



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 #: 0280

Corresponding Measures:

De.2. Measure Title: Dehydration Admission Rate (PQI 10)

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

De.3. Brief Description of Measure: Admissions with a principal diagnosis of dehydration per 100,000 population, ages 18 years and older. Excludes 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) indicator. ACSC indicators are not measures of hospital quality, but rather measures of outpatient care and other healthcare not related to hospitalizations. The underlying premise for these indicators is that high access to high quality outpatient care may prevent hospital admissions.^{1,2} In the case of dehydration, such access to high quality care can prevent complications necessitating inpatient admission through encouraging hydration during high risk events, such as gastroenteritis infections, early detection of dehydration, particularly among those that are at high risk for dehydration, and early and effective interventions. 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 regional level.

1. Billing J, Zeitel L, Lukomnik J, et al. Impact of socioeconomic status on hospital use in New York City. *Health Affairs* 1993; 12: 162-73.

2. van Loenen T, van den Berg MJ, Westert GP and Faber MJ. Organizational aspects of primary care related to avoidable hospitalization: a systematic review. *Fam Pract* 2014 [Epub ahead of print]

S.4. Numerator Statement: Discharges, for patients ages 18 years and older, with either (1) a principal ICD-10-CM diagnosis code for dehydration (ACSDEHD*); or (2) any secondary ICD-10-CM diagnosis codes for dehydration (ACSDEHD*) and a principal ICD-10-CM diagnosis code for hyperosmolality and/or hypernatremia (HYPERID*), or a principal ICD-10-CM diagnosis code for gastroenteritis (ACPGASD*), or a principal ICD-10-CM diagnosis code for acute kidney injury (PHYSIDB*).

S.6. Denominator Statement: Population ages 18 years and older in metropolitan area or county.

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

IF Endorsement Maintenance – Original Endorsement Date: Nov 15, 2007 **Most Recent Endorsement Date:** Sep 02, 2015

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_10_Evidence_Form_February_2014.pdf](#), [PQI_10_Measure_Evidence_Form_September_2014_Final.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) indicator. ACSC indicators are not measures of hospital quality, but rather measures of outpatient care and other healthcare not related to hospitalizations. The underlying premise for these indicators is that high access to high quality outpatient care may prevent hospital admissions.^{1,2} In the case of dehydration, such access to high quality care can prevent complications necessitating inpatient admission through encouraging hydration during high risk events, such as gastroenteritis infections, early detection of dehydration, particularly among those that are at high risk for dehydration, and early and effective interventions. 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 regional level.

1. Billing J, Zeitel L, Lukomnik J, et al. Impact of socioeconomic status on hospital use in New York City. *Health Affairs* 1993; 12: 162-73.

2. van Loenen T, van den Berg MJ, Westert GP and Faber MJ. Organizational aspects of primary care related to avoidable hospitalization: a systematic review. *Fam Pract* 2014 [Epub ahead of print]

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.

Table 1. Reference Population Rate and Distribution of Area Performance

Overall Reference Population Rate

Year	Nbr County	Outcome Population	Obs Rate
		per 100,000	
2012	2,935	255,023	230,988,781
2011	3,018	276,293	230,827,273
2010	3,015	278,693	228,371,155
2009	2,863	298,685	223,703,795
2008	2,774	341,790	219,039,613

Distribution of Area-Level Rate, 20012

Number of Counties = 2,795

Mean = 120.93

SD = 61.82
 5th percentile = 26.65
 25th percentile = 77.76
 Median 115
 75th percentile = 158.73
 95th percentile = 236.46

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)

1The observed rate refers to the total rate for all observations included in the reference population data (numerator) divided the total combined population of all counties included in the reference population data (denominator). Note: Observations from counties with rates outside of 1.5*interquartile range are excluded as outliers.

2The distribution of area rates reports the mean and standard deviation (SD) of the observed rates for all counties included in the dataset, as well as the observed rate for counties in the 5th, 25th, 50th (median), 75th, and 95th percentile. Note: Counties with rates outside of 1.5*interquartile range are excluded as outliers.

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.

