



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 #: 0285

Corresponding Measures:

De.2. Measure Title: Lower-Extremity Amputation among Patients with Diabetes Rate (PQI 16)

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

De.3. Brief Description of Measure: Admissions for any-listed diagnosis of diabetes and any-listed procedure of lower-extremity amputation (except toe amputations) per 100,000 population, ages 18 years and older. Excludes any-listed diagnosis of traumatic lower-extremity amputation admissions, obstetric admissions, and transfers from other institutions.

[NOTE: The software provides the rate per population. However, common practice reports the measure as per 100,000 population. The user must multiply the rate obtained from the software by 100,000 to report admissions per 100,000 population.]

1b.1. Developer Rationale: This measure is an avoidable hospitalization/ambulatory care sensitive condition (ACSC) type indicator. ACSC type indicators are not measures of hospital quality, but rather measures of potentially avoidable hospitalization if appropriate outpatient care, other healthcare services or community services were accessed and obtained (i.e., measures of the health care system broadly defined). These measures are designed to assess population access to timely, high quality outpatient and public health services in a particular geographic area, for the purpose of managing chronic disease or diagnosing acute illnesses before progressing to inpatient treatment. These measures are of most interest to comprehensive health care delivery systems, such as some health maintenance organizations (HMOs), accountable care organizations (ACOs) or public health agencies. ACSC indicators correlate with each other and they may be used in conjunction as an overall examination of outpatient care and access to care at a national, regional or county level.

S.4. Numerator Statement: Discharges, for patients ages 18 years and older, with any-listed ICD-10-PCS procedure codes for lower-extremity amputation and any-listed ICD-10-CM diagnosis codes for diabetes.

S.6. Denominator Statement: Population ages 18 years and older in metropolitan area[†] or county. Discharges in the numerator are assigned to the denominator based on the metropolitan area or county of the patient residence, not the metropolitan area or county of the hospital where the discharge occurred.[‡]

[†] The term "metropolitan area" (MA) was adopted by the U.S. Census in 1990 and referred collectively to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs), and primary metropolitan statistical areas (PMSAs). In addition, "area" could refer to either 1) FIPS county, 2) modified FIPS county, 3) 1999 OMB Metropolitan Statistical Area, or 4) 2003 OMB Metropolitan Statistical Area. Micropolitan Statistical Areas are not used in the QI software.

[‡] The denominator can be specified with the diabetic population only and calculated with the SAS QI software through the condition-specific denominator at the state-level feature.

S.8. Denominator Exclusions: Not applicable

De.1. Measure Type: Outcome

S.17. Data Source: Claims

S.20. Level of Analysis: Population : Community, County or City, Population : Regional and State

IF Endorsement Maintenance – Original Endorsement Date: Nov 15, 2007 **Most Recent Endorsement Date:** Sep 18, 2014

IF this measure is included in a composite, NQF Composite#/title:

IF this measure is paired/grouped, NQF#/title:

De.4. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results? Not applicable

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. **Measures must be judged to meet all sub criteria to pass this criterion and be evaluated against the remaining criteria.**

1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form

[PQI_16_Evidence_Form_February_2014.pdf](#)

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.

1b. Performance Gap

Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating:

- considerable variation, or overall less-than-optimal performance, in the quality of care across providers; and/or
- Disparities in care across population groups.

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)

If a COMPOSITE (e.g., combination of component measure scores, all-or-none, any-or-none), SKIP this question and answer the composite questions.

This measure is an avoidable hospitalization/ambulatory care sensitive condition (ACSC) type indicator. ACSC type indicators are not measures of hospital quality, but rather measures of potentially avoidable hospitalization if appropriate outpatient care, other healthcare services or community services were accessed and obtained (i.e., measures of the health care system broadly defined). These measures are designed to assess population access to timely, high quality outpatient and public health services in a particular geographic area, for the purpose of managing chronic disease or diagnosing acute illnesses before progressing to inpatient treatment. These measures are of most interest to comprehensive health care delivery systems, such as some health maintenance organizations (HMOs), accountable care organizations (ACOs) or public health agencies. ACSC indicators correlate with each other and they may be used in conjunction as an overall examination of outpatient care and access to care at a national, regional or county level.

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.*

All analyses were completed using data from the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID), 2007-2011. HCUP is a family of health care databases and related software tools and products developed through a Federal-State-Industry partnership and sponsored by the Agency for Healthcare Research and Quality (AHRQ). HCUP databases bring together the data collection efforts of State data organizations, hospital associations, private data organizations, and the Federal government to create a national information resource of encounter-level health care data. The HCUP SID contain the universe of the inpatient discharge abstracts in participating States, translated into a uniform format to facilitate multi-State comparisons and analyses. Together, the SID encompass about 97 percent of all U.S. community hospital discharges (in 2011, 46 states participated for a total of more than 38.5 million hospital discharges). As defined by the American Hospital Association, community hospitals are all non-Federal, short-term, general or other specialty hospitals, excluding hospital units of institutions. Veterans hospitals and other Federal facilities are excluded. Taken from the Uniform Bill-04 (UB-04), the SID data elements include ICD-9-CM coded principal and secondary diagnoses and procedures, additional detailed clinical and service information based on revenue codes, admission and discharge status, patient demographics, expected payment source (Medicare, Medicaid, private insurance as well as the uninsured), total charges and length of stay (www.hcup-us.ahrq.gov).

Table 1. Reference Population

Year	Areas	Outcome	Pop at Risk	Obs Rate per 100,000 population
2011	3,112	37,233	236,853,268	15.720
2010	3,111	35,997	234,354,212	15.360
2009	3,112	35,332	231,837,816	15.240
2008	3,111	34,974	229,336,285	15.250
2007	3,107	33,949	226,777,912	14.970

Performance Score Distribution 2011 (Rate per 100,000)

5th	25th	Median	75th	95th
4.994	9.660	14.298	20.241	31.302

Source: HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2011. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/sidoverview.jsp. (AHRQ QI Software Version 4.5)

PQI 16 uses the entire population of the geographic unit of analysis (i.e., county, MSA, state) for its denominator. As the prevalence of diabetes increases in the denominator population, the incidence of amputation involving diabetic patients may increase. The increasing prevalence of diabetes in the US population is the most likely driving force behind the slight increase in PQI 16. See prevalence data at: <http://www.cdc.gov/diabetes/statistics/prev/national/figage.htm>.

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.

All analyses were completed using data from the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID), 2007-2011. HCUP is a family of health care databases and related software tools and products developed through a Federal-State-Industry partnership and sponsored by the Agency for Healthcare Research and Quality (AHRQ). HCUP databases bring together the data collection efforts of State data organizations, hospital associations, private data organizations, and the Federal government to create a national information resource of encounter-level health care data. The HCUP SID contain the universe of the inpatient discharge abstracts in participating States, translated into a uniform format to facilitate multi-State comparisons and analyses. Together, the SID encompass about 97 percent of all U.S. community hospital discharges (in 2011, 46 states participated for a total of more than 38.5 million hospital discharges). As defined by the American Hospital Association, community hospitals are all non-Federal, short-term, general or other specialty hospitals, excluding hospital units of institutions. Veterans hospitals and other Federal facilities are excluded. Taken from the Uniform Bill-04 (UB-04), the SID data elements include ICD-9-CM coded principal and secondary diagnoses and procedures, additional detailed clinical and service information based on revenue codes, admission and discharge status, patient demographics, expected payment source (Medicare, Medicaid, private insurance as well as the uninsured), total charges and length of stay (www.hcup-us.ahrq.gov).

Lower extremity amputations among admissions for diabetesa per 100,000 population, age 18 and over (PQI 16)

Adjusted rates by patient and hospital characteristics, 2011 (HCUPnet)

Characteristic	Estimate	Std Err	P-Value (ref=*)
Total U.S.	18.135	0.629	

Patient characteristic:

Age groups for conditions affecting any age

18-44*	2.817	0.180	
45-64	23.976	0.943	0.000
65 and over	51.070	1.887	0.000

Age groups for conditions affecting primarily elderly

65-69*	43.698	1.957		
70-74	52.967	2.546	0.004	
75-79	55.323	2.738	0.001	
80-84	56.592	3.047	0.000	
85 and over	52.813	3.081	0.013	
Gender:				
Male*	25.979	0.896		
Female	11.407	0.460	0.000	
Median income of patient's ZIP Code:				
First quartile (lowest income)	29.287	1.710	0.000	
Second quartile	19.305	0.967	0.000	
Third quartile	14.947	0.685	0.000	
Fourth quartile (highest income)*	9.930	0.695		
Location of patient residence (NCHS):				
Large central metropolitan	22.294	1.800	0.000	
Large fringe metropolitan*	14.435	1.097		
Medium metropolitan	16.538	1.959	0.349	
Small metropolitan	18.110	2.323	0.153	
Micropolitan	18.431	1.604	0.040	
Noncore	20.314	1.970	0.009	
Hospital characteristic:				
Location of inpatient treatment:				
Northeast*	16.354	1.384		
Midwest	15.883	1.145	0.793	
South	22.301	1.261	0.001	
West	15.001	0.983	0.426	

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2011, and AHRQ Quality Indicators, version 4.4.

a Consistent with the AHRQ PQI software, a procedure code for lower-extremity amputation and a diagnosis of diabetes must be present. Exclusions include admissions for toe amputation or traumatic amputations of the lower extremity, obstetric discharges, and transfers from other institutions.

b Rates are adjusted by age and gender using the total U.S. resident population for 2010 as the standard population; when reporting is by age, the adjustment is by gender only; when reporting is by gender, the adjustment is by age only.

*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

Amputations are higher for black americans and other racial groups compared to white (1-3). Many of the racial differences in amputation can be attributed to access to care and family poverty²⁵). Racial differences are diminished when access to care is equivocal (4-6).

References:

1. Prevention CfDCa. National diabetes fact sheet. Retrieved from: www.cdc.gov/diabetes/pubs/factsheet11.htm. Retrieved from: www.cdc.gov/diabetes/pubs/factsheet11.htm. 2011.
2. M.E. Gornick PWE, T.W. Reilly, R.M. Mentnech, L.K. Fitterman, L.E. Kucken, and B.C. Vladeck, . Effects of race and income on mortality and use of services among Medicare beneficiaries New England Journal of Medicine.335:791-9.
3. M.H. Chin JXZ, and K. Merrell,. Diabetes in the African-American Medicare population: Morbidity, quality of care, and resource utilization Diabetes care.21:1090-5.
4. Karter AJ, Ferrara A, Liu JY, Moffet HH, Ackerson LM, Selby JV. Ethnic disparities in diabetic complications in an insured population. JAMA : the journal of the American Medical Association. 2002;287(19):2519-27. PMID: 12020332.
5. Reiber GE, Pecoraro RE, Koepsell TD. Risk factors for amputation in patients with diabetes mellitus. A case-control study. Annals of internal medicine. 1992;117(2):97-105. PMID: 1605439.
6. Selby JV, Zhang D. Risk factors for lower extremity amputation in persons with diabetes. Diabetes care. 1995;18(4):509-16. PMID:

7497861.

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):

Endocrine, Endocrine : Diabetes

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

Primary Prevention

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

Populations at Risk, Populations at Risk : Individuals with multiple chronic conditions

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/pdi_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: [PQI_16_Lower-Extremity_Amputation_among_Patients_with_Diabetes_Rate.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.

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.

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.

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.

Since the last update, the following changes have been made to the indicator:

- The data upon which to base the reference population was updated. V4.4 uses a 2008 reference population; v4.5 uses a 2010 reference population.
- Updated with 2012 US Census population estimates
- Fiscal Year coding updates

For additional information, see Prevention Quality Indicator (PQI) Log of ICD-9-CM and DRG Coding Updates and Revisions to PQI Documentation and Software in the supplemental materials and available online at:

http://www.qualityindicators.ahrq.gov/Downloads/Modules/PQI/V45/PQI_Changes_4.5.pdf and in the supporting information.

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).

Discharges, for patients ages 18 years and older, with any-listed ICD-10-PCS procedure codes for lower-extremity amputation and any-listed ICD-10-CM diagnosis codes for diabetes.

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).

Lower-extremity amputation procedure codes: (ACSLEAP)

ICD-10-CM	Description
0Y620ZZ	Detachment at Right Hindquarter, Open Approach
0Y630ZZ	Detachment at Left Hindquarter, Open Approach
0Y640ZZ	Detachment at Bilateral Hindquarter, Open Approach
0Y670ZZ	Detachment at Right Femoral Region, Open Approach
0Y680ZZ	Detachment at Left Femoral Region, Open Approach
0Y6C0Z1	Detachment at Right Upper Leg, High, Open Approach
0Y6C0Z2	Detachment at Right Upper Leg, Mid, Open Approach
0Y6C0Z3	Detachment at Right Upper Leg, Low, Open Approach
0Y6D0Z1	Detachment at Left Upper Leg, High, Open Approach
0Y6D0Z2	Detachment at Left Upper Leg, Mid, Open Approach
0Y6D0Z3	Detachment at Left Upper Leg, Low, Open Approach
0Y6F0ZZ	Detachment at Right Knee Region, Open Approach
0Y6G0ZZ	Detachment at Left Knee Region, Open Approach
0Y6H0Z1	Detachment at Right Lower Leg, High, Open Approach
0Y6H0Z2	Detachment at Right Lower Leg, Mid, Open Approach
0Y6H0Z3	Detachment at Right Lower Leg, Low, Open Approach
0Y6J0Z1	Detachment at Left Lower Leg, High, Open Approach
0Y6J0Z2	Detachment at Left Lower Leg, Mid, Open Approach
0Y6J0Z3	Detachment at Left Lower Leg, Low, Open Approach
0Y6M0Z0	Detachment at Right Foot, Complete, Open Approach
0Y6M0Z4	Detachment at Right Foot, Complete 1st Ray, Open Approach
0Y6M0Z5	Detachment at Right Foot, Complete 2nd Ray, Open Approach
0Y6M0Z6	Detachment at Right Foot, Complete 3rd Ray, Open Approach
0Y6M0Z7	Detachment at Right Foot, Complete 4th Ray, Open Approach
0Y6M0Z8	Detachment at Right Foot, Complete 5th Ray, Open Approach
0Y6M0Z9	Detachment at Right Foot, Partial 1st Ray, Open Approach
0Y6M0ZB	Detachment at Right Foot, Partial 2nd Ray, Open Approach
0Y6M0ZC	Detachment at Right Foot, Partial 3rd Ray, Open Approach

0Y6M0ZD	Detachment at Right Foot, Partial 4th Ray, Open Approach
0Y6M0ZF	Detachment at Right Foot, Partial 5th Ray, Open Approach
0Y6N0Z0	Detachment at Left Foot, Complete, Open Approach
0Y6N0Z4	Detachment at Left Foot, Complete 1st Ray, Open Approach
0Y6N0Z5	Detachment at Left Foot, Complete 2nd Ray, Open Approach
0Y6N0Z6	Detachment at Left Foot, Complete 3rd Ray, Open Approach
0Y6N0Z7	Detachment at Left Foot, Complete 4th Ray, Open Approach
0Y6N0Z8	Detachment at Left Foot, Complete 5th Ray, Open Approach
0Y6N0Z9	Detachment at Left Foot, Partial 1st Ray, Open Approach
0Y6N0ZB	Detachment at Left Foot, Partial 2nd Ray, Open Approach
0Y6N0ZC	Detachment at Left Foot, Partial 3rd Ray, Open Approach
0Y6N0ZD	Detachment at Left Foot, Partial 4th Ray, Open Approach
0Y6N0ZF	Detachment at Left Foot, Partial 5th Ray, Open Approach

Diabetes diagnosis codes: (ACSLEAD)

The lengthy set of codes can be found in the attached indicators specifications file.

NUMERATOR EXCLUSIONS

Exclude cases:

- with any-listed ICD-10-CM diagnosis codes for traumatic amputation of the lower extremity
- transfer from a hospital (different facility)
- transfer from a Skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF)
- transfer from another health care facility
- MDC 14 (pregnancy, childbirth, and puerperium)
- with missing gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing), principal diagnosis (DX1=missing), or county (PSTCO=missing)

Appendix A – Admission Codes for Transfers

Traumatic amputation of the lower extremity diagnosis codes: (ACLEA2D)

The lengthy set of codes can be found in the attached indicators specifications file.

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

Population ages 18 years and older in metropolitan area† or county. Discharges in the numerator are assigned to the denominator based on the metropolitan area or county of the patient residence, not the metropolitan area or county of the hospital where the discharge occurred.‡

† The term “metropolitan area” (MA) was adopted by the U.S. Census in 1990 and referred collectively to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs), and primary metropolitan statistical areas (PMSAs). In addition, “area” could refer to either 1) FIPS county, 2) modified FIPS county, 3) 1999 OMB Metropolitan Statistical Area, or 4) 2003 OMB Metropolitan Statistical Area. Micropolitan Statistical Areas are not used in the QI software.

‡ The denominator can be specified with the diabetic population only and calculated with the SAS QI software through the condition-specific denominator at the state-level feature.

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).

Not Applicable

<p>S.8. Denominator Exclusions <i>(Brief narrative description of exclusions from the target population)</i> Not applicable</p>
<p>S.9. Denominator Exclusion Details <i>(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.)</i> Not applicable</p>
<p>S.10. Stratification Information <i>(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.)</i> Not applicable</p>
<p>S.11. Risk Adjustment Type (Select type. Provide specifications for risk stratification in measure testing attachment) No risk adjustment or risk stratification If other:</p>
<p>S.12. Type of score: Rate/proportion If other:</p> <p>S.13. Interpretation of Score <i>(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)</i> Better quality = Lower score</p> <p>S.14. Calculation Algorithm/Measure Logic <i>(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.)</i> The observed rate is the number of discharges flagged with the outcome of interest divided by the number of persons in the population at risk. The predicted rate is estimated for each person based on a logistic regression model. The expected rate is the average predicted rate for the unit of interest (i.e. the county of residence). The risk-adjusted rate is calculated using the indirect method as observed rate divided by expected rate multiplied by the reference population rate. The performance score is a weighted average of the risk-adjusted rate and the reference population rate, where the weight is the signal-to-noise ratio. Currently no risk adjustment is available for v6.0 ICD10 specifications (see response S.14).</p>
<p>S.15. Sampling <i>(If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)</i> IF an instrument-based performance measure (e.g., PRO-PM), identify whether (and how) proxy responses are allowed. Not applicable</p> <p>S.16. Survey/Patient-reported data <i>(If measure is based on a survey or instrument, provide instructions for data collection and guidance on minimum response rate.)</i> Specify calculation of response rates to be reported with performance measure results. Not applicable</p>
<p>S.17. Data Source <i>(Check ONLY the sources for which the measure is SPECIFIED AND TESTED).</i> If other, please describe in S.18. Claims</p> <p>S.18. Data Source or Collection Instrument <i>(Identify the specific data source/data collection instrument (e.g. name of database, clinical registry, collection instrument, etc., and describe how data are collected.)</i> IF instrument-based, identify the specific instrument(s) and standard methods, modes, and languages of administration. All analyses were completed using data from the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID), 2007-2011. HCUP is a family of health care databases and related software tools and products developed through a Federal-State-Industry partnership and sponsored by the Agency for Healthcare Research and Quality (AHRQ). HCUP databases bring together the</p>

data collection efforts of State data organizations, hospital associations, private data organizations, and the Federal government to create a national information resource of encounter-level health care data. The HCUP SID contain the universe of the inpatient discharge abstracts in participating States, translated into a uniform format to facilitate multi-State comparisons and analyses. Together, the SID encompass about 97 percent of all U.S. community hospital discharges (in 2011, 46 states participated for a total of more than 38.5 million hospital discharges). As defined by the American Hospital Association, community hospitals are all non-Federal, short-term, general or other specialty hospitals, excluding hospital units of institutions. Veterans hospitals and other Federal facilities are excluded. Taken from the Uniform Bill-04 (UB-04), the SID data elements include ICD-9-CM coded principal and secondary diagnoses and procedures, additional detailed clinical and service information based on revenue codes, admission and discharge status, patient demographics, expected payment source (Medicare, Medicaid, private insurance as well as the uninsured), total charges and length of stay (www.hcup-us.ahrq.gov).

HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2007-2011. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/sidoverview.jsp. (AHRQ QI Software Version 4.5)

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)

Population : Community, County or City, Population : Regional and State

S.21. Care Setting (Check ONLY the settings for which the measure is SPECIFIED AND TESTED)

Hospital

If other:

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.)

Not applicable

2. Validity – See attached Measure Testing Submission Form

[PQI_16_Measure_Testing_Form_March_2014.pdf](#)

2.1 For maintenance of endorsement

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.

2.2 For maintenance of endorsement

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.

2.3 For maintenance of endorsement

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.

3. Feasibility

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.

3a. Byproduct of Care Processes

For clinical measures, the required data elements are routinely generated and used during care delivery (e.g., blood pressure, lab test, diagnosis, medication order).

3a.1. Data Elements Generated as Byproduct of Care Processes.

[Coded by someone other than person obtaining original information \(e.g., DRG, ICD-9 codes on claims\)](#)

If other:

3b. Electronic Sources

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.

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 **maintenance of endorsement**.

[ALL data elements are in defined fields in electronic claims](#)

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.

[Because the indicator is based on readily available administrative data and U.S. Census data, feasibility is not an issue](#)

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).

[Public use SAS and Windows software available on the URL provided in S.1](#)

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>DHHS Health Indicators Warehouse (HIW), http://www.healthindicators.gov/</p> <p>AHRQ National Healthcare Quality & Disparities Reports http://www.ahrq.gov/research/findings/nhqrdr/index.html</p> <p>MONAHRQ http://monahrq.ahrq.gov/monahrq_resources.shtml</p> <p>Arizona Hospital Compare http://pub.azdhs.gov/hospital-discharge-stats/2011/index.html</p> <p>Arkansas Hospital Discharge Health Data Site http://healthdata.ar.gov/</p> <p>Hawaii Health Information Corporation http://www.hhicpublicreports.org/index.html</p> <p>Kentucky Health Care Information Center http://chfs.ky.gov/ohp/healthdata</p> <p>Maine Health Data Organization http://gateway.maine.gov/mhdo/monahrq/index.html</p> <p>Nevada Compare Care http://nevadacomparecare.net/</p> <p>Utah Hospital Comparison Repo https://health.utah.gov/myhealthcare/monahrq/index.html</p> <p>Virginia Health Information Website http://www.vhi.org/healthcare.asp</p> <p>California Office of Statewide Health Planning and Development, Area-Level Quality Indicators http://www.oshpd.ca.gov/HID/Products/PatDischargeData/AHRQ/</p> <p>State of Connecticut, Office of Health Care Access http://www.ct.gov/dph</p> <p>New York, Niagara Health Quality Coalition http://www.myhealthfinder.com/</p> <p>The Commonwealth Fund, Why Not the Best http://www.whynotthebest.org/</p> <p>Payment Program</p> <p>CMS, Medicare FFS Physician Feedback Program / Value-Based Payment Modifier, Quality and Resource Use Reports (QRUR) http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/index.html</p> <p>Quality Improvement (Internal to the specific organization)</p> <p>Iowa Medicaid Value Management (MVM) Program http://www.dhs.state.ia.us/uploads/PQI%20MVM%20Report4.pdf ; http://www.dhs.state.ia.us/uploads/Dual%20Eligible%20for%20publication.pdf</p>

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

Centers for Medicare & Medicaid Services (CMS), Medicare FFS Physician Feedback Program/Value-Based Payment Modifiers and Quality and Resource Use Reports (QRUR)

Program includes measures of Ambulatory Care Sensitive Conditions (ACSC), used by Physicians receiving Medicare FFS payment modifiers

<http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/Downloads/2011-ACSC-Outcomes-Measures.pdf>

Department of Health and Human Services (DHHS), Health Indicators Warehouse (HIW)

Purpose of the HIW is to: Provide a single, user-friendly, source for national, state, and community health indicators; Facilitate harmonization of indicators across initiatives; Link indicators with evidence-based interventions

<http://www.healthindicators.gov/About/AboutTheHIW>; http://www.healthindicators.gov/Resources/Initiatives/CMS/Prevention-Quality-Indicators-Report_20/Indicator/Report

Agency for Healthcare Research and Quality (AHRQ), National Healthcare Quality Report & National Healthcare Disparities Reports
2010 data are from 45 participating states in the Healthcare Cost and Utilization Project (HCUP) database

<http://www.hcup-us.ahrq.gov/reports/methods/2012-02.pdf>

Agency for Healthcare Research and Quality (AHRQ), MONAHRQ Software

Used by many states and other health research organizations; My Own Network, Powered by AHRQ (MONAHRQ) generates interactive, data-driven querying website from state-input hospital administrative data

http://monahrq.ahrq.gov/monahrq_resources.shtml;

http://monahrq.ahrq.gov/MONAHRQ_41_Measure_List.xls

Arizona Department of Health Services, Arizona Hospital Compare (MONAHRQ-generated)

County-level hospital admission rate data from all hospitals in Arizona

<http://pub.azdhs.gov/hospital-discharge-stats/2011/Methodology.html>

Arkansas Department of Health, Arkansas Hospital Discharge Health Data Site (MONAHRQ-generated)

County-level hospital admission rate data from most hospitals in Arkansas

<http://healthdata.ar.gov/Methodology.html>

California Office of Statewide Health Planning and Development, Healthcare Information Division

Area-Level Quality Indicators (Preventable Hospitalizations) for California; Racial & Ethnic Disparities in Healthcare in California Report

1999-2011 OSHPD Patient Discharge Data from all hospitals in California, totaling over 4 million records annually

http://www.oshpd.ca.gov/HID/Products/PatDischargeData/AHRQ/pqi_overview.html

State of Connecticut, Office of Health Care Access

Preventable Hospitalizations in Connecticut: A Current Assessment of Access to Community Health Services

2004-2009 state- and county-level hospital admission rate data from most hospitals in CT

http://www.ct.gov/dph/lib/dph/ohca/publications/2010/prev_hosp_report01-2010.pdf

Hawaii Health Information Corporation (HHIC), Hawaii Health Information Corporation Public Reports (MONAHRQ-generated)

County-level hospital admission rate data from all hospitals in Hawaii

<http://www.hhicpublicreports.org/Methodology.html>

Iowa Department of Human Services, Iowa Medicaid Enterprise

Iowa Medicaid Value Management (MVM) Program

Quality measures used to evaluate the alignment of outpatient care received by Iowa's adult Medicaid members with best practice standards; analyzes demographic and claim data for members who are dually eligible for both Medicare and Medicaid benefits.

<http://www.dhs.state.ia.us/uploads/PQI%20MVM%20Report4.pdf>;

<http://www.dhs.state.ia.us/uploads/Dual%20Eligible%20for%20publication.pdf>

Commonwealth of Kentucky, Office of Health Policy, Kentucky Health Care Information Center (MONAHRQ-generated)

County-level hospital admission rate data from most hospitals in Kentucky
<https://prd.chfs.ky.gov/MONAHQRQ/2011/Methodology.html>

Maine Health Data Organization, Maine Health Data Website (MONAHQRQ-generated)
County-level hospital admission rate data from most hospitals in Maine
<http://gateway.maine.gov/mhdo/monahrq/Methodology.html>

Nevada Division of Health Care Financing and Policy, Nevada Compare Care (MONAHQRQ-generated)
County-level hospital admission rate data from most hospitals in Nevada
<http://nevadacomparecare.net/Monahrq/AboutQualityRatings.html>

Niagara Health Quality Coalition
New York State Hospital Report Card; New York State Preventable Hospitalizations Report
County-level hospital admission rate data from most hospitals in New York
<http://www.myhealthfinder.com/newyork13/prevs.html>

Utah Department of Health, Utah Hospital Comparison Reports, (MONAHQRQ-generated)
County-level hospital admission rate data from most hospitals in Utah
<https://health.utah.gov/myhealthcare/monahrq/AboutQualityRatings.html>

Virginia Health Information (VHI) Organization, Virginia Health Information Website (MONAHQRQ-generated)
County-level hospital admission rate data from most hospitals in Virginia
http://www.vhi.org/monahrq2/qual/PHC/maps/s_All.html

The Commonwealth Fund, Why Not the Best
Prevention Quality Indicators Region Report
State- and county-level hospital admission rate data from most hospitals in 16 states (various dates, data sources are individual contributing state departments of health and hospital associations); allows quality comparisons using several quality indicators; resource for health care professionals to track performance and compare their performance against that of peer organizations, against a range of benchmarks, and over time.
<http://www.whynotthebest.org/methodology#iqi>

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 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 4d2.1.

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

See the response to 4d2.1.

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.

According to the Center for Disease Control and Prevention 2012 report, rates of lower-limb amputation have declined since the mid-1990s (1). This decline is in part attributed to improvements in the rates of high blood pressure, high cholesterol, and smoking in recent decades(2). Other possible reasons include improvements in blood glucose control; early detection and management of diabetes complications; and improvements in preventive care, treatment, and diabetes care management. A marked decline (28.8%) in the Medicare population has also been reported (2000 through 2010).

References:

1. CDC. Diabetes Report Card. <http://www.cdc.gov/diabetes/pubs/pdf/DiabetesReportCardpdf.pdf>. 2012.
2. Cowie CC RK, Ford ES, et al. Full accounting of diabetes and prediabetes in the U.S. population in 1988–1994 and 2005–2006. *Diabetes Care* 2011;32(2):287-94.

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.

None identified

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.

Yes

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.

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: PQI_16_Supporting_Documents_June_2014.pdf](#)

Contact Information

Co.1 Measure Steward (Intellectual Property Owner): Agency for Healthcare Research and Quality Co.2 Point of Contact: Pamela, Owens, Pam.Owens@ahrq.hhs.gov , 301-427-1412- Co.3 Measure Developer if different from Measure Steward: Co.4 Point of Contact:
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. AHRQ established an AHRQ QI time-limited workgroup focused on prevention quality indicators in September of 2013; the workgroup has not yet address the prevention quality indicators related to diabetes. Names and organizations will be provided at the time of the workgroup becomes involved in refinement of the measures.
Measure Developer/Steward Updates and Ongoing Maintenance Ad.2 Year the measure was first released: 2002 Ad.3 Month and Year of most recent revision: 05, 2013 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? 08, 2014
Ad.6 Copyright statement: Ad.7 Disclaimers:
Ad.8 Additional Information/Comments: