND TESTED)</p> <p>Inpatient/Hospital</p> <p>If other:</p>
<p>S.22. COMPOSITE Performance Measure - Additional Specifications (Use this section as needed for aggregation and weighting rules, or calculation of individual performance measures if not individually endorsed.)</p> <p>Not applicable</p>
<p>2. Validity – See attached Measure Testing Submission Form</p> <p>PSI02_NQF_Measure_Testing_Form_150402.docx</p> <p>2.1 For maintenance of endorsement</p> <p>Reliability testing: If testing of reliability of the measure score was not presented in prior submission(s), has reliability testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.</p> <p>2.2 For maintenance of endorsement</p> <p>Has additional empirical validity testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.</p> <p>2.3 For maintenance of endorsement</p> <p>Risk adjustment: For outcome, resource use, cost, and some process measures, risk-adjustment that includes social risk factors is not prohibited at present. Please update sections 1.8, 2a2, 2b1,2b4.3 and 2b5 in the Testing attachment and S.140 and S.11 in the online submission form. NOTE: These sections must be updated even if social risk factors are not included in the risk-adjustment strategy. You MUST use the most current version of the Testing Attachment (v7.1) -- older versions of the form will not have all required questions.</p>
<p>3. Feasibility</p> <p>Extent to which the specifications including measure logic, require data that are readily available or could be captured without undue burden and can be implemented for performance measurement.</p> <p>3a. Byproduct of Care Processes</p> <p>For clinical measures, the required data elements are routinely generated and used during care delivery (e.g., blood pressure, lab test, diagnosis, medication order).</p> <p>3a.1. Data Elements Generated as Byproduct of Care Processes.</p> <p>Coded by someone other than person obtaining original information (e.g., DRG, ICD-9 codes on claims)</p> <p>If other:</p> <p>3b. Electronic Sources</p> <p>The required data elements are available in electronic health records or other electronic sources. If the required data are not in electronic health records or existing electronic sources, a credible, near-term path to electronic collection is specified.</p> <p>3b.1. To what extent are the specified data elements available electronically in defined fields (i.e., data elements that are needed to compute the performance measure score are in defined, computer-readable fields) Update this field for <u>maintenance of endorsement.</u></p> <p>ALL data elements are in defined fields in electronic claims</p>

3b.2. If ALL the data elements needed to compute the performance measure score are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources. For maintenance of endorsement, if this measure is not an eMeasure (eCQM), please describe any efforts to develop an eMeasure (eCQM).

3b.3. If this is an eMeasure, provide a summary of the feasibility assessment in an attached file or make available at a measure-specific URL. Please also complete and attach the NQF Feasibility Score Card.

Attachment:

3c. Data Collection Strategy

Demonstration that the data collection strategy (e.g., source, timing, frequency, sampling, patient confidentiality, costs associated with fees/licensing of proprietary measures) can be implemented (e.g., already in operational use, or testing demonstrates that it is ready to put into operational use). For eMeasures, a feasibility assessment addresses the data elements and measure logic and demonstrates the eMeasure can be implemented or feasibility concerns can be adequately addressed.

3c.1. Required for maintenance of endorsement. Describe difficulties (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.

IF instrument-based, consider implications for both individuals providing data (patients, service recipients, respondents) and those whose performance is being measured.

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.

3c.2. Describe any fees, licensing, or other requirements to use any aspect of the measure as specified (e.g., value/code set, risk model, programming code, algorithm).

No fees. Software is freely available from the AHRQ Quality Indicators website (<http://www.qualityindicators.ahrq.gov/>). The version 5.0 software will be released in early 2015.

4. Usability and Use

Extent to which potential audiences (e.g., consumers, purchasers, providers, policy makers) are using or could use performance results for both accountability and performance improvement to achieve the goal of high-quality, efficient healthcare for individuals or populations.

4a. Accountability and Transparency

Performance results are used in at least one accountability application within three years after initial endorsement and are publicly reported within six years after initial endorsement (or the data on performance results are available). If not in use at the time of initial endorsement, then a credible plan for implementation within the specified timeframes is provided.

4.1. Current and Planned Use

NQF-endorsed measures are expected to be used in at least one accountability application within 3 years and publicly reported within 6 years of initial endorsement in addition to performance improvement.

Specific Plan for Use	Current Use (for current use provide URL)
	<p>Public Reporting</p> <p>Agency for Healthcare Research and Quality (AHRQ), National Healthcare Quality Report & National Healthcare Disparities Reports</p> <p>http://www.hcup-us.ahrq.gov/reports/methods/2015_02.pdf</p> <p>Arizona Department of Health Services, AZ Hospital Compare, MONAHRQ website</p> <p>http://pub.azdhs.gov/hospital-discharge stats/2012/AboutQualityRatings.html#JHealthGrades</p> <p>http://www.healthgrades.com/quality/2014-patient-safety-methodology</p> <p>SunCoast, RHIO Inc. Florida, MONAHRQ website</p> <p>http://www.floridahealthinformation.com/</p> <p>Kentucky Health Care Information Center, MONAHRQ website</p>

	https://prd.chfs.ky.gov/MONAHQR/2012/MONAHQR/AboutQualityRatings.html#L Kentucky Hospital Association Quality Data http://info.kyha.com/QualityData/PSISite/PSIindicators_included.htm Maine Health Data Organization (MHDO), MONAHQR Website http://gateway.maine.gov/mhdo/monahrq/Methodology.html Niagara Health Quality Coalition, New York State Hospital Report Card http://www.myhealthfinder.com/newyork13/index.php Nevada Compare Care, MONAHQR website http://nevadacomparecare.net/Monahrq/index.html#/resources/Definitions Northwestern Memorial Hospital, Quality Rating http://www.nmh.org/nm/quality-ahrq Norton Healthcare http://www.nortonhealthcare.com/PatientSafetyIndicators Oklahoma State Department of Health, MONAHQR website http://www.ok.gov/health/pub/wrapper/ok2share.html Texas Health Resources https://www.texashealth.org/Pages/Quality-and-Patient-Safety/Quality-and-Safety-Reports.aspx Upstate University Hospital http://qoc.upstate.edu/QualityOfCare.cfm?quality_measure_group_id=8 Utah Department of Health, MONAHQR website https://health.utah.gov/myhealthcare/monahrq/AboutQualityRatings.html Virginia Health Information, MONAHQR website https://health.utah.gov/myhealthcare/monahrq/AboutQualityRatings.html Washington State, MONAHQR website http://www.wamonahrq.net/MONAHQR_5p0_WA_2012/index.html#/resources/Definitions Quality Improvement (Internal to the specific organization) Australian Commission on Safety and Quality in Health Care http://www.safetyandquality.gov.au/wp-content/uploads/2015/03/Using-hospital-mortality-indicators-to-improve-patient-care-A-guide-for-Boards-and-Chief-Executives.pdf Stanford Hospital and Clinics http://med.stanford.edu/shs/update/archives/FEB2011/qualitycorner.htm
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4a1.1 For each CURRENT use, checked above (update for maintenance of endorsement), provide:

- Name of program and sponsor
- Purpose
- Geographic area and number and percentage of accountable entities and patients included
- Level of measurement and setting

Public Reporting:

Agency for Healthcare Research and Quality (AHRQ), National Healthcare Quality Report & National Healthcare Disparities Reports
2012 data are from 45 participating states in the Healthcare Cost and Utilization Project (HCUP) database. AHRQ QIs were applied to HCUP data for selected measures in National Healthcare Quality Report and Disparities Report.

http://www.hcup-us.ahrq.gov/reports/methods/2015_02.pdf

Arizona Department of Health Services, AZ Hospital Compare, MONAHQR website

Hospital quality ratings from all hospitals in Arizona

<http://pub.azdhs.gov/hospital-discharge-stats/2012/index.html>

<http://pub.azdhs.gov/hospital-discharge-stats/2012/AboutQualityRatings.html#J>

HealthGrades

Healthgrades measures 40 million patient records from 4,500 hospitals nationwide for the most recent three-year period.

<http://www.healthgrades.com/quality>

<http://www.healthgrades.com/quality/2014-patient-safety-methodology>

SunCoast, RHIO Inc. Florida, MONAHRQ website

Gives access to clinical outcome and performance measure data for hospitals, nursing homes, hospice providers, physicians, and health plans.

<http://www.floridahealthinformation.com/>

Kentucky Health Care Information Center, MONAHRQ website

Quality reporting on hospitals across the state of Kentucky (n = 132 in 2012).

<http://chfs.ky.gov/ohp/healthdata>

<https://prd.chfs.ky.gov/MONAHRQ/2012/MONAHRQ/AboutQualityRatings.html#L>

Kentucky Hospital Association Quality Data

Publicly reports AHRQ IQIs and PSIs, including PSI02, for hospitals in Kentucky.

http://info.kyha.com/QualityData/PSISite/PSIindicators_included.htm

Maine Health Data Organization (MHDO), MONAHRQ Website

Hospital quality ratings from all hospitals in Maine

<http://gateway.maine.gov/mhdo/monahrq/index.html>

<http://gateway.maine.gov/mhdo/monahrq/Methodology.html>

Niagara Health Quality Coalition, New York State Hospital Report Card

The hospital-specific reports published here show how New York State hospitals performed in calendar year 2011, based on indicators of hospital quality developed by the federal government.

<http://www.myhealthfinder.com/newyork13/index.php>

Nevada Compare Care, MONAHRQ website

Under NV Regulation R151-8 this transparency website presents hospital quality and utilization information

<http://nevadacomparecare.net/Monahrq/index.html#/>

<http://nevadacomparecare.net/Monahrq/index.html#/resources/Definitions>

Northwestern Memorial Hospital, Quality Rating

Hospital quality ratings for a 894 bed academic medical center

<http://www.nmh.org/nm/quality-ahrq>

Norton Healthcare

Publicly-reported Quality Report on all 5 hospitals within Norton healthcare system.

<http://www.nortonhealthcare.com/QualityReport>

<http://www.nortonhealthcare.com/PatientSafetyIndicators>

Oklahoma State Department of Health, MONAHRQ website

Includes vital statistics, hospital and ASC discharges, health surveys, and health registries for hospitals in the state of Oklahoma

<http://www.ok.gov/health/pub/wrapper/ok2share.html>

Texas Health Resources

Provides quality and safety reports for all Texas Health Resources

<https://www.texashealth.org/Pages/Quality-and-Patient-Safety/Quality-and-Safety-Reports.aspx>

https://www.texashealth.org/Documents/System/Quality_Patient_Safety/Reports/Patient%20Safety%20Tab%2003-20-2015.pdf

Upstate University Hospital

Upstate Medical University reports a broad range of over 20 AHRQ Inpatient Quality Indicators (IQI's) and Patient Safety Indicators for both itself and a national average of over 100 academic medical centers.

<http://qoc.upstate.edu/>

http://qoc.upstate.edu/QualityOfCare.cfm?quality_measure_group_id=8

Utah Department of Health, MONAHRQ website
Hospital quality ratings from all hospitals in Utah
<https://health.utah.gov/myhealthcare/monahrq/>
<https://health.utah.gov/myhealthcare/monahrq/AboutQualityRatings.html>

Virginia Health Information, MONAHRQ website
Compares quality ratings on hospitals across Virginia.
<http://www.vhi.org/MONAHRQ/default.asp?yr=2013>
<https://health.utah.gov/myhealthcare/monahrq/AboutQualityRatings.html>

Washington State, MONAHRQ website
Information system of inpatient care utilization, quality, and potentially avoidable stays in Washington State's community hospitals.
<http://www.wamonahrq.net/>
http://www.wamonahrq.net/MONAHRQ_5p0_WA_2012/index.html#/resources/Definitions

Quality Improvement:
Examples of known quality improvement uses

Australian Commission on Safety and Quality in Health Care
Guide to using hospital mortality measures, including PSI02, to screen for potential safety and quality issues.
<http://www.safetyandquality.gov.au/wp-content/uploads/2015/03/Using-hospital-mortality-indicators-to-improve-patient-care-A-guide-for-Boards-and-Chief-Executives.pdf>

Stanford Hospital and Clinics
Internal quality improvement efforts using variety of metrics, including death in low-mortality DRGs.
<http://med.stanford.edu/shs/update/archives/FEB2011/qualitycorner.htm>

Greenville Health System, Quality and Safety Report
All data was collected in 2012 from four hospitals in the Greenville Health system and compared with external benchmarks.
<http://www.ghs.org/upload/docs/Reports/2013-April-Quality-Report.pdf>
<http://www.ghs.org/reportcard>

Northwestern Memorial Hospital, Patient Safety Indicator Monitoring Plan
Quality improvement initiative at 894-bed academic hospital.
http://www.scha.org/files/sc_qis_workshop_-_brake_presentation_using_qis_for_clinical_improvement_5.21.2012_0.pdf

4a1.2. If not currently publicly reported OR used in at least one other accountability application (e.g., payment program, certification, licensing) what are the reasons? (e.g., Do policies or actions of the developer/steward or accountable entities restrict access to performance results or impede implementation?)

Not applicable

4a1.3. If not currently publicly reported OR used in at least one other accountability application, provide a credible plan for implementation within the expected timeframes -- any accountability application within 3 years and publicly reported within 6 years of initial endorsement. (Credible plan includes the specific program, purpose, intended audience, and timeline for implementing the measure within the specified timeframes. A plan for accountability applications addresses mechanisms for data aggregation and reporting.)

Not applicable

4a2.1.1. Describe how performance results, data, and assistance with interpretation have been provided to those being measured or other users during development or implementation.

How many and which types of measured entities and/or others were included? If only a sample of measured entities were included, describe the full population and how the sample was selected.

The Agency for Healthcare Research and Quality (AHRQ) provides free software, in both SAS and Windows format, to calculate the AHRQ Quality Indicators. Users may use their own hospital administrative data to calculate the QIs using this software. In addition, AHRQ provides technical assistance to users through a QI User Support email address, QISupport@ahrq.hhs.gov. AHRQ

trriages, troubleshoots and responds to technical inquiries related to methodology and rationale behind the indicator and general questions related to the use of the software. During a calendar year, AHRQ typically provides technical support to over 1,000 queries.

In addition, AHRQ provides technical assistance to users through a QI User Support email address, QISupport@ahrq.hhs.gov. AHRQ triages, troubleshoots and responds to technical inquiries related to methodology and rationale behind the indicator and general questions related to the use of the software. During a calendar year, AHRQ typically provides technical support to over 1,000 queries.

4a2.1.2. Describe the process(es) involved, including when/how often results were provided, what data were provided, what educational/explanatory efforts were made, etc.

The AHRQ QI software is updated annually. Technical support is available on an on-going basis. No data updates are necessary; users apply the AHRQ QIs to their own hospital administrative data.

4a2.2.1. Summarize the feedback on measure performance and implementation from the measured entities and others described in 4d.1.

Describe how feedback was obtained.

Feedback is obtained from users through a variety of channels, in particular through a technical assistance support service described above. In addition, AHRQ incorporates input on QI implementation from technical workgroups convened to support QI development and maintenance, stakeholder committees such as NQF standing committees, and peer-reviewed or other research publications.

4a2.2.2. Summarize the feedback obtained from those being measured.

See the response to 4a2.2.1.

4a2.2.3. Summarize the feedback obtained from other users

See the response to 4a2.2.1.

4a2.3. Describe how the feedback described in 4a2.2.1 has been considered when developing or revising the measure specifications or implementation, including whether the measure was modified and why or why not.

The AHRQ Quality Indicators are updated annually, including updating indicator technical specifications in accordance with the latest coding guidance; suggestions from users and other stakeholders obtained through Technical Assistance, committees, or workgroups; and the latest clinical and scientific research. AHRQ regularly reviews these sources, identifies possible indicator updates, and prioritizes updates for each indicator and software update based on expected impact on users.

Improvement

Progress toward achieving the goal of high-quality, efficient healthcare for individuals or populations is demonstrated. If not in use for performance improvement at the time of initial endorsement, then a credible rationale describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

4b1. Refer to data provided in 1b but do not repeat here. Discuss any progress on improvement (trends in performance results, number and percentage of people receiving high-quality healthcare; Geographic area and number and percentage of accountable entities and patients included.)

If no improvement was demonstrated, what are the reasons? If not in use for performance improvement at the time of initial endorsement, provide a credible rationale that describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

The indicator rate has remained relatively stable over time. While this indicator captures fairly rare events, stable rates suggest that on-going monitoring may be important.

4b2. Unintended Consequences

The benefits of the performance measure in facilitating progress toward achieving high-quality, efficient healthcare for individuals or populations outweigh evidence of unintended negative consequences to individuals or populations (if such evidence exists).

4b2.1. Please explain any unexpected findings (positive or negative) during implementation of this measure including unintended impacts on patients.

Coding professionals follow detail guidelines, are subject to training and credentialing requirements, peer review and audit.

4b2.2. Please explain any unexpected benefits from implementation of this measure.

5. Comparison to Related or 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.

5. Relation to Other NQF-endorsed Measures

Are there related measures (conceptually, either same measure focus or target population) or competing measures (conceptually both the same measure focus and same target population)? If yes, list the NQF # and title of all related and/or competing measures.

No

5.1a. List of related or competing measures (selected from NQF-endorsed measures)

5.1b. If related or competing measures are not NQF endorsed please indicate measure title and steward.

5a. Harmonization of Related Measures

The measure specifications are harmonized with related measures;

OR

The differences in specifications are justified

5a.1. If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed measure(s):

Are the measure specifications harmonized to the extent possible?

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

not applicable

5b. Competing Measures

The measure is superior to competing measures (e.g., is a more valid or efficient way to measure);

OR

Multiple measures are justified.

5b.1. If this measure conceptually addresses 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.)

Not applicable

Appendix

A.1 Supplemental materials may be provided in an appendix. All supplemental materials (such as data collection instrument or methodology reports) should be organized in one file with a table of contents or bookmarks. If material pertains to a specific submission form number, that should be indicated. Requested information should be provided in the submission form and required attachments. There is no guarantee that supplemental materials will be reviewed.

[Attachment Attachment: PSI02_Supplemental_Packet_150402.pdf](#)

Contact Information

Co.1 Measure Steward (Intellectual Property Owner): Agency for Healthcare Research and Quality Co.2 Point of Contact: Mamatha, Pancholi , Mamatha.Pancholi@ahrq.hhs.gov , 301-427-1412- Co.3 Measure Developer if different from Measure Steward: Agency for Healthcare Research and Quality Co.4 Point of Contact: Mamatha, Pancholi , Mamatha.Pancholi@ahrq.hhs.gov , 301-427-1412-
Additional Information
Ad.1 Workgroup/Expert Panel involved in measure development 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
Measure Developer/Steward Updates and Ongoing Maintenance Ad.2 Year the measure was first released: 2003 Ad.3 Month and Year of most recent revision: 03, 2015 Ad.4 What is your frequency for review/update of this measure? Annual Ad.5 When is the next scheduled review/update for this measure? 10, 2015
Ad.6 Copyright statement: The AHRQ QI software is publicly available. We have no copyright disclaimers Ad.7 Disclaimers: None
Ad.8 Additional Information/Comments: Not applicable