Data described in S.24

Admissions for dehydrationa per 100,000 population, age 18 and over (PQI 10)

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

2011 Adjusted Rateb

Characteristics	Estimate	Std Err	P-Value (ref=*)
Total U.S.	130.744	2.961	

Patient characteristic:

Age groups for conditions affecting any age

18-44*	36.218	1.056	
45-64	107.236	2.752	0.000
65 and over	439.987	10.423	0.000

Age groups for conditions affecting primarily elderly

65-69*	219.508	6.040	
70-74	308.153	7.818	0.000
75-79	441.149	11.279	0.000
80-84	626.412	16.938	0.000
85 and over	975.595	26.924	0.000

Gender:

Male*	122.882	2.845	
Female	137.786	3.206	0.001

Median income of patient's ZIP Code:

First quartile (lowest income)	167.835	6.588	0.000
Second quartile	131.656	4.744	0.009
Third quartile	117.984	4.629	0.285
Fourth quartile (highest income)*	108.555	7.503	
Location of patient residence (NCHS):			
Large central metropolitan	124.486	8.780	0.407
Large fringe metropolitan*	135.386	9.783	
Medium metropolitan	105.298	9.989	0.031
Small metropolitan	128.487	14.281	0.690
Micropolitan	145.999	8.104	0.403
Noncore	196.515	9.929	0.000

Hospital characteristic:

Location of inpatient treatment:

Northeast*	132.607	8.531	
Midwest	142.960	6.283	0.329
South	147.728	4.916	0.125
West	87.592	4.194	0.000

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, dehydration may be a principal diagnosis or a secondary diagnosis with a principal diagnosis of hyperosmolality and/or hypernatremia, gastroenteritis, or acute kidney injury. Exclusions include the following: admissions with a diagnosis code for chronic renal failure 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

Hospitalization rates for dehydration (PQI 10) have been shown to be highest among blacks (1.3 times the rate among non-Hispanic whites in 2003) and lowest amongst Asians (1). Use of HCUP and SID data using the AHRQ PQI composite, demonstrated a decrease in the AHRQ PQI composite rate from 1,635 to 1,395 per 100,000 adults from 2001 to 2009 (2). Declines in potentially preventable hospitalization rates were observed across all income quartiles between these same years (years 2001 and 2009). In all years, rates of hospitalizations were higher among residents of neighborhoods in the three lower income quartiles compared with residents of neighborhoods in the highest income quartile (2). Income may be associated with access to care. In an earlier like study, when controlling for income there were no differences in race (3).

1. Russo CA, Andrews RM, Coffey RM. Racial and Ethnic Disparities in Potentially Preventable Hospitalizations, 2003: Statistical Brief #10. 2006 Jul. In: Healthcare Cost and Utilization Project (HCUP) Statistical Briefs [Internet]. Rockville (MD): Agency for Health Care Policy and Research (US); 2006 Feb-. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK63497/>.
2. Moy E., Barrett M, & Ho K. Potentially Preventable Hospitalizations — United States, 2004–2007. Morbidity and Mortality Weekly Report (MMWR). November 22, 2013 / Supp62(03);139-143.
3. Moy E., Barrett M, & Ho K. Potentially Preventable Hospitalizations — United States, 2004–2007. Morbidity and Mortality Weekly Report (MMWR). January 14, 2011, Supp 60(01);80-83.

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):

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):

Elderly

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://qualityindicators.ahrq.gov/Modules/PQI_TechSpec_ICD10_v70.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_10_Dehydration_Admission_Rate-636493036978412380.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.

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).

Discharges, for patients ages 18 years and older, with either (1) a principal ICD-10-CM diagnosis code for dehydration (ACSDEHD*); or (2) any secondary ICD-10-CM diagnosis codes for dehydration (ACSDEHD*) and a principal ICD-10-CM diagnosis code for hyperosmolality and/or hyponatremia (HYPERID*), or a principal ICD-10-CM diagnosis code for gastroenteritis (ACPGASD*), or a principal ICD-10-CM diagnosis code for acute kidney injury (PHYSIDB*).

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).

Dehydration diagnosis codes: (ACSDEHD)

E860 Dehydration

E861 Hypovolemia

E869 Volume depletion, unspecified

Hypersomolality and/or hypernatremia diagnosis codes: (HYPERID)

E870 Hypersomolality and Hypernatremia

Gastroenteritis diagnosis codes: (ACPGASD)

A080 Rotaviral enteritis

A0811 Acute gastroenteropathy due to Norwalk agent

A0819 Acute gastroenteropathy due to other small round viruses

A082 Adenoviral enteritis

A0831 Calicivirus enteritis

A0832 Astrovirus enteritis

A0839 Other viral enteritis

A084 Viral intestinal infection, unspecified

A088 Other specified intestinal infections

A09 Infectious gastroenteritis and colitis, unspecified

K523 Indeterminate colitis

K5289 Other specified noninfective gastroenteritis and colitis

K529 Noninfective gastroenteritis and colitis, unspecified

Acute kidney (renal) failure diagnosis codes: (PHYSIDB)

N170 Acute kidney failure with tubular necrosis

N171 Acute kidney failure with acute cortical necrosis

N172 Acute kidney failure with medullary necrosis

N178 Other acute kidney failure

N179 Acute kidney failure, unspecified

N19 Unspecified kidney failure

N990 Postprocedural (acute) (chronic) kidney failure

Chronic renal failure diagnosis codes: (CRENLFD)

I120 Hypertensive chronic kidney disease with stage 5 chronic kidney disease or end stage renal disease

I1311 Hypertensive heart and chronic kidney disease without heart failure, \ with stage 5 chronic kidney disease, or end stage renal disease

I132 Hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease, or end stage renal disease

N185 Chronic kidney disease, stage 5

N186 End stage renal disease

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

Population ages 18 years and older in metropolitan area or county.

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).

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.

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

Not applicable

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.)

Not applicable

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 v7.0 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 2018. AHRQ will announce an anticipated date as soon as one is known.

The AHRQ QI v7.0 software (SAS and WinQI) for use with ICD-10-CM/PCS produces observed rates, which may be used to evaluate performance within hospitals. However, caution should be used when comparing observed rates across hospitals because observed rates do not account for differences in patient populations (i.e., case mix).

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.

All analyses were completed using data from the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID), 2007-2012. 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).¹ 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. All states provide data for community hospitals and together, the SID encompass about 97 percent of all U.S. community hospital discharges (in 2012, 46 states participated for a total of about 34 million hospital discharges from community hospitals). 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. Included among community hospitals are specialty hospitals such as obstetrics–gynecology, ear–nose–throat, orthopedic, pediatric institutions, short-stay rehabilitation, and long-term acute care. Also included are public hospitals and academic medical centers. In the 2012 HCUP SID databases, 97.4% of all discharges are from community hospitals. Some states also include additional hospital types, which make up the remaining 2.6% of discharges, specifically psychiatric facility, alcohol and drug dependency facilities, and military hospitals.

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).

The area universe is defined as the county of the residence of the patient for discharges in the hospital universe. The hospital universe is defined as all hospitals located in the U.S. that are open during any part of the calendar year and included in the SID database (see description above).

As noted, 97.4% of discharges in the 2012 SID are from “community hospitals.” The AHA defines community hospitals as follows: “All non-Federal, short-term, general, and other specialty hospitals, excluding hospital units of institutions.” Starting in 2005, the AHA included long-term acute care facilities in the definition of community hospitals. These facilities provide acute care services to patients who need long-term hospitalization (stays of more than 25 days, but with an average stay of less than 30 days).

For the purpose of these analyses visits made by individuals residing in states that are not included in the HCUP databases for excluded from numerator counts.

Population estimates are derived from the US Census and are detailed in the 2013 Population File for use with the AHRQ Quality Indicators posted on the AHRQ QI website:

<http://www.qualityindicators.ahrq.gov/Downloads/Software/SAS/V45/AHRQ%20QI%20Population%20File%20V4.5.pdf> and provided in the supplemental materials. Public-use files of intercensal and postcensal estimates of county-level population by five-year age group, sex, race, and Hispanic origin were acquired from the Census Bureau (<http://www.census.gov/popest/>) covering the years 1995 through 2011.

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

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

Inpatient/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_10_Measure_Testing_Form_March_2014.pdf](#), [PQI_10_Measure_Testing_Form_September_2014_Final_150204.docx](#)

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.

The indicator is based on readily available administrative data and U.S. Census data. This increases the feasibility of implementing the indicator. The indicators are updated annually, such that they can be used with real-time data from providers. Low-cost state administrative databases can be used to calculate the indicators, and are typically available within 2-3 years

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)
Quality Improvement (Internal to the specific organization)	Public Reporting DHHS Health Indicators Warehouse (HIW), http://www.healthindicators.gov/ AHRQ National Healthcare Quality & Disparities Reports http://www.ahrq.gov/research/findings/nhqrdr/index.html MONAHRQ http://monahrq.ahrq.gov/monahrq_resources.shtml Arizona Hospital Compare http://pub.azdhs.gov/hospital-discharge-stats/2011/index.html Arkansas Hospital Discharge Health Data Site

	http://healthdata.ar.gov/ Hawaii Health Information Corporation http://www.hhicpublicreports.org/index.html Maine Health Data Organization http://gateway.maine.gov/mhdo/monahrq/index.html Nevada Compare Care http://nevadacomparecare.net/ Utah Hospital Comparison Reports https://health.utah.gov/myhealthcare/monahrq/index.html Virginia Health Information Website http://www.vhi.org/healthcare.asp California Office of Statewide Health Planning and Development, Area-Level Quality Indicators http://www.oshpd.ca.gov/HID/Products/PatDischargeData/AHRQ/ State of Connecticut, Office of Health Care Access http://www.ct.gov/dph New York, Niagara Health Quality Coalition http://www.myhealthfinder.com/ Texas Health Care Information Collection (THCIC), http://www.dshs.state.tx.us/thcic/ The Commonwealth Fund, Why Not the Best http://www.whynotthebest.org/ Payment Program 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
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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

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/MONAHQRQ_41_Measure_List.xls

Arizona Department of Health Services, Arizona Hospital Compare (MONAHQRQ-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 (MONAHQRQ-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 (MONAHQRQ-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 (MONAHQRQ-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>

Texas Department of State Health Services, Center for Health Statistics

Texas Health Care Information Collection (THCIC)

State and county-level data on hospitalizations

<http://www.dshs.state.tx.us/ph/default.shtm>

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 (MONAHRQ-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.

Not applicable

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.

During a structured clinical panel review, panelists postulated that some uses of this indicator could disincentive care for high risk individuals. However, no evidence of this unintended consequence has arisen during actual use of the indicator. Rather, identification of high rates can help to target populations most in need of intervention.

Panelists in the same structured review and subsequent expert panel review noted that treatment of dehydration in observation care may substitute for inpatient treatment, that this substitution may be systematic between areas and that this will impact the rate of the indicator. During a literature review, we identified no studies that specifically examined observation stays as a substitute for inpatient care. In a retrospective analysis of a 2002-2011 large administrative claims database of commercially insured individuals in the USA, less than 1% of observation stays had a diagnosis of hypovolemia.¹ A retrospective analysis of observation stays from three distinct data source: 2010 Atlanta hospitals protocol driven observation units, 2010 Georgia hospitals for observation units (including protocol-driven, discretionary care and all bed locations), and 2009-10 National Hospital Ambulatory Medical Care Survey (NHAMCS) for similarly diverse of observation units found that in all settings dehydration or fluid and electrolyte disorders was the 3rd most common condition managed in observation services.²

1. Overman RA, Freburger JK, Assimon MM, Li X, Brookhart MA. Observation stays in administrative claims databases: underestimation of hospitalized cases. *Pharmacoepidemiology and drug safety*. Sep 2014;23(9):902-910.

2. Ross MA, Hockenberry JM, Mutter R, Barrett M, Wheatley M, Pitts SR. Protocol-driven emergency department observation units offer savings, shorter stays, and reduced admissions. *Health Aff (Millwood)*. Dec 2013;32(12):2149-2156.

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.

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:** [AHRQ_PQI_10_NQF_Observation_Analysis.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: [Stanford Health Policy \(CHP/PCOR\)](#)

Co.4 Point of Contact: [Connie, Bohling, connie.bohling@stanford.edu, 650-725-8634-](#)

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.

The following panelists participated in a 2009 structured panel review of the Agency for Healthcare Research and Quality Prevention Quality Indicators, which focused on evaluating expansion of the indicators to alternative denominator populations. The panel used a modified Delphi approach to evaluate the indicators, using a method that combined a nominal group technique and a Delphi technique.¹ All panelists rated the indicators and received feedback from other panelists. The nominal group participated in a conference call to discuss the indicators and the discussion was summarized and distributed to all panelists before final rating. Some panelists requested that their affiliation with this report remain anonymous, and this list is therefore a partial representation of the individuals that comprised the panels in their entirety.

1. Davies S, McDonald KM, Schmidt E, Geppert J, Romano PS. Expanding the uses of AHRQ's Prevention Quality Indicators: Validity from the clinician perspective. Med Care. Aug 2011; 49(8): 679-685.

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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: