NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 0355 **NQF Project:** Cardiovascular Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Bilateral Cardiac Catheterization Rate (IQI 25)
De.2 **Brief description of measure**: Percent of discharges with heart catheterizations in any procedure field with simultaneous right and left heart (bilateral) heart catheterizations.
1.1-2 **Type of Measure:** Outcome De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** None
De.4 **National Priority Partners Priority Area:** Safety, Overuse De.5 **IOM Quality Domain**: Effectiveness De.6 **Consumer Care Need:** Getting better

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	**NQF Staff**
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Government entity and in the public domain - no agreement necessary A.4 **Measure Steward Agreement attached:**	**A** **Y**☒ **N**☐
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least	**B** **Y**☐

every 3 years. Yes, information provided in contact section	N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement Accountability	C Y☒ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	D Y☒ N☐
(for NQF staff use**)** **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	Met Y☒ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:** COnflicting statement on risk adjustment. recommends reliabilty adjustment bnut provides no details.	
Staff Reviewer Name(s): RWinkler	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. *Measures must be judged to be important to measure and report in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	Eval Rating
(for NQF staff use) **Specific NPP goal**: Overuse	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Severity of illness, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** From 1993 to 1999, Peer Review Organizations in 20 states developed programs to reduce excessive rates of bilateral cardiac catheterization through education and outreach. Ten of these projects have released results; all documented dramatic utilization changes at the targeted hospitals. It has been estimated that these programs averted at least 6,126 unnecessary bilateral catheterizations. 1a.4 **Citations for Evidence of High Impact:** American Health Quality Association. A Pillar of Quality:The Medicare Peer Review Organization/Quality Improvement Organization Program. In; 2000. Bing ML, Abel RL, Lee LJ, et al. Medical necessity for right heart catheterization. Tex Heart Inst J 1997;24(2):109- Fortune GJ, Schiffel F, Jr., Elder S. MPCRF: the Right Heart Catheterization Cooperative project. Mo Med 1996;93(10):657-61. Gold JA. Decreasing the rate of bilateral cardiac catheterization. Wis Med J 1995;94(10):569-70.	1a C☐ P☐ M☐ N☐

Rating: C=Completely; P=Partially; M=Minimally; N=Not at all; NA=Not applicable

Comment [KP1]: 1a. The measure focus addresses:
•a specific national health goal/priority identified by NQF's National Priorities Partners; OR
•a demonstrated high impact aspect of healthcare (e.g., affects large numbers, leading cause of morbidity/mortality, high resource use (current and/or future), severity of illness, and patient/societal consequences of poor quality).

Malach M, Imperato PJ, Nenner RP, et al. Impact of an educational program on bilateral heart catheterization practice patterns. Am J Med Qual 1998;13(4):213-22.

Imperato PJ, Malach M, Nenner RP, et al. Concurrent improvements in ambulatory cardiac catheterization practices following inpatient interventions. J Ambulatory Care Manage 1999;22(2):1-8.

1b. Opportunity for Improvement

1b.1 Benefits (improvements in quality) envisioned by use of this measure: Providers should reduce the rate of bilateral catheterization for patients where not indicated. Consumers should select providers with lower rates.

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
5th 25th Median 75th 95th
0.011149 0.014403 0.017009 0.019913 0.024636

1b.3 Citations for data on performance gap:
Nationwide Inpatient Sample, 2007

1b.4 Summary of Data on disparities by population group:
Based on the 2007 national statistics for bilateral cardiac catheterization http://hcupnet.ahrq.gov the 2007 unadjusted rates are as follows:

Overall rate per 100: 6.51 ; Risk adjusted rate:
Male: 6.31
Female: 6.82

Age groups: 18-39: 3.80; 40-64: 4.56; 65-74: 7.10; 75+: 9.56

Payer
Medicare: 8.16
Medicaid: 5.56
Other: 4.50

1b.5 Citations for data on Disparities:
2007 AHRQ Nationwide Inpatient Sample (N=1000 hospitals; 7 million discharges)

1b
C ☐
P ☐
M ☐
N ☐

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Performance of bilateral cathetrization where not indicated subjects patients to potential complications of care

1c.2-3. Type of Evidence: Systematic synthesis of research

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
Face validity: The diagnostic evaluation of patients with presumptive coronary artery disease often involves cardiac catheterization with coronary angiography. Left-sided catheterization provides very useful information about coronary anatomy, as well as left ventricular function and valvular anatomy. Right-sided catheterization is often performed at the same time, but this practice raises two appropriateness issues. First, without a specific indication for right heart catheterization, the clinical yield is extremely low. In the most rigorous prospective study of this phenomenon, case management was changed for only 1.5% of patients who received an incidental right heart catheterization without a listed indication.1 Similar results have been reported from two retrospective studies,2, 3 while other studies failed to distinguish unsuspected right-sided abnormalities that affected management from those that did not.4 Second, the marginal cost of right heart catheterization has been estimated to exceed $650 per case and $120 million for the nation.

In response to these research findings, the American College of Cardiology and the American Heart

1c
C ☐
P ☐
M ☐
N ☐

Comment [KP2]: 1b. Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating considerable variation, or overall poor performance, in the quality of care across providers and/or population groups (disparities in care).

Comment [k3]: 1 Examples of data on opportunity for improvement include, but are not limited to: prior studies, epidemiologic data, measure data from pilot testing or implementation. If data are not available, the measure focus is systematically assessed (e.g., expert panel rating) and judged to be a quality problem.

Comment [k4]: 1c. The measure focus is:
•an outcome (e.g., morbidity, mortality, function, health-related quality of life) that is relevant to, or associated with, a national health goal/priority, the condition, population, and/or care being addressed;
OR
•if an intermediate outcome, process, structure, etc., there is **evidence** that supports the specific measure focus as follows:
oIntermediate outcome – evidence that the measured intermediate outcome (e.g., blood pressure, Hba1c) leads to improved health/avoidance of harm or cost/benefit.
oProcess – evidence that the measured clinical or administrative process leads to improved health/avoidance of harm and
if the measure focus is on one step in a multi-step care process, it measures the step that has the greatest effect on improving the specified desired outcome(s).
oStructure – evidence that the measured structure supports the consistent delivery of effective processes or access that lead to improved health/avoidance of harm or cost/benefit.
oPatient experience – evidence that an association exists between the measure of patient experience of health care and the outcomes, values and preferences of individuals/ the public.
oAccess – evidence that an association exists between access to a health service and the outcomes of, or experience with, care.
oEfficiency – demonstration of an association between the measured resource use and level of performance with respect to one or more of the other five IOM aims of quality.

Comment [k5]: 4 Clinical care processes typically include multiple steps: assess → identify problem/potential problem → choose/plan intervention (with patient input) → provide intervention → evaluate impact on health status. If the measure focus is one step in such a multi-step process, the step with the greatest effect on the desired outcome should be selected as the focus of measurement. For example, although assessment of immunization status and recommending immunization are necessary steps, they are not sufficient to achieve the desired impact on health status – patients must be vaccinated to achieve immunity. This does not preclude consideration of measures of preventive screening interventions where there is a strong link with desired outcomes (e.g., … [1]

Association published guidelines for cardiac catheterization laboratories stating that "without specific indications, routine right heart catheterizations…are unnecessary."5 Similar guidelines have been published by other medical and public health organizations, such as the Cardiac Advisory Committee of the New York State Department of Health and the Texas Medical Association's Committee on Cardiovascular Diseases.
In New York, a panel of recognized cardiologists was convened to assist in establishing consensus criteria for the performance of right heart catheterization, incorporating advice from the New York State chapter of the American College of Cardiology, the Committee on Cardiovascular Disease of the Medical Society of the State of New York, and the Cardiac Advisory Council of the New York State Department of Health.16 Certain conditions were specified as valid indications for the procedure, allowing exclusion of patients for whom bilateral catheterization may be appropriate: pulmonary hypertension (415.0, 416.0, 416.8), rheumatic heart disease except for isolated aortic valve disease (391-394, 396-398), hypertensive heart disease (402, 404), pulmonary embolus (415.1x), cor pulmonale and other pulmonary heart disease (416.1, 416.9, 417.x), right sided valvular disorders (424.2, 424.3), and congenital cardiac abnormalities (745-747). A somewhat broader list of potential indications for bilateral catheterization was developed with input from the Texas Medical Association Committee on Cardiovascular Diseases13. Their list
adds acute pericarditis (420), acute and subacute endocarditis (421, 424.9), acute myocarditis (422), pericarditis and hemopericardium (423), mitral valve disorders (424.0), aortic valve disorders (424.1), cardiomyopathy (425), and heart failure (428).

Precision: In 1996, about 23% of all Medicare beneficiaries who underwent left heart catheterization also underwent right heart catheterization. At the state level, this percentage varied from 11% in Oklahoma to 48% in Massachusetts and 53% in Washington, DC.6 AHRQ IQIs, including Bilateral Cardiac Catheterization Rate, were easily applied to Veterans Administration data (2004 – 2007). "The authors "found considerable Veterans Integrated Service Networks'-level variation in bilateral cardiac catheterization rates" with highest utilization in the Northeast.18 Given that more than 1.2 million inpatient cardiac catheterizations were performed in the US in 1998, this measure should be estimable with reasonable precision.7

Minimum bias: Bilateral cardiac catheterization is considered appropriate in the presence of certain clinical indications: suspected pulmonary hypertension or significant right-sided valvular abnormalities, congestive heart failure, cardiomyopathies, congenital heart disease, pericardial disease, and cardiac transplantation. The validity of this measure rests on the assumption that the prevalence of these clinical indications is low and/or relatively uniform across the country. Unfortunately, the true prevalence of these indications cannot be reliably derived from administrative data. However, Malone et al 8 found that substantial variation in the use of bilateral catheterization persisted among 37 cardiologists at two large community hospitals, even after adjusting for clinical indications. Bias is likely to account for an even smaller share of variation at the hospital level.
Another source of potential bias is the large number of catheterizations performed on an outpatient basis. In 1996, 472,000 of 1,633,000 catheterizations were performed on an outpatient basis.9 We found no information on the prevalence of bilateral versus left-only catheterizations in the outpatient setting.

Construct validity: We located no articles explicitly addressing the construct validity of this indicator. The rationale for this indicator is based on face validity (see above) and professional consensus.

Fosters true quality improvement: We found no evidence regarding gaming for this indicator. When bilateral cardiac catheterization does not affect hospital payment (as in the DRG system), widespread use of this indicator may lead to less frequent coding of the procedure, when it is performed. It seems unlikely that patients would be denied a bilateral catheterization when the clinical situation clearly warrants it. However, a reduction in the rate of routine bilateral catheterization may lead to rare, but potentially serious, missed diagnoses (e.g., pulmonary hypertension). The long-term significance of missing these rare diagnoses is unclear. One recent study reported significantly decreased utilization in two of three centers using an interrupted time series design.10 The results of these studies suggest that right heart catheterization rates represent an actionable opportunity for quality improvement.

Prior use: Bilateral cardiac catheterization has been widely used as an indicator of quality in the Medicare program. It is one of five quality indicators included in the Medicare Quality of Care Report of Surveillance Measures 11. From 1993 to 1999, Peer Review Organizations in 20 states developed programs to reduce excessive rates of bilateral cardiac catheterization through education and outreach. Ten of these projects have released results; all documented dramatic utilization changes at the targeted hospitals. It has been

estimated that these programs averted at least 6,126 unnecessary bilateral catheterizations.12 Four of these state-based quality improvement projects have been described in the peer-reviewed literature,13-16 and one documented a spillover effect in the ambulatory setting.17

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):** Not applicable

1c.6 Method for rating evidence: Not applicable

1c.7 Summary of Controversy/Contradictory Evidence: We found no evidence regarding gaming for this indicator. When bilateral cardiac catheterization does not affect hospital payment (as in the DRG system), widespread use of this indicator may lead to less frequent coding of the procedure, when it is performed. It seems unlikely that patients would be denied a bilateral catheterization when the clinical situation clearly warrants it. However, a reduction in the rate of routine bilateral catheterization may lead to rare, but potentially serious, missed diagnoses (e.g., pulmonary hypertension). The long-term significance of missing these rare diagnoses is unclear. One recent study reported significantly decreased utilization in two of three centers using an interrupted time series design.10 The results of these studies suggest that right heart catheterization rates represent an actionable opportunity for quality improvement.

American Health Quality Association. A Pillar of Quality:The Medicare Peer Review Organization/Quality Improvement Organization Program. In; 2000.

Bing ML, Abel RL, Lee LJ, et al. Medical necessity for right heart catheterization. Tex Heart Inst J 1997;24(2):109-

Fortune GJ, Schiffel F, Jr., Elder S. MPCRF: the Right Heart Catheterization Cooperative project. Mo Med 1996;93(10):657-61.

Gold JA. Decreasing the rate of bilateral cardiac catheterization. Wis Med J 1995;94(10):569-70.

Malach M, Imperato PJ, Nenner RP, et al. Impact of an educational program on bilateral heart catheterization practice patterns. Am J Med Qual 1998;13(4):213-22.

Imperato PJ, Malach M, Nenner RP, et al. Concurrent improvements in ambulatory cardiac catheterization practices following inpatient interventions. J Ambulatory Care Manage 1999;22(2):1-8.

1c.8 Citations for Evidence (*other than guidelines***):**

1. Hill JA, Miranda AA, Keim SG, et al. Value of right-sided cardiac catheterization in patients undergoing left-sided cardiac catheterization for evaluation of coronary artery disease. Am J Cardiol 1990;65(9):590-3.
2. Shanes JG, Stein MA, Dierenfeldt BJ, et al. The value of routine right heart catheterization in patients undergoing coronary arteriography. Am Heart J 1987;113(5):1261-3.
3. Friedman HS. Right-heart catheterization in coronary artery disease. Angiology 1978;29(12):878-87.
4. Barron JT, Ruggie N, Uretz E, et al. Findings on routine right heart catheterization in patients with suspected coronary artery disease. Am Heart J 1988;115(6):1193-8.
5. Pepine CJ, Allen HD, Bashore TM, et al. ACC/AHA guidelines for cardiac catheterization and cardiac catheterization laboratories. American College of Cardiology/American Heart Association Ad Hoc Task Force on Cardiac Catheterization. Circulation 1991;84(5):2213-47.
6. Quality Resume. Health Care Finiancing Administration´s Medicare Quality of Care Report of Surveillance Measures. In; 1998.
7. Hall M, Popovic J. 1998 summary: National Hospital Discharge Survey. Advance Data from Vital and Health Statistics 2000;316.
8. Malone ML, Bajwa TK, Battiola RJ, et al. Variation among cardiologists in the utilization of right heart catheterization at time of coronary angiography [see comments]. Cathet Cardiovasc Diagn 1996;37(2):125-30.
9. Owings MF, Kozak LJ. Ambulatory and inpatient procedures in the United States, 1996. Vital Health Stat 13 1998(139):1-119.
10. Cable G. Enhancing causal interpretations of quality improvement interventions. Qual Health Care 2001;10(3):179-86.

Comment [k6]: 3 The strength of the body of evidence for the specific measure focus should be systematically assessed and rated (e.g., USPSTF grading system http://www.ahrq.gov/clinic/uspstf07/methods/benefit.htm). If the USPSTF grading system was not used, the grading system is explained including how it relates to the USPSTF grades or why it does not. However, evidence is not limited to quantitative studies and the best type of evidence depends upon the question being studied (e.g., randomized controlled trials appropriate for studying drug efficacy are not well suited for complex system changes). When qualitative studies are used, appropriate qualitative research criteria are used to judge the strength of the evidence.

11. Medicare Quality of Care Report of Surveillance Measures. In: Health Care Financing Administration.
12. American Health Quality Association. A Pillar of Quality:The Medicare Peer Review Organization/Quality Improvement Organization Program. In; 2000.
13. Bing ML, Abel RL, Lee LJ, et al. Medical necessity for right heart catheterization. Tex Heart Inst J 1997;24(2):109-13.
14. Fortune GJ, Schiffel F, Jr., Elder S. MPCRF: the Right Heart Catheterization Cooperative project. Mo Med 1996;93(10):657-61.
15. Gold JA. Decreasing the rate of bilateral cardiac catheterization. Wis Med J 1995;94(10):569-70.
16. Malach M, Imperato PJ, Nenner RP, et al. Impact of an educational program on bilateral heart catheterization practice patterns. Am J Med Qual 1998;13(4):213-22.
17. Imperato PJ, Malach M, Nenner RP, et al. Concurrent improvements in ambulatory cardiac catheterization practices following inpatient interventions. J Ambulatory Care Manage 1999;22(2):1-8.
18. Borzecki Ann M; Christiansen Cindy L; Loveland Susan; Chew Priscilla; Rosen Amy K. Trends in the inpatient quality indicators: the Veterans Health Administration experience. Medical Care. 2010:48:694-702.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number***):**
Not applicable

1c.10 Clinical Practice Guideline Citation: Not applicable
1c.11 National Guideline Clearinghouse or other URL: Not applicable

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom***):**
Not applicable

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF)***:**
Not applicable

1c.14 Rationale for using this guideline over others:
None

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report***, met?** **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 Do you have a web page where current detailed measure specifications can be obtained? **S.2 If yes, provide web page URL:**	
2a. Precisely Specified	
2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome***):** Discharges with ICD-9-CM procedure code for right and left heart catheterization in any procedure code field **2a.2 Numerator Time Window (***The time period in which cases are eligible for inclusion in the numerator***):** Inpatient hospitalization	**2a-specs** **C☐** **P☐** **M☐** **N☐**

Comment [k7]: USPSTF grading system **http://www.ahrq.gov/clinic/uspstf/grades.htm**: **A -** The USPSTF recommends the service. There is high certainty that the net benefit is substantial. **B -** The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial. **C -** The USPSTF recommends against routinely providing the service. There may be considerations that support providing the service in an individual patient. There is at least moderate certainty that the net benefit is small. Offer or provide this service only if other considerations support the offering or providing the service in an individual patient. **D -** The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits. **I -** The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.

Comment [KP8]: 2a. The measure is well defined and precisely specified so that it can be implemented consistently within and across organizations and allow for comparability. The required data elements are of high quality as defined by NQF's Health Information Technology Expert Panel (HITEP) .

2a.3 Numerator Details (*All information required to collect/calculate the numerator, including all codes, logic, and definitions***):**

ICD-9-CM right and left heart catheterization procedure code:

3723 RT/LEFT HEART CARD CATH

Exclude cases:

- with valid indications for right-sided catheterization

ICD-9-CM Indications for Right Heart Catheterization diagnosis codes:

3910 ACUTE RHEUMATIC PERICARD
3911 ACUTE RHEUMATIC ENDOCARD
3912 AC RHEUMATIC MYOCARDITIS
3918 AC RHEUMAT HRT DIS NEC
3919 AC RHEUMAT HRT DIS NOS
3920 RHEUM CHOREA W HRT INVOL
3929 RHEUMATIC CHOREA NOS
393 CHR RHEUMATIC PERICARD
3940 MITRAL STENOSIS
3941 RHEUMATIC MITRAL INSUFF
3942 MITRAL STENOSIS W INSUFF
3949 MITRAL VALVE DIS NEC/NOS
3960 MITRAL/AORTIC STENOSIS
3961 MITRAL STENOS/AORT INSUF
3962 MITRAL INSUF/AORT STENOS
3963 MITRAL/AORTIC VAL INSUFF
3968 MITR/AORTIC MULT INVOLV
3969 MITRAL/AORTIC V DIS NOS
3970 TRICUSPID VALVE DISEASE
3971 RHEUM PULMON VALVE DIS
3979 RHEUM ENDOCARDITIS NOS
3980 RHEUMATIC MYOCARDITIS
39890 RHEUMATIC HEART DIS NOS
39891 RHEUMATIC HEART FAILURE
39899 RHEUMATIC HEART DIS NEC
40200 MAL HYPERTEN HRT DIS NOS
40201 MAL HYPERT HRT DIS W CHF
40210 BEN HYPERTEN HRT DIS NOS
40211 BENIGN HYP HRT DIS W CHF
40290 HYPERTENSIVE HRT DIS NOS
40291 HYPERTEN HEART DIS W CHF
40400 MAL HY HT/REN W/O HF/RF
40401 MAL HYPER HRT/REN W HF
40402 MAL HY HT/REN W REN FAIL
40403 MAL HYP HRT/REN W HF/RF
40410 BEN HY HT/REN W/O HF/RF
40411 BEN HYPER HRT/REN W HF
40412 BEN HY HT/REN W REN FAIL
40413 BEN HYP HRT/REN W HF/RF
40490 HY HT/REN NOS W/O HF/RF
40491 HYPER HRT/REN NOS W HF
40492 HY HT/REN NOS W REN FAIL
74684 OBSTRUCT HEART ANOM NEC
74685 CORONARY ARTERY ANOMALY
74686 CONGENITAL HEART BLOCK
74687 MALPOSITION OF HEART
74689 CONG HEART ANOMALY NEC
7469 CONG HEART ANOMALY NOS

7470	PATENT DUCTUS ARTERIOSUS
74710	COARCTATION OF AORTA
74711	INTERRUPT OF AORTIC ARCH
74720	CONG ANOM OF AORTA NOS
74721	ANOMALIES OF AORTIC ARCH
74722	AORTIC ATRESIA/STENOSIS
74729	CONG ANOM OF AORTA NEC
7473	PULMONARY ARTERY ANOM
74740	GREAT VEIN ANOMALY NOS
40493	HYP HRT/REN NOS W HF/RF
4150	ACUTE COR PULMONALE
4151	PULM EMBOLISM/INFARCT-
41511	IATROGENIC PULMON. EMBOLISM
41512	SEPTIC PULMONARY EMBOLSM
41519	OTHER PULMON EMBOLISM
4160	PRIM PULM HYPERTENSION
4161	KYPHOSCOLIOTIC HEART DIS
4168	CHR PULMON HEART DIS NEC
4169	CHR PULMON HEART DIS NOS
4170	ARTERIOVEN FISTU PUL VES
4171	PULMON ARTERY ANEURYSM
4178	PULMON CIRCULAT DIS NEC
4179	PULMON CIRCULAT DIS NOS
4200	AC PERICARDIT IN OTH DIS
42090	ACUTE PERICARDITIS NOS
42091	AC IDIOPATH PERICARDITIS
42099	ACUTE PERICARDITIS NEC
4210	AC/SUBAC BACT ENDOCARD
4211	AC ENDOCARDIT IN OTH DIS
4219	AC/SUBAC ENDOCARDIT NOS
4220	AC MYOCARDIT IN OTH DIS
42290	ACUTE MYOCARDITIS NOS
42291	IDIOPATHIC MYOCARDITIS
42292	SEPTIC MYOCARDITIS
42293	TOXIC MYOCARDITIS
42299	ACUTE MYOCARDITIS NEC
4230	HEMOPERICARDIUM
4231	ADHESIVE PERICARDITIS
4232	CONSTRICTIV PERICARDITIS
4233	CARDIAC TAMPONADE
4238	PERICARDIAL DISEASE NEC
4239	PERICARDIAL DISEASE NOS
4240	MITRAL VALVE DISORDER
4241	AORTIC VALVE DISORDER
4242	NONRHEUM TRICUSP VAL DIS
4243	PULMONARY VALVE DISORDER
42490	ENDOCARDITIS NOS
42491	ENDOCARDITIS IN OTH DIS
42499	ENDOCARDITIS NEC
4250	ENDOMYOCARDIAL FIBROSIS
4251	HYPERTR OBSTR CARDIOMYOP
4252	OBSC AFRIC CARDIOMYOPATH
4253	ENDOCARD FIBROELASTOSIS
4254	PRIM CARDIOMYOPATHY NEC
4255	ALCOHOLIC CARDIOMYOPATHY
4257	METABOLIC CARDIOMYOPATHY
4258	CARDIOMYOPATH IN OTH DIS
4259	SECOND CARDIOMYOPATH NOS

4280	CHF NOS
4281	LEFT HEART FAILURE
42820	SYSTOLIC HRT FAILURE NOS
42821	AC SYSTOLIC HRT FAILURE
42822	CHR SYSTOLIC HRT FAILURE
42823	AC ON CHR SYST HRT FAIL
42830	DIASTOLC HRT FAILURE NOS
42831	AC DIASTOLIC HRT FAILURE
42832	CHR DIASTOLIC HRT FAIL
42833	AC ON CHR DIAST HRT FAIL
42840	SYST/DIAST HRT FAIL NOS
42841	AC SYST/DIASTOL HRT FAIL
42842	CHR SYST/DIASTL HRT FAIL
42843	AC/CHR SYST/DIA HRT FAIL
4289	HEART FAILURE NOS
7450	COMMON TRUNCUS
74510	COMPL TRANSPOS GREAT VES
74511	DOUBLE OUTLET RT VENTRIC
74512	CORRECT TRANSPOS GRT VES
74519	TRANSPOS GREAT VESS NEC
7452	TETRALOGY OF FALLOT
7453	COMMON VENTRICLE
7454	VENTRICULAR SEPT DEFECT
7455	SECUNDUM ATRIAL SEPT DEF
74560	ENDOCARD CUSHION DEF NOS
74561	OSTIUM PRIMUM DEFECT
74569	ENDOCARD CUSHION DEF NEC
7457	COR BILOCULARE
7458	SEPTAL CLOSURE ANOM NEC
7459	SEPTAL CLOSURE ANOM NOS
74600	PULMONARY VALVE ANOM NOS
74601	CONG PULMON VALV ATRESIA
74602	CONG PULMON VALVE STENOS
74609	PULMONARY VALVE ANOM NEC
7461	CONG TRICUSP ATRES/STEN
7462	EBSTEIN´S ANOMALY
7463	CONG AORTA VALV STENOSIS
7464	CONG AORTA VALV INSUFFIC
7465	CONGEN MITRAL STENOSIS
7466	CONG MITRAL INSUFFICIENC
7467	HYPOPLAS LEFT HEART SYND
74681	CONG SUBAORTIC STENOSIS
74682	COR TRIATRIATUM
74683	INFUNDIB PULMON STENOSIS
74741	TOT ANOM PULM VEN CONNEC
74742	PART ANOM PULM VEN CONN
74749	GREAT VEIN ANOMALY NEC
7475	UMBILICAL ARTERY ABSENCE
74760	UNSP PRPHERL VASC ANOMAL
74761	GSTRONTEST VESL ANOMALY
74762	RENAL VESSEL ANOMALY
74763	UPR LIMB VESSEL ANOMALY
74764	LWR LIMB VESSEL ANOMALY
74769	OTH SPCF PRPH VSCL ANOML
74781	CEREBROVASCULAR ANOMALY
74782	SPINAL VESSEL ANOMALY
74783	PERSISTENT FETAL CIRC OCT02-
74789	CIRCULATORY ANOMALY NEC

7479 CIRCULATORY ANOMALY NOS

2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured***):**
Discharges with ICD-9-CM procedure code for heart catheterizations in any procedure code field

2a.5 Target population gender: Female, Male
2a.6 Target population age range: 18 and older

2a.7 Denominator Time Window (*The time period in which cases are eligible for inclusion in the denominator***):**
User defined; Most users use one calendar year

2a.8 Denominator Details (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions***):**
All discharges, age 18 years and older, with heart catheterization in any procedure field.
ICD-9-CM heart catheterization procedure codes:
3722 LEFT HEART CARDIAC CATH
3723RT/LEFT HEART CARD CATH

Include only cases with any diagnosis of coronary artery disease. ICD-9-CM coronary artery disease diagnosis codes:
41000 AMI ANTEROLATERAL, UNSPEC
41001 AMI ANTEROLATERAL, INIT
41002 AMI ANTEROLATERAL, SUBSEQ
41010 AMI ANTERIOR WALL, UNSPEC
41011 AMI ANTERIOR WALL, INIT
41012 AMI ANTERIOR WALL, SUBSEQ
41020 AMI INFEROLATERAL, UNSPEC
41021 AMI INFEROLATERAL, INIT
41022 AMI INFEROLATERAL, SUBSEQ
41030 AMI INFEROPOST, UNSPEC
41031 AMI INFEROPOST, INITIAL
41032 AMI INFEROPOST, SUBSEQ
41040 AMI INFERIOR WALL, UNSPEC
41041 AMI INFERIOR WALL, INIT
41042 AMI INFERIOR WALL, SUBSEQ
41050 AMI LATERAL NEC, UNSPEC
41051 AMI LATERAL NEC, INITIAL
41052 AMI LATERAL NEC, SUBSEQ
41060 TRUE POST INFARCT, UNSPEC
41061 TRUE POST INFARCT, INIT
41062 TRUE POST INFARCT, SUBSEQ
41070 SUBENDO INFARCT, UNSPEC
41071 SUBENDO INFARCT, INITIAL
41072 SUBENDO INFARCT, SUBSEQ
41080 AMI NEC, UNSPECIFIED
41081 AMI NEC, INITIAL
41082 AMI NEC, SUBSEQUENT
41090 AMI NOS, UNSPECIFIED
41091 AMI NOS, INITIAL
41092 AMI NOS, SUBSEQUENT
4110 POST MI SYNDROME
4111 INTERMED CORONARY SYND
41181 CORONARY OCCLSN W/O MI
41189 AC ISCHEMIC HRT DIS NEC
412 OLD MYOCARDIAL INFARCT
4130 ANGINA DECUBITUS
4131 PRINZMETAL ANGINA

4139 ANGINA PECTORIS NEC/NOS
4140 COR ATHEROSCLEROSIS OCT94-
41400 COR ATH UNSP VSL NTV/GFT OCT94-
41401 CRNRY ATHRSCL NATVE VSSL OCT94-
41402 CRN ATH ATLG VN BPS GRFT OCT94-
41403 CRN ATH NONATLG BLG GRFT OCT94-
41404 COR ATH ARTRY BYPAS GRFT OCT96-
41405 COR ATH BYPASS GRAFT NOS OCT96-
41406 COR ATH NATV ART TP HRT OCT02-
41407 COR ATH BPS GRAFT TP HRT OCT03-
41410 ANEURYSM, HEART (WALL)
41411 CORONARY VESSEL ANEURYSM
41412 DISSECTION COR ARTERY OCT02-
41419 ANEURYSM OF HEART NEC
4143 CORONARY ATHEROSCLEROSIS DUE TO LIPID RICH PLAQUE OCT08-
4148 CHR ISCHEMIC HRT DIS NEC
4149 CHR ISCHEMIC HRT DIS NOS

2a.9 **Denominator Exclusions (***Brief text description of exclusions from the target population***):** None

2a.10 **Denominator Exclusion Details (***All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
Not applicable

2a.11 **Stratification Details/Variables (***All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
Observed (raw) rates may be stratified by gender, age groups, race/ethnicity categories and payer categories.
Risk adjustment of the data is recommended using age and sex. Reliability adjustment is also recommended.

2a.12-13 **Risk Adjustment Type:** No risk adjustment necessary

2a.14 **Risk Adjustment Methodology/Variables (***List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**
None

2a.15-17 **Detailed risk model available Web page URL or attachment:**

2a.18-19 **Type of Score:** Rate/proportion
2a.20 **Interpretation of Score:** Better quality = Lower score
2a.21 **Calculation Algorithm (***Describe the calculation of the measure as a flowchart or series of steps***):**
Each Inpatient Quality Indicator (IQI) expressed as a rate, is defined as outcome of interest/population at risk or numerator/denominator. The Quality Indicators software performs five steps to produce the IQI rates. 1) Discharge-level data is used to mark inpatient records containing outcomes of interest. 2) Identify populations at risk. 3) Calculate observed rates. 4) For rates that are not risk-adjusted, the risk-adjusted rate equals the observed rate. 5) Create multivariate signal extraction (MSX) smoothed rates. Shrinkage factors are applied to the risk-adjusted rates for each PQI in the MSX process. For each IQI, the shrinkage estimate reflects a reliability adjustment unique to each indicator. Full information on IQI algorithms and specification can be found at http://qualityindicators.ahrq.gov/Iqi_download.htm.

2a.22 **Describe the method for discriminating performance** *(e.g., significance testing)***:**
Significance testing is not prescribed by the software. Users may define their methods of discriminating performance according to their application. Although all cases are measured, the rate is considered a sample in time, given the variations in case mix over time. Confidence intervals can be calculated, but again are not prescribed.

2a.23 **Sampling (Survey) Methodology** *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
Not applicable

2a.24 **Data Source (***Check the source(s) for which the measure is specified and tested)*

Comment [k9]: 11 Risk factors that influence outcomes should not be specified as exclusions.
12 Patient preference is not a clinical exception to eligibility and can be influenced by provider interventions.

Electronic administrative data/claims

2a.25 **Data source/data collection instrument (***Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
Hospital administrative discharge data. See data requirements in the AHRQ QI Windows Application Documentation: http://www.qualityindicators.ahrq.gov/software.htm

2a.26-28 **Data source/data collection instrument reference web page URL or attachment:** URL
http://www.qualityindicators.ahrq.gov/software.htm

2a.29-31 **Data dictionary/code table web page URL or attachment:** URL
http://www.qualityindicators.ahrq.gov/downloads/winqi/AHRQ_QI_Windows_Software_Documentation_V41a.pdf

2a.32-35 **Level of Measurement/Analysis** (*Check the level(s) for which the measure is specified and tested)*
Facility/Agency

2a.36-37 **Care Settings (***Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 **Clinical Services** (*Healthcare services being measured, check all that apply*)
Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 **Data/sample** *(description of data/sample and size)***:** 2007 AHRQ State Inpatient Databases (N=4,000 hosptials and 38 million discharges)

2b.2 **Analytic Method** *(type of reliability & rationale, method for testing)***:**
Annual review of ICD-9-CM coding updates for numerator and denominator specifications

2b.3 **Testing Results** *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)***:**
Not applicable

2b C☐ P☐ M☐ N☐

2c. Validity testing

2c.1 **Data/sample** *(description of data/sample and size)***:** 2007 AHRQ State Inpatient Databases (N=4,000 hosptials and 38 million discharges)

2c.2 **Analytic Method** *(type of validity & rationale, method for testing)***:**
Annual update of comparative data

2c.3 **Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)***:**
Signal variance of 0.000017035199; signal ratio of 0.90

2c C☐ P☐ M☐ N☐

2d. Exclusions Justified

2d.1 **Summary of Evidence supporting exclusion(s):**
Not applicable

2d.2 **Citations for Evidence:**
Not applicable

2d.3 **Data/sample** *(description of data/sample and size)***:** Not applicable

2d.4 **Analytic Method** *(type analysis & rationale)***:**

2d C☐ P☐ M☐ N☐ NA☐

Rating: C=Completely; P=Partially; M=Minimally; N=Not at all; NA=Not applicable

Comment [KP10]: 2b. Reliability testing demonstrates the measure results are repeatable, producing the same results a high proportion of the time when assessed in the same population in the same time period.

Comment [k11]: 8 Examples of reliability testing include, but are not limited to: inter-rater/abstractor or intra-rater/abstractor studies; internal consistency for multi-item scales; test-retest for survey items. Reliability testing may address the data items or final measure score.

Comment [KP12]: 2c. Validity testing demonstrates that the measure reflects the quality of care provided, adequately distinguishing good and poor quality. If face validity is the only validity addressed, it is systematically assessed.

Comment [k13]: 9 Examples of validity testing include, but are not limited to: determining if measure scores adequately distinguish between providers known to have good or poor quality assessed by another valid method; correlation of measure scores with another valid indicator of quality for the specific topic; ability of measure scores to predict scores on some other related valid measure; content validity for multi-item scales/tests. Face validity is a subjective assessment by experts of whether the measure reflects the quality of care (e.g., whether the proportion of patients with BP < 140/90 is a marker of quality). If face validity is the only validity addressed, it is systematically assessed (e.g., ratings by relevant stakeholders) and the measure is judged to represent quality care for the specific topic and that the measure focus is the most important aspect of quality for the specific topic.

Comment [KP14]: 2d. Clinically necessary measure exclusions are identified and must be:
•supported by evidence of sufficient frequency of occurrence so that results are distorted without the exclusion;
AND
•a clinically appropriate exception (e.g., contraindication) to eligibility for the measure focus;
AND
•precisely defined and specified:
–if there is substantial variability in exclusions across providers, the measure is specified so that exclusions are computable and the effect on the measure is transparent (i.e., impact clearly delineated, such as number of cases excluded, exclusion rates by type of exclusion);
if patient preference (e.g., informed decision-making) is a basis for exclusion, there must be evidence that it strongly impacts performance on the measure and the measure must be specified so that the information about patient preference and the effect on the measure is transparent (e.g., numerator category ... [2]

Comment [k15]: 10 Examples of evidence that an exclusion distorts measure results include, but are not limited to: frequency of occurrence, sensitivity analyses with and without the exclusion, and variability of exclusions across providers.

Not applicable

2d.5 **Testing Results** *(e.g., frequency, variability, sensitivity analyses)*:
Not applicable

2e. Risk Adjustment for Outcomes/ Resource Use Measures

2e.1 **Data/sample** *(description of data/sample and size)*: Not applicable

2e.2 **Analytic Method** *(type of risk adjustment, analysis, & rationale)*:
Not applicable

2e.3 **Testing Results** *(risk model performance metrics)*:
Not applicable

2e.4 **If outcome or resource use measure is not risk adjusted, provide rationale:** Not applicable

2e
C☐ P☐ M☐ N☐ NA☐

2f. Identification of Meaningful Differences in Performance

2f.1 **Data/sample from Testing or Current Use** *(description of data/sample and size)*: 2007 AHRQ State Inpatient Databases (N=4,000 hosptials and 38 million discharges)

2f.2 **Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*:
Posterior probability (gamma) with 95% probability interval

2f.3 **Provide Measure Scores from Testing or Current Use** *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*:
5th 25th Median 75th 95th
0.011149 0.014403 0.017009 0.019913 0.024636

2f
C☐ P☐ M☐ N☐

2g. Comparability of Multiple Data Sources/Methods

2g.1 **Data/sample** *(description of data/sample and size)*: Not applicable

2g.2 **Analytic Method** *(type of analysis & rationale)*:
Not applicable

2g.3 **Testing Results** *(e.g., correlation statistics, comparison of rankings)*:
Not applicable

2g
C☐ P☐ M☐ N☐ NA☐

2h. Disparities in Care

2h.**1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: Based on the 2008 national statistics for diabetes short-tem complications http://hcupnet.ahrq.gov the 2008 rates are as follows:

Overall rate per 100: 1.73 ; Risk adjusted rate: 1.73
Male: 1.71
Female: 1.78

Age groups: 18-39: 1.65; 40-64: 1.63; 65-74: 1.83; 75+: 1.83

Payer
Medicare: 1.85
Medicaid: 1.69
Other: 1.59

2h.2 **If disparities have been reported/identified, but measure is not specified to detect disparities,**

2h
C☐ P☐ M☐ N☐ NA☐

Comment [KP16]: 2e. For outcome measures and other measures (e.g., resource use) when indicated:
•an evidence-based risk-adjustment strategy (e.g., risk models, risk stratification) is specified and is based on patient clinical factors that influence the measured outcome (but not disparities in care) and are present at start of care;[Error! Bookmark not defined.] OR rationale/data support no risk adjustment.

Comment [k17]: 13 Risk models should not obscure disparities in care for populations by including factors that are associated with differences/inequalities in care such as race, socioeconomic status, gender (e.g., poorer treatment outcomes of African American men with prostate cancer, inequalities in treatment for CVD risk factors between men and women). It is preferable to stratify measures by race and socioeconomic status rather than adjusting out differences.

Comment [KP18]: 2f. Data analysis demonstrates that methods for scoring and analysis of the specified measure allow for identification of statistically significant and practically/clinically meaningful differences in performance.

Comment [k19]: 14 With large enough sample sizes, small differences that are statistically significant may or may not be practically or clinically meaningful. The substantive question may be, for example, whether a statistically significant difference of one percentage point in the percentage of patients who received smoking cessation counseling (e.g., 74% v. 75%) is clinically meaningful; or whether a statistically significant difference of $25 in cost for an episode of care (e.g., $5,000 v. $5,025) is practically meaningful. Measures with overall poor performance may not demonstrate much variability across providers.

Comment [KP20]: 2g. If multiple data sources/methods are allowed, there is demonstration they produce comparable results.

Comment [KP21]: 2h. If disparities in care have been identified, measure specifications, scoring, and analysis allow for identification of disparities through stratification of results (e.g., by race, ethnicity, socioeconomic status, gender);OR rationale/data justifies why stratification is not necessary or not feasible.

provide follow-up plans: Rates may be reported by gender, age, race/ethnicity categories and payer categories	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, **met?** **Rationale:**	*2* **C**☐ **P**☐ **M**☐ **N**☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information **3a.1 Current Use:** In use **3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:** 1) Illinois Hospital Association: Illinois Hospitals Caring for You, www.illinoishospitals.org 2) Iowa Healthcare Collaborative: http://www.ihconline.org/aspx/publicreporting/iowareport.aspx 3) Norton Healthcare (a multi-hospital system): Norton Healthcare Quality Report, http://www.nortonhealthcare.com/body.cfm?id=157 4) Kentucky Hospital Association: Kentucky Hospital Association Quality Data, http://info.kyha.com/QualityData/IQISite/ 5) State of Kentucky, http://chfs.ky.gov/ohp/healthdata 6) State of New Jersey: Find and Compare Quality Care in New Jersey Hospitals, http://www.nj.gov/health/healthcarequality/ 7) Niagara Health Quality Coalition and Alliance for Quality Health Care: New York State Hospital Report Card, http://www.myhealthfinder.com/ 8) State of Texas: Reports on Hospital Performance, http://www.dshs.state.tx.us/thcic/ 9) Niagara Health Quality Coalition and Alliance for Quality Health Care: Washington State Hospital Report Card, http://www.myhealthfinder.com/wa09/index.php 10) State of Nevada: Nevada Compare Care, http://nevadacomparecare.net/Monahrq/home.html **3a.3 If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** University Healthcare Consortium - An alliance of 103 academic medical centers and 219 of their affiliated hospitals. Reporting the AHRQ QIs to their member hospitals. (see www.uhc.edu. Note: measure results reported to hospitals; not reported on site). Dallas Fort Worth Hospital Council – Reporting on measure results to over 70 hospitals in Texas (see www.dfwhc.ord. Note: measure results reported to hospitals; not reported on site). Norton Healthcare - a multi-hospital system in Kentucky (see http://www.nortonhealthcare.com/about/Our_Performance/index.aspx) Ministry Health Care - a multi-hospital system in Wisconsin (see http://ministryhealth.org/display/router.aspx. Note: measure results reported to hospitals; not reported on site). Minnesota Hospital Association http://www.mnhospitals.org/ Note: measure used in quality improvement. Not reported publicly by the association)	**3a** **C**☐ **P**☐ **M**☐ **N**☐

Comment [KP22]: 3a. Demonstration that information produced by the measure is meaningful, understandable, and useful to the intended audience(s) for both public reporting (e.g., focus group, cognitive testing) and informing quality improvement (e.g., quality improvement initiatives). An important outcome that may not have an identified improvement strategy still can be useful for informing quality improvement by identifying the need for and stimulating new approaches to improvement.

Testing of Interpretability (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*)

3a.4 **Data/sample** *(description of data/sample and size)*: The AHRQ State Inpatient Databases (SID) consist of approximatley 4,000 hospitals and 38 million discharges

3a.5 **Methods** *(e.g., focus group, survey, QI project)*:
A research team from the School of Public Affairs, Baruch College, under contracts with the Department of Public Health, Weill Medical College and Battelle, Inc., has developed a pair of Hospital Quality Model Reports at the request of the Agency for Healthcare Research & Quality (AHRQ). The AHRQ hip fracture mortality measure is included in the reports. These reports are designed specifically to report comparative information on hospital performance based on the AHRQ Quality Indicators (QIs). The work was done in close collaboration with AHRQ staff and the AHRQ Quality Indicators team.

The Model Reports (discussed immediately above) are based on:

- Extensive search and analysis of the literature on hospital quality measurement and reporting, as well as public reporting on health care quality more broadly;
- Interviews with quality measurement and reporting experts, purchasers, staff of purchasing coalitions, and executives of integrated health care delivery systems who are responsible for quality in their facilities;
- Two focus groups with chief medical officers of hospitals and/or systems and two focus groups with quality managers from a broad mix of hospitals;
- Four focus groups with members of the public who had recently experienced a hospital admission; and
- Four rounds of cognitive interviews (a total of 62 interviews) to test draft versions of the two Model Reports with members of the public with recent hospital experience, basic computer literacy but widely varying levels of education.

3a.6 **Results** *(qualitative and/or quantitative results and conclusions)*:
Given the above review of the literature and original research that was conducted, a Model report was the result that could help sponsors use the best evidence on public reports so they are most likely to have the desired effects on quality.

3b/3c. Relation to other NQF-endorsed measures

3b.1 **NQF # and Title of similar or related measures:**

(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**

3b. Harmonization
If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population):
3b.2 **Are the measure specifications harmonized? If not, why?**

3b C☐ P☐ M☐ N☐ NA☐

3c. Distinctive or Additive Value
3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:**

5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:**

3c C☐ P☐ M☐ N☐ NA☐

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability*? **3**

Steering Committee: Overall, to what extent was the criterion, *Usability*, **met? 3**
Rationale:
C☐ P☐ M☐

Comment [KP23]: 3b. The measure specifications are harmonized with other measures, and are applicable to multiple levels and settings.

Comment [k24]: 16 Measure harmonization refers to the standardization of specifications for similar measures on the same topic (e.g., *influenza immunization* of patients in hospitals or nursing homes), or related measures for the same target population (e.g., eye exam and HbA1c for *patients with diabetes*), or definitions applicable to many measures (e.g., age designation for children) so that they are uniform or compatible, unless differences are dictated by the evidence. The dimensions of harmonization can include numerator, denominator, exclusions, and data source and collection instructions. The extent of harmonization depends on the relationship of the measures, the evidence for the specific measure focus, and differences in data sources.

Comment [KP25]: 3c. Review of existing endorsed measures and measure sets demonstrates that the measure provides a distinctive or additive value to existing NQF-endorsed measures (e.g., provides a more complete picture of quality for a particular condition or aspect of healthcare, is a more valid or efficient way to measure).

	N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes 4a.1-2 **How are the data elements that are needed to compute measure scores generated?** Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	4a C☐ P☐ M☐ N☐
4b. Electronic Sources 4b.1 **Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) Yes 4b.2 **If not, specify the near-term path to achieve electronic capture by most providers.**	4b C☐ P☐ M☐ N☐
4c. Exclusions 4c.1 **Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No 4c.2 **If yes, provide justification.**	4c C☐ P☐ M☐ N☐ NA☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences 4d.1 **Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** None identified	4d C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation 4e.1 **Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** No issues have been identified 4e.2 **Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** Administrative data is collected as part of routine operations. Some staff time is required to download and execute the software 4e.3 **Evidence for costs:** User reports 4e.4 **Business case documentation:** None	4e C☐ P☐ M☐ N☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	4
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, **met?** **Rationale:**	4 C☐ P☐ M☐ N☐

Comment [KP26]: 4a. For clinical measures, required data elements are routinely generated concurrent with and as a byproduct of care processes during care delivery. (e.g., BP recorded in the electronic record, not abstracted from the record later by other personnel; patient self-assessment tools, e.g., depression scale; lab values, meds, etc.)

Comment [KP27]: 4b. The required data elements are available in electronic sources. If the required data are not in existing electronic sources, a credible, near-term path to electronic collection by most providers is specified and clinical data elements are specified for transition to the electronic health record.

Comment [KP28]: 4c. Exclusions should not require additional data sources beyond what is required for scoring the measure (e.g., numerator and denominator) unless justified as supporting measure validity.

Comment [KP29]: 4d. Susceptibility to inaccuracies, errors, or unintended consequences and the ability to audit the data items to detect such problems are identified.

Comment [KP30]: 4e. Demonstration that the data collection strategy (e.g., source, timing, frequency, sampling, patient confidentiality, etc.) can be implemented (e.g., already in operational use, or testing demonstrates that it is ready to put into operational use).

RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited** ☐
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y** ☐ **N** ☐ **A** ☐

CONTACT INFORMATION
Co.1 Measure Steward (Intellectual Property Owner) **Co.1 Organization** Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, Maryland, 20850 **Co.2 Point of Contact** John, Bott, MSSW, MBA, john.bott@ahrq.hhs.gov, 301-427-1317-
Measure Developer If different from Measure Steward **Co.3 Organization** Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, Maryland, 20850 **Co.4 Point of Contact** John, Bott, MSSW, MBA, john.bott@ahrq.hhs.gov, 301-427-1317-
Co.5 Submitter If different from Measure Steward POC John, Bott, MSSW, MBA, john.bott@ahrq.hhs.gov, 301-427-1317-, Agency for Healthcare Research and Quality
Co.6 Additional organizations that sponsored/participated in measure development UC Davis Stanford University Battelle Memorial Institute

ADDITIONAL INFORMATION
Workgroup/Expert Panel involved in measure development **Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.**
Ad.2 If adapted, provide name of original measure: **Ad.3-5 If adapted, provide original specifications URL or attachment**
Measure Developer/Steward Updates and Ongoing Maintenance **Ad.6 Year the measure was first released:** 2002 **Ad.7 Month and Year of most recent revision:** 10, 2010 **Ad.8 What is your frequency for review/update of this measure?** annually **Ad.9 When is the next scheduled review/update for this measure?** 05, 2011
Ad.10 Copyright statement/disclaimers: The AHRQ QI software is publicly available. We have no copyright disclaimers.
Ad.11 -13 Additional Information web page URL or attachment:
Date of Submission (*MM/DD/YY*)**:** 12/31/2010

Page 3: [1] Comment [k5] **Karen Pace** **10/5/2009 8:59:00 AM**

4 Clinical care processes typically include multiple steps: assess → identify problem/potential problem → choose/plan intervention (with patient input) → provide intervention → evaluate impact on health status. If the measure focus is one step in such a multi-step process, the step with the greatest effect on the desired outcome should be selected as the focus of measurement. For example, although assessment of immunization status and recommending immunization are necessary steps, they are not sufficient to achieve the desired impact on health status – patients must be vaccinated to achieve immunity. This does not preclude consideration of measures of preventive screening interventions where there is a strong link with desired outcomes (e.g., mammography) or measures for multiple care processes that affect a single outcome.

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2d. Clinically necessary measure exclusions are identified and must be:

- supported by evidence of sufficient frequency of occurrence so that results are distorted without the exclusion;

AND

- a clinically appropriate exception (e.g., contraindication) to eligibility for the measure focus;

AND

- precisely defined and specified:
  - if there is substantial variability in exclusions across providers, the measure is specified so that exclusions are computable and the effect on the measure is transparent (i.e., impact clearly delineated, such as number of cases excluded, exclusion rates by type of exclusion);

if patient preference (e.g., informed decision-making) is a basis for exclusion, there must be evidence that it strongly impacts performance on the measure and the measure must be specified so that the information about patient preference and the effect on the measure is transparent (e.g., numerator category computed separately, denominator exclusion category computed separately).