NATIONAL QUALITY FORUM

National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures

A CONSENSUS REPORT

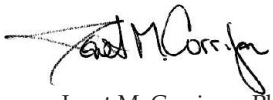
Foreword

The Institute of Medicine's (IOM's) landmark 2000 report, *Crossing the Quality Chasm: A New Health System for the 21st Century,* envisioned a U.S. health system that provides safe, timely, effective, efficient, equitable, and patient-centered care. Today, it is widely acknowledged that performance measurement and public reporting are critical to achieving these aims.

Performance measurement and public reporting are now "standard practice" in the nation's nearly 6,000 acute care hospitals. With strong leadership from the Hospital Quality Alliance, the *Hospital Compare* website now provides nationwide comparative information on selected National Quality Forum (NQF)-endorsed™ measures for virtually all hospitals in the United States.

To encourage and assist hospitals in their efforts to continuously improve, this NQF report identifies 44 new national voluntary consensus standards for hospital care. Many of these measures fill gaps in the NQF portfolio of performance measures. Virtually all seek to "raise the bar of performance expectations." Like other NQF-endorsed consensus standards, these represent the "best-in-class" performance measures for the reporting of hospital care quality. They were vetted through NQF's Consensus Development Process, granting them special legal status as voluntary consensus standards, and are suitable for public reporting.

We thank the Agency for Healthcare Research and Quality, America's Health Insurance Plans, and Blue Cross Blue Shield Association for their support, and we thank NQF Members and the members of the National Voluntary Consensus Standards for Hospital Care Steering Committee and its Technical Advisory Panels for their oversight of this project. Their dedication to improving the U.S. healthcare system will assure that patients will receive care that fulfills the IOM vision.



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NATIONAL QUALITY FORUM

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Executive Summary

In its initial project to identify a set of performance measures for hospital care, the National Quality Forum (NQF) acknowledged the gaps in the availability of hospital performance measures and since that time has added measures to the set nearly annually. The 44 additional performance measures for hospital care presented in this report represent NQF's continuing effort to provide a set of voluntary consensus standards for hospital care that moves further toward realizing the six Institute of Medicine (IOM) aims for a more ideal healthcare system. The starting point for this 2007 effort was the existing NQF-endorsed™ hospital performance measures and NQF's 2003 report *A Comprehensive Framework for Hospital Care Performance Evaluation: A Consensus Report.* Each content area identified in the comprehensive framework report addressed one or more of the IOM aims.

NQF acknowledges that refining and improving the areas represented by the currently available measures, as well as progressing toward a more complete and advanced set of hospital care measures, are needs that can be only partially met through this project. NQF also acknowledges the need to endorse a more complete and advanced set of hospital care measures, and as it has moved forward to do so, it has endorsed a substantial number of voluntary consensus standards for measuring the performance of acute care hospitals, many of which are related to previously endorsed priority areas (acute coronary syndrome, heart failure, patient safety, pediatric conditions, pneumonia, pregnancy/childbirth/neonatal conditions, smoking cessation, surgical

complications, and cardiac surgery). Measures sensitive to nursing care, patient perception of care, and patient mortality and care coordination also have been added. The NQF serious reportable events and safe practices for better healthcare are relevant as well.

As this work has progressed, NQF has identified a critical tension between developing an expanded set of overlapping measures that may be useful for specific purposes and having a core set of measures that is broadly supportive of the six IOM aims—and that is supported by the strongest evidence. The challenge for NQF, for developers, and, indeed, for all stakeholders, is to continue to move forward to define a set of consensus standards that can assess the achievement of the six IOM aims across hospitals in a balanced and meaningful way.

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- Risk-adjusted average length of inpatient hospital stay
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- All-cause readmission index
- 30-day all-cause risk-standardized readmission rate following heart failure hospitalization
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- Transfusion reaction, age 18 years and older
- Death among surgical inpatients with serious, treatable complications
- Acute stroke mortality rate
- Hip fracture mortality rate
- Bilateral cardiac catheterization rate
- Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the intensive care unit (ICU) within 24 hours of hospital arrival
- Congestive heart failure mortality
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- Iatrogenic pneumothorax in non-neonates
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- Abdominal aortic aneurysm repair volume
- Abdominal aortic aneurysm repair mortality rate
- Esophageal resection mortality rate
- Esophageal resection volume
- Foreign body left during procedure, age under 18 years
- Foreign body left during procedure, 18 years and older
- Incidental appendectomy in the elderly rate
- Pancreatic resection mortality rate
- Pancreatic resection volume
- Postoperative wound dehiscence, age under 18 years
- Postoperative wound dehiscence, age 18 years and older
- Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
- Failure to rescue in-hospital mortality
- Failure to rescue 30-day mortality

National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures

Introduction

In its initial project to identify a set of performance measures for hospital care, the National Quality Forum (NQF) acknowledged the gaps in the availability of hospital performance measures and since that time has added measures to the set nearly annually. The 44 additional performance measures for hospital care presented in this report are part of NQF's continuing effort to provide a set of voluntary consensus standards for hospital care that moves forward toward achieving the six Institute of Medicine (IOM) aims for a more ideal healthcare system that provides care that is safe, beneficial/effective, patient centered, timely, efficient, and equitable. The starting point for this 2007 effort was the existing NQF-endorsed™ hospital performance measures and NQF's 2003 report *A Comprehensive Framework for Hospital Care Performance Evaluation: A Consensus Report,*[1] which outlined a conceptual model of hospital measurement that linked the IOM aims with condition-specific and cross-cutting priorities, demographic populations of particular interest, the continuum of care, and major hospital service areas. Each content area identified for the group of consensus standards addressed one or more of the IOM aims.

[1] National Quality Forum (NQF), *A Comprehensive Framework for Hospital Care Performance Evaluation: A Consensus Report,* Washington, DC: NQF; 2003.

The principles for hospital care performance measurement used in this project were derived from the NQF-endorsed conceptual framework delineated in *A Comprehensive Framework for Hospital Care Performance Evaluation.* The framework calls for measures that are important, scientifically acceptable, useable, and feasible, and it emphasizes the need for completeness and parsimony when updating the measure set. The principles address promoting standardization, driving measure set improvement, and supporting implementation. Additionally, principles that support evidence-based practice and evidence that candidate consensus standards are reliable and valid were adopted and used throughout the process of measure evaluation.

NQF acknowledges that refining and improving the areas represented by the currently available measures, as well as progressing toward a more complete and advanced set of hospital care measures, are needs that can be only partially met through this project. NQF also acknowledges the need to endorse a more complete and advanced set of measures, and as it has moved forward to do so, it has endorsed a substantial number of voluntary consensus standards for measuring the performance of acute care hospitals many of which are related to previously endorsed priority areas (acute coronary syndrome, heart failure, patient safety, pediatric conditions, pneumonia, pregnancy/childbirth/neonatal conditions, smoking cessation, surgical complications, and cardiac surgery).[2,3,4] Measures sensitive to nursing care,[5] patient perception of care,[6] and patient mortality and

[2] NQF, *National Voluntary Consensus Standards for Hospital Care – An Initial Performance Measure Set: A Consensus Report,* Washington, DC: NQF; 2003.

[3] NQF, *National Voluntary Consensus Standards for Cardiac Surgery: A Consensus Report,* Washington, DC: NQF; 2004.

[4] NQF, *National Voluntary Consensus Standards for Hospital Care: Additional Priority Areas – 2005-2006: A Consensus Report.* Washington, DC: NQF; 2006.

[5] NQF, *National Voluntary Consensus Standards for Nursing-Sensitive Care – An Initial Performance Measure Set: A Consensus Report.* Washington, DC: NQF; 2006.

[6] NQF, *Standardizing a Measure of Patient Perspectives of Hospital Care: A Consensus Report,* Washington, DC: NQF; 2005.

care coordination[7] have been added. The NQF serious reportable events[8] and safe practices for better healthcare[9] also are relevant to the quality of hospital care; those with direct relevance to measures were considered as the candidate consensus standards were evaluated.

As this work has progressed, a critical tension was identified between developing an expanded set of overlapping measures that may be useful for specific purposes and having a core set of measures that is broadly supportive of the six IOM aims—and that is supported by the strongest evidence. The challenge for NQF, for developers, and, indeed, for all stakeholders, is to continue to move forward to define a set of consensus standards that can assess the six IOM aims across hospitals in a balanced and meaningful way.

This report combines the first two parts of the project work; two pieces of the work undertaken during this project are still in progress and will be presented in future project reports. Each of the remaining activities is expected to culminate in the proposed endorsement of "guidelines" or "frameworks"—one set for sponsors of acute care public reporting websites and another for use in evaluating composite measures. The set to be used in evaluating composite measures also will consider the composites measures that were submitted in response to the "Call for Measures" for this overall project. Both sets will have the potential to help advance the development of a useful context within which healthcare measurement, interpretation, and reporting can progress.

Identification and Evaluation of Performance Measures

The 44 endorsed measures included in this report were selected from potential candidate consensus standards that were identified through two NQF open "Call for Measures", a literature review, consultation with the project Steering Committee and Technical Advisory Panels, and a review of previously endorsed voluntary consensus standards for hospital care performance, including those identified above.

National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures

An NQF Steering Committee (appendix B) established the initial approach to evaluating the proposed consensus standards. This approach included specifying the purpose and scope of the consensus standards, setting objectives, identifying areas of priority, and screening the measures through standardized and other criteria. This section summarizes the process that the Steering Committee and the Technical Advisory Panels (TAPs) (appendix B) used.

[7] NQF, *National Voluntary Consensus Standards for Hospital Care: Additional Priority Areas – 2005-2006: A Consensus Report,* Washington, DC: NQF; 2006.

[8] NQF, *Serious Reportable Events in Healthcare – 2006 Update: A Consensus Report,* Washington, DC: NQF; 2007.

[9] NQF, *Safe Practices for Better Healthcare – 2006 Update: A Consensus Report,* Washington, DC: NQF; 2007.

Scope

The endorsed voluntary consensus standards for hospital care quality include those that:

- apply to general acute care hospitals;
- are open source;
- are considered fully developed and specified;
- are useful to and useable by the public, including stakeholder groups; and
- reflect those aspects of care over which hospitals have control or those aspects of care that hospitals can substantially influence.

Objectives of Hospital Care—2007

Given the existing array of hospital performance measures, the Steering Committee set objectives to keep the work focused on recommending measures that:

- add to the completeness of the set of NQF-endorsed hospital care consensus standards, while striving for parsimony;
- address the needs of stakeholders and offer information that is useable to all stakeholders;
- reflect strong evidence that they are effective in improving the quality and safety of hospital care;
- are based on criteria and processes for recommendation of consensus standards that are standardized and clearly defined;
- can be implemented and reported in a way that properly represents the data and makes the data understandable; and
- leverages opportunities for significant improvement in the quality and safety of hospital care.

Priority Areas for Hospital Care Performance Measurement

In selecting the performance measures, priority was given to the following areas:

- adult and pediatric populations;
- anesthesia and surgery (including surgical volume and mortality);
- volume and mortality (medical and surgical);
- utilization/readmission rates for high-risk (or often unnecessary) procedures;
- readmission rates and length of stay (medical and surgical); and
- patient safety.

Candidate Consensus Standards Selection

To further focus the work, a number of concerns were considered, with the goal of selecting measures that would increase the value of the set. For example, throughout the evaluation process, data collection requirements were a consideration. In selecting the measures for recommendation, the Steering Committee determined that priority should be given to measures that not only meet NQF-endorsed criteria but also:

- fill gaps or voids in the NQF-endorsed hospital care consensus standards;
- can be applied to multiple units or services within the acute care hospital setting (i.e., cross-cutting);

- are in common, widespread use and/or are required for other purposes (e.g., meeting accreditation requirements, addressing national goals or initiatives);
- are suitable for accountability;
- address misuse or overuse;
- are directly applicable to specific at-risk populations (e.g., neonates, frail elderly);
- are based on high-level evidence;
- address one or more of the six NQF-endorsed healthcare system quality "aims";[10] and
- minimize burden through the use of electronically available data.

Criteria for Selection of Consensus Standards

Consensus standards and supporting evidence were evaluated against the NQF-endorsed standardized criteria of importance, scientific acceptability, usability, and feasibility (box A) and were assigned a grade representing the strength of each TAP's recommendation (box B). The Steering Committee considered all of this information, with an appreciation that the grade assigned was based on each measure's performance against the criteria.

Box A: Criteria for Evaluation and Selection of Consensus Standards*

Proposed consensus standards will be evaluated for their suitability based on four sets of standardized criteria (e.g., importance, scientific acceptability, usability, and feasibility). Not all acceptable measures will be strong—or equally strong—among each of the four sets of criteria, or strong among each of their related criteria. Rather, a candidate consensus standard should be assessed regarding the extent to which it meets any of the desired criteria within each set.

1. **Importance.** This set addresses the extent to which a measure reflects a variation in quality and low levels of overall performance and the extent to which it captures key aspects of the flow of care.
2. **Scientific acceptability.** A measure is scientifically sound if it produces consistent and credible results when implemented.
3. **Usability.** Usability reflects the extent to which intended audiences (e.g., consumers, purchasers) can understand the results of the measure and are likely to find them useful for decisionmaking.
4. **Feasibility.** Feasibility is generally based on the way in which data can be obtained within the normal flow of clinical care and the extent to which an implementation plan can be achieved.

*For additional detail regarding each of the four sets, see *A Comprehensive Framework for Hospital Care Performance Evaluation: A Consensus Report.*

[10] Identified in the 2003 NQF document *A Comprehensive Framework for Hospital Care Performance Evaluation: A Consensus Report.*

Box B: Measure Grades

The following grading schema is a method to convey the strength of TAP recommendations, based on a combination of the U.S. Preventive Services Task Force scheme and a scale that has been used in other NQF projects. In use on a pilot basis, the grades are not intended to denote that a threshold exists. As an operational matter, NQF increasingly is asked to compare like measures "head-to-head," with one measure prevailing. Accordingly, the grades for measures are contextual.

Grade A – strongly recommend the measure advance.

Grade B – recommend the measure advance, but with reservation.

Grade C – could not reach consensus agreement on a recommendation.

Grade D – recommend against advancing the measure.

Grade I – concludes that the evidence is insufficient to recommend the measure.

Purpose of the Proposed Voluntary Consensus Standards

The primary purpose of this group of hospital care performance measures is to facilitate quality improvement and patient safety through public reporting. It focuses on the areas of pediatrics, surgery and anesthesia, morbidity and mortality, and patient safety; as well as methodologies for length of stay (LOS) and readmission rates. Additionally, the work seeks to support improvement, accountability, equity, and value-based purchasing.

The NQF Voluntary Consensus Standards for Hospital Care 2007: Performance Measures

The 44 voluntary consensus standards presented in this report supplement the set of previously endorsed hospital care measures. These measures focus on the areas of patient safety and morbidity and mortality in adult and pediatric populations; anesthesia and surgery (including surgical volume and mortality); utilization rates for high-risk or often unnecessary procedures; and rates for readmission and length of stay.

Table 1 – National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures

AREA	MEASURE	REPORTING RECOMMENDATIONS/ CONTINGENCIES	MEASURE OWNER/ DEVELOPER
Length of Stay/Readmission	Risk-adjusted average length of inpatient hospital stay		CareScience
	Overall inpatient hospital average length of stay (ALOS) and ALOS by diagnosis-related group (DRG) service category	It is recommended the two PacifiCare measures presented here be reported together.	PacifiCare
	All-cause readmission index	It is recommended the two PacifiCare measures presented here be reported together.	PacifiCare
	30-day all-cause risk-standardized readmission rate following heart failure hospitalization	When publicly reported, a volume threshold should be identified below which results are only marginally affected by a hospital's own data, and results below that threshold level should be suppressed (i.e., not reported).	Centers for Medicare & Medicaid Services (CMS)/Yale
	Severity-standardized average length of stay—routine care		The Leapfrog Group
	Severity-standardized average length of stay—special care		The Leapfrog Group
	Severity-standardized average length of stay—deliveries		The Leapfrog Group
Patient Safety, Adults	Accidental puncture or laceration		Agency for Healthcare Research and Quality (AHRQ)
	Death in low-mortality DRGs		AHRQ
	Iatrogenic pneumothorax		AHRQ
	Transfusion reaction, age 18 years and older	Contingent on reporting as count, rather than rate.	AHRQ
	Death among surgical inpatients with serious, treatable complications*		AHRQ
	Acute stroke mortality rate	It is recommended that this measure be reported with the volume of relevant cases to allow for improved interpretability.	AHRQ
	Hip fracture mortality rate		AHRQ
	Bilateral cardiac catheterization rate		AHRQ
	Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the intensive care unit (ICU) within 24 hours of hospital arrival		CMS
	Congestive heart failure mortality		AHRQ

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*This measure, as specified, also is approved as a materially changed update to the NQF-endorsed nursing-sensitive measure of the same name.

Table 1 – National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures (continued)

AREA	MEASURE	REPORTING RECOMMENDATIONS/ CONTINGENCIES	MEASURE OWNER/ DEVELOPER
Patient Safety, Pediatrics	Accidental puncture or laceration		AHRQ
	Decubitus ulcer	Guidance regarding interpretation of measure results should be included in public reporting.	AHRQ
	Iatrogenic pneumothorax in non-neonates		AHRQ
	Transfusion reaction, age under 18 years	Contingent on reporting as count, rather than rate.	AHRQ
Pediatrics	Pediatric ICU (PICU) severity-adjusted length of stay	It is recommended that this PICU measure (length of stay) be reported together with the PICU unplanned readmission rate, and when the measure Review of unplanned PICU readmissions is reported, it be reported with both this and the PICU unplanned readmission rate measure.	Pedi-QS Collaborative Measures Workgroup
	PICU unplanned readmission rate	It is recommended that this PICU measure (readmission rate) be reported together with the PICU severity-adjusted length of stay, and when the measure Review of unplanned PICU readmissions is reported, it be reported with both this and the PICU severity-adjusted length of stay measure.	Pedi-QS Collaborative Measures Workgroup
	Review of unplanned PICU readmissions	It is recommended that when this measure is reported, it be reported with the PICU severity-adjusted length of stay and the PICU unplanned readmission rate.	Pedi-QS Collaborative Measures Workgroup
	Home management plan of care document given to patient/caregiver		The Joint Commission
	Pediatric heart surgery mortality	It is recommended that related volume and mortality measures be reported together; when reporting mortality is not feasible, volume may be reported alone.	AHRQ
	Pediatric heart surgery volume	It is recommended that related volume and mortality measures be reported together; when reporting mortality is not feasible, volume may be reported alone.	AHRQ
	PICU pain assessment on admission		Pedi-QS Collaborative Measures Workgroup
	PICU periodic pain assessment		Pedi-QS Collaborative Measures Workgroup
	PICU standardized mortality ratio		Pedi-QS Collaborative Measures Workgroup

(more)

Table 1 – National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures (continued)

AREA	MEASURE	REPORTING RECOMMENDATIONS/ CONTINGENCIES	MEASURE OWNER/ DEVELOPER
Surgery and Anesthesia	Abdominal aortic aneurysm repair volume	It is recommended that related volume and mortality measures be reported together; when reporting mortality is not feasible, volume may be reported alone.	AHRQ
	Abdominal aortic aneurysm repair mortality rate	It is recommended that related volume and mortality measures be reported together; when reporting mortality is not feasible, volume may be reported alone.	AHRQ
	Esophageal resection mortality rate	It is recommended that related volume and mortality measures be reported together; when reporting mortality is not feasible, volume may be reported alone.	AHRQ
	Esophageal resection volume	It is recommended that related volume and mortality measures be reported together; when reporting mortality is not feasible, volume may be reported alone.	AHRQ
	Foreign body left during procedure, age under 18 years	Contingent on including "present on admission" as a requirement and reporting as a count.	AHRQ
	Foreign body left during procedure, 18 years and older	Contingent on including "present on admission" as a requirement and reporting as a count	AHRQ
	Incidental appendectomy in the elderly rate		AHRQ
	Pancreatic resection mortality rate	It is recommended that related volume and mortality measures be reported together; when reporting mortality is not feasible, volume may be reported alone.	AHRQ
	Pancreatic resection volume	It is recommended that related volume and mortality measures be reported together; when reporting mortality is not feasible, volume may be reported alone.	AHRQ
	Postoperative wound dehiscence, age under 18 years		AHRQ
	Postoperative wound dehiscence, 18 years and older		AHRQ
	Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period		CMS/The Joint Commission
	Failure to rescue in-hospital mortality		The Children's Hospital of Philadelphia
	Failure to rescue 30-day mortality		The Children's Hospital of Philadelphia

Research Recommendations

In addition to the measures endorsed in this report, the following general and area-specific research recommendations are offered:

1. Conduct research to test the links between the structure and process measures advanced herein and patient outcomes.
2. With respect to pediatrics:
   a. Conduct research to test the extension of selected measures currently in use or under consideration for the PICU populations to all hospitalized pediatric patients.
   b. Conduct research into pediatric pain assessment tools in an effort to standardize tool(s) for use.
   c. Conduct research to test the link between documented plans of care for asthma and improved health outcomes in pediatric patients.
3. With respect to measures related to surgery and anesthesia, conduct research to determine an appropriate method for creating composite measures from a set of related measures, for example, volume and mortality.

Additional Recommendations

The following additional recommendations are offered:

- NQF should pursue a project to evaluate and endorse measures (single or composite) to operationalize the serious reportable events, with the objective of filling gaps and enabling a standardized, comparable approach to assessing the incidence of such events.
- With respect to the pediatric measure Home Management Plan of Care Document Given to Patient/Caregiver, study the feasibility of parsing the elements related to arrangements for follow-up care and environmental control from the evidence-based elements of method and timing of rescue actions, use of controllers, and use of relievers and making the distinction between the two groups.
- Develop a measure for pediatrics that is parallel to the Death Among Surgical Inpatients with Serious, Treatable Complications measure.
- Consider measures of patient functional status post-stroke and 30-day mortality as companions to the Acute Stroke Mortality Rate measure.
- With respect to the surgery-related measure regarding beta blocker therapy, consider adapting the measure for use in ambulatory surgical settings, to the extent that the specifications of the measure are applicable in such settings.

Acknowledgments

This work was conducted under a contract with the Agency for Healthcare Research and Quality as well as support from America's Health Insurance Plans and Blue Cross Blue Shield Association.

Appendix A

Specifications of the National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures

The following table presents the detailed specifications for each of the National Quality Forum (NQF)-endorsed™ *National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures.* All information presented has been derived directly from measure sources/developers without modification or alteration (except when the measure developer agreed to such modification during the NQF Consensus Development Process) and is current as of January 2008.

All NQF-endorsed voluntary consensus standards are open source, meaning they are fully accessible and disclosed.

Appendix A – Specifications of the National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures

LENGTH OF STAY/READMISSION

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
LR-HC-01	RISK-ADJUSTED AVERAGE LENGTH OF INPATIENT HOSPITAL STAY	CareScience	Number of excess in-hospital days in a given inpatient population.	Patients admitted to a hospital. Patient population can be aggregated as any grouping of patients (e.g., by hospital, physician, Diagnosis Code, procedure, diagnosis-related group [DRG], etc.).	The only exclusions are those limited by the parameters set for a specific population and are not limited by diagnosis.	Data supplied by hospitals; can be applied to UB-92/UB-04 type discharge data.
LR-HC-02	OVERALL INPATIENT HOSPITAL AVERAGE LENGTH OF STAY AND AVERAGE LENGTH OF STAY BY DIAGNOSIS-RELATED GROUP SERVICE CATEGORY	PacifiCare	Total number of inpatient days of care for the admissions in the denominator.	Total number of adult medical and surgical inpatient admissions for the selected DRG service category during the reporting period.	1. Skilled nursing facility admissions 2. Admissions with average length of stay (ALOS) >Mean + 3 times standard deviation (STD) (outlier exclusion) 3. Mental health, substance abuse, and transplant patients.	Claims.
LR-HC-03	ALL-CAUSE READMISSION INDEX	PacifiCare	Total inpatient readmissions among patients in the denominator within 30 days from discharge to any hospital.	All patients discharged alive from an acute care hospital other than by transfer to another acute care hospital.	1. Readmissions to another acute care facility within a day of discharge 2. Patient discharged expired 3. Readmissions related to the delivery of a newborn (DRGs 370-375).	Claims.

(more)

[1] Intellectual Property (IP) owner. For the most current specifications and supporting information, please refer to the IP owner.

IP Owners
AHRQ—Agency for Healthcare Research and Quality (www.ahrq.gov)
CareScience (www.premierinc.com/quality-safety/tools-services/performance-suite/quality-manager.jsp)
CMS—Centers for Medicare & Medicaid Services/The Joint Commission (www.cms.hhs.gov; www.jointcommission.org). For complete information on the beta blocker measure, see www.qualitynet.org/dcs/ContentServer?cid=1176726358615&pagename=QnetPublic%2FPage%2FQnetTier3&c=Page. From "Section 2.4," select "SCIP-CARD-2." ICD-9-CM Codes are also available from the "Appendices" section at this web location.
CMS—Centers for Medicare & Medicaid Services/Yale (www.cms.hhs.gov; www.ynhh.org/general/research.html)
PacifiCare (www.pacificare.com)
Pedi-QS Collaborative Measures Workgroup (www.pediqs.com)
The Children's Hospital of Philadelphia (http://stokes.chop.edu/programs/cor/index.php)
The Leapfrog Group (www.leapfroggroup.org)

LENGTH OF STAY/READMISSION (continued)

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
LR-HC-04	30-DAY ALL-CAUSE RISK-STANDARDIZED READMISSION RATE FOLLOWING HEART FAILURE HOSPITALIZATION	CMS Yale	30-day all-cause readmissions to any acute care hospital for patients in the denominator.	Admissions for fee-for-service (FFS) Medicare beneficiaries age 65 or over admitted to the hospital with a Principal ICD-9-CM Discharge Diagnosis Code for heart failure (HF) and discharged alive.	1. Age <65 years old at the time of an index admission 2. Patients with in-hospital deaths during the initial hospitalization 3. HF admissions with incomplete data: • Beneficiaries without FFS Medicare Part A at the time of the index admission • Beneficiaries without 12 full months of enrollment in FFS Medicare Parts A and B prior to the index admission • Beneficiaries without one full month of enrollment in FFS Medicare Parts A and B post discharge 4. Patients who transfer out of the admission facility to another acute care facility 5. Patients with additional HF admissions within 30 days. If a patient has one or more additional HF admissions within 30 days of discharge from the index HF admission, these subsequent admissions are not considered index admissions, but rather readmissions to the index admissions. Thus, any HF admission is either an index admission or a readmission, but cannot be both.	Claims.

(more)

Appendix A – Specifications of the National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures (continued)

LENGTH OF STAY/READMISSION (continued)

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
LR-HC-05a	SEVERITY-STANDARDIZED AVERAGE LENGTH OF STAY—ROUTINE CARE	The Leapfrog Group	Number of accommodation days in Routine Care hospital units for discharges in the denominator.	Number of inpatient hospital discharges (for respective condition). **Inclusions** 1. Global time period=cases with discharge dates falling within six-month measurement time period 2. Cases meeting global Clinical Criteria for Acute Myocardial Infarction (AMI), Coronary Artery Bypass Graft (CABG), Percutaneous Coronary Intervention (PCI), or Pneumonia, respectively 3. Patients aged 18-64 years at admission 4. Primary source of payment= private/commercial health insurance plan 5. Cases with Routine Care accommodation Days 0 or more, whole number values, defined by UB-92 Revenue Codes.	1. Patient birth date missing or invalid 2. Cases where all-inclusive reimbursement rate applies to the case 3. Cases where Routine plus Special accommodation Days exceed overall length of stay (LOS).	UB-92 claims with Revenue Code detail or similar administrative/ financial datasets.

(more)

Appendix A – Specifications of the National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures (continued)

LENGTH OF STAY/READMISSION (continued)

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
LR-HC-05b	SEVERITY-STANDARDIZED AVERAGE LENGTH OF STAY—SPECIAL CARE	Number of accommodation days in Special Care hospital units (e.g., intensive care units [ICUs]) for discharges in the denominator.	Number of accommodation days in Special Care hospital units (e.g., intensive care units [ICUs]) for discharges in the denominator.	Number of inpatient hospital discharges (for respective condition). **Inclusions** 1. Global time period=Cases with discharge dates falling within six-month measurement time period 2. Cases meeting global Clinical Criteria for AMI, CABG, PCI, or Pneumonia, respectively 3. Patients aged 18-64 years at admission 4. Primary source of payment= private/commercial health insurance plan 5. Cases with Special Care accommodation Days 0 or more, whole number values, defined by UB-92 Revenue Codes.	1. Patient birth date missing or invalid 2. Cases where all-inclusive reimbursement rate applies to the case 3. Cases where Routine plus Special accommodation Days exceed overall LOS.	UB-92 claims with Revenue Code detail or similar administrative/ financial datasets.
LR-HC-05c	SEVERITY-STANDARDIZED AVERAGE LENGTH OF STAY—DELIVERIES	Total length of stay for admissions in the denominator.	Total length of stay for admissions in the denominator.	Number of inpatient hospital discharges. **Inclusions** 1. Global time period=cases with discharge dates falling within six-month measurement time period 2. Patients aged 18-64 years at admission (mothers) 3. Primary source of payment= private/commercial health insurance plan.	Patient birth date missing or invalid.	UB-92 claims with revenue code detail or similar administrative/ financial datasets.

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Appendix A – Specifications of the National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures (continued)

PATIENT SAFETY, ADULTS

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
PS-HC-02	ACCIDENTAL PUNCTURE OR LACERATION (PSI 15)	AHRQ	Discharges with ICD-9-CM Code denoting accidental cut, puncture, perforation, or laceration in any *secondary* diagnosis field.	Discharges, age 18 years and older, defined by specific surgical and medical DRGs.	Patients with an ICD-9-CM Code for accidental cut, puncture, perforation, or laceration in the *principal* diagnosis field (*secondary* diagnosis field if present on admission); and patients in Major Diagnostic Code (MDC) 14 (pregnancy, childbirth, and puerperium).	Administrative data (UB-92 hospital discharge data).
PS-HC-03	DEATH IN LOW-MORTALITY DIAGNOSIS-RELATED GROUPS (PSI 2)	AHRQ	Number of in-hospital deaths.	Discharges, age 18 years and older, in DRGs with less than 0.5% mortality rate. If a DRG is divided into "without/with complications," both DRGs must qualify as low mortality for inclusion.	Patients with any ICD-9-CM Code for trauma, immunocompromised state, or cancer.	Administrative data (UB-92 hospital discharge data).
PS-HC-04	IATROGENIC PNEUMOTHORAX (PSI 6)	AHRQ	Discharges with an ICD-9-CM Code for iatrogenic pneumothorax in any *secondary* diagnosis field.	Discharges, age 18 years and older, defined by specific surgical and medical DRGs.	Patients in MDC 14 (pregnancy, childbirth, and puerperium); with an ICD-9-CM Principal Diagnosis Code for iatrogenic pneumothorax (*secondary* diagnosis field if present on admission); with an ICD-9-CM Diagnosis Code for chest trauma or pleural effusion; with an ICD-9-CM Procedure Code for diaphragmatic surgery; and with an ICD-9-CM Procedure Code indicating thoracic surgery, lung or pleural biopsy, **or** assigned to cardiac surgery DRGs.	Administrative data (UB-92 hospital discharge data).

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PATIENT SAFETY, ADULTS (continued)

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
PS-HC-7	TRANSFUSION REACTION (PSI 16)	AHRQ	Discharges with an ICD-9-CM Code for transfusion reaction in any *secondary* diagnosis field.	Discharges, age 18 years and older, defined by specific surgical and medical DRGs.	Patients with an ICD-9-CM Code for transfusion reaction in the *principal* diagnosis field (*secondary* diagnosis field if present on admission).	Administrative data (UB-92 hospital discharge data).
PS-HC-9	DEATH AMONG SURGICAL INPATIENTS WITH SERIOUS, TREATABLE COMPLICATIONS (PSI 4)	AHRQ	Number of in-hospital deaths.	Surgical discharges defined by specific surgical DRGs and an ICD-9-CM Code for an operating room procedure, age 18 years and older, with a principal procedure within two days of admission or elective, with enumerated complications of care listed in failure to rescue (FTR) definition (e.g., pneumonia, DVT/PE, sepsis, shock/cardiac arrest, or GI hemorrhage/acute ulcer).	Patients age 90 years and older; patients in MDC 15 (newborns and neonates); patients transferred to an acute care facility. NOTE: Additional exclusion criteria are specific to each diagnosis. For details on coding, see PSI Technical Specifications, p. 7.	Administrative data (UB-92 hospital discharge data).
PS-HC-11	ACUTE STROKE MORTALITY RATE (IQI 17)	AHRQ	Number of in-hospital deaths.	Discharges, age 18 years and older, with an ICD-9-CM Principal Diagnosis Code for stroke.	Patients with missing discharge disposition (DISP=missing); transferring to another short-term hospital (DISP=2); in MDC 14 (pregnancy, childbirth, and puerperium); in MDC 15 (newborns and other neonates).	Administrative data (UB-92 hospital discharge data).
PS-HC-12	HIP FRACTURE MORTALITY RATE (IQI 19)	AHRQ	Number of in-hospital deaths.	Discharges, age 65 years and older, with an ICD-9-CM Principal Diagnosis Code for hip fracture.	Patients with missing discharge disposition (DISP=missing); transferring to another short-term hospital (DISP=2); in MDC 14 (pregnancy, childbirth, and puerperium); in MDC 15 (newborns and other neonates).	Administrative data (UB-92 hospital discharge data).

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PATIENT SAFETY, ADULTS (continued)

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
PS-HC-13	BILATERAL CARDIAC CATHETERIZATION RATE (IQI 25)	AHRQ	Discharges with simultaneous right and left heart catheterizations.	Discharges with heart catheterizations in any procedure field.	Patients with valid indications for right side catheterization in any diagnosis field; in MDC 14 (pregnancy, childbirth, and puerperium); and in MDC 15 (newborns and other neonates).	Administrative data (UB-92 hospital discharge data).
PS-HC-14	BLOOD CULTURES PERFORMED WITHIN 24 HOURS PRIOR TO OR 24 HOURS AFTER HOSPITAL ARRIVAL FOR PATIENTS WHO WERE TRANSFERRED OR ADMITTED TO THE INTENSIVE CARE UNIT WITHIN 24 HOURS OF HOSPITAL ARRIVAL (PN3a)	CMS The Joint Commission	Number of pneumonia patients transferred or admitted to the ICU within 24 hours of hospital arrival who had blood cultures performed within 24 hours prior to or 24 hours after arrival at the hospital.	Patients, age 18 years or older, who are transferred or admitted to the ICU within 24 hours of hospital arrival; discharged with an ICD-9-CM Principal Diagnosis Code for pneumonia as defined in Appendix A, Table 3.1 *OR* an ICD-9-CM Principal Diagnosis Code for septicemia or respiratory failure (acute or chronic) as defined in Appendix A, Tables 3.2 or 3.3 *AND* with an ICD-9-CM Other Diagnosis Code for pneumonia (Appendix A, Table 3.1).	Patients received as a transfer from: ■ another acute care facility where they were inpatients or outpatients, ■ one distinct unit of the hospital to another distinct unit of the same hospital, ■ the emergency department (ED) of another hospital, or ■ an ambulatory surgery center. Patients discharged/transferred to another hospital for inpatient care on day of or day after arrival. Patients discharged/transferred to a federal healthcare facility on day of or day after arrival. Patients who left against medical advice or discontinued care on day of or day after arrival. Patients who had no diagnosis or pneumonia either as the ED final diagnosis/impression or direct admission diagnosis/impression. Patients with Comfort Measures Only documented on day of or day after arrival.	Administrative and medical record data.

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PATIENT SAFETY, ADULTS (continued)

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
PS-HC-14 *continued*					Patients less than 18 years of age. Patients not transferred or admitted to the ICU within 24 hours of hospital arrival. Patients who had no chest x-ray or CT scan that indicated abnormal findings within 24 hours prior to hospital arrival or any time during this hospitalization. Patients with cystic fibrosis (Appendix A, Table 3.4). Patients enrolled in clinical trials. Patients who have a length of stay >120 days.	
PS-HC-15	CONGESTIVE HEART FAILURE MORTALITY (IQI 16)	AHRQ	In-hospital death (DISP=20).	Discharges, 18 years and older, with an ICD-9-CM Principal Diagnosis Code for congestive heart failure (CHF).	Patients missing discharge disposition (DISP=missing); transferring to another short-term hospital (DISP=2); in MDC 14 (pregnancy, childbirth, and puerperium); and in MDC 15 (newborns and other neonates).	Administrative data (UB-92 hospital discharge data).

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Appendix A – Specifications of the National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures (continued)

PATIENT SAFETY, PEDIATRICS

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
PS-HC-01	ACCIDENTAL PUNCTURE OR LACERATION (PDI 1)	AHRQ	Discharges with an ICD-9-CM Code denoting accidental cut, puncture, perforation, or laceration during a procedure in any *secondary* diagnosis field.	Discharges, age under 18 years, defined by specific surgical and medical DRGs.	Patients with an ICD-9-CM Code denoting accidental cut, puncture, or laceration in the *principal* diagnosis field (*secondary* diagnosis field if present on admission); in MDC 14 (pregnancy, childbirth, and puerperium); normal newborn DRG (DRG 391); or newborns less than 500 grams.	Administrative data (UB-92 hospital discharge data).
PEDS-HC-04	DECUBITUS ULCER (PDI 2)	AHRQ	All discharges, age under 18 years, with ICD-9-CM Code denoting decubitus ulcer in any *secondary* diagnosis field.	All surgical and medical discharges, age under 18 years, defined by specific surgical and medical DRGs, include only patients with a LOS of 5 or more days.	Patients with an ICD-9-CM Code for decubitus ulcer in the *principal* diagnosis field; with an ICD-9-CM Procedure Code for debridement or pedicle graft before or on the same day as a major operating room procedure (surgical cases only); with an ICD-9-CM Procedure Code for debridement or pedicle graft as the only major operating room procedure (surgical cases only); in MDC 9 (skin, subcutaneous tissue, and breast) or MDC 14 (pregnancy, childbirth, and puerperium); and newborns less than 500 grams; neonates (age <28 days); and patients transferring in from long-term care facility (ASOURCE=3) or an acute care facility (ASOURCE=2).	Administrative data (UB-92 hospital discharge data).

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Appendix A – Specifications of the National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures (continued)

PATIENT SAFETY, PEDIATRICS (continued)

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
PS-HC-06	IATROGENIC PNEUMO-THORAX IN NON-NEONATES (PDI 5)	AHRQ	Discharges with an ICD-9-CM Code for iatrogenic pneumothorax in any *secondary* diagnosis field.	Discharges, age under 18 years, defined by specific surgical and medical DRGs.	Neonates (birth weight less than 2500 grams); patients with an ICD-9-CM Code for iatrogenic pneumothorax in neonates in the *principal* diagnosis field (*secondary* diagnosis field if present on admission); with an ICD-9-CM Code for thoracic surgery, lung or pleural biopsy or diaphragmatic surgery repair, or assigned to a cardiac surgery DRG; with a Diagnosis Code for chest trauma or pleural effusion; in MDC 14 (pregnancy, childbirth, and puerperium); normal newborn or newborns less than 500 grams.	Administrative data (UB-92 hospital discharge data).
PS-HC-08	TRANSFUSION REACTION (PDI 13)	AHRQ	Discharges with an ICD-9-CM Code for transfusion reaction in any *secondary* diagnosis field.	Discharges, age under 18 years, defined by specific surgical and medical DRGs.	Patients in MDC 14 (pregnancy, childbirth, and puerperium); with an ICD-9-CM Code for transfusion reaction in the *principal* diagnosis field (*secondary* diagnosis field if present on admission); and neonates less than 500 grams.	Administrative data (UB-92 hospital discharge data).

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Appendix A – Specifications of the National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures (continued)

PEDIATRICS

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
PEDS-HC-01	PEDIATRIC INTENSIVE CARE UNIT SEVERITY-ADJUSTED LENGTH OF STAY	Pedi-QS Collaborative Measures Workgroup	Number of pediatric intensive care unit (PICU) days; PICU days=number of days between PICU admission and PICU discharge.	Number of PICU discharges, <18 years of age.	Patients ≥18 years of age.	Retrospective and Prospective, Electronic data collection, Manual data collection, or Hybrid (both).
PEDS-HC-02	PEDIATRIC INTENSIVE CARE UNIT UNPLANNED READMISSION RATE	Pedi-QS Collaborative Measures Workgroup	Total number of unplanned readmissions within 24 hours after discharge/transfer from the PICU.	100 PICU discharges, <18 years of age.	Patients ≥18 years of age, readmissions >24 hours following discharge/transfer from PICU, all planned readmissions.	Retrospective and Prospective, Electronic data collection, Manual data collection, or Hybrid (both).
PEDS-HC-03	REVIEW OF UNPLANNED PEDIATRIC INTENSIVE CARE UNIT READMISSIONS	Pedi-QS Collaborative Measures Workgroup	Number of unplanned readmissions that occurred within 24 hours after discharge or transfer from the PICU for which a clinical review is documented within the specified time period (time period to be determined through pilot testing).	Total number of unplanned readmissions occurring within 24 hours of discharge/transfer from PICU for which clinical review is documented within specified time period, patients <18 years of age.	Patients ≥18 years of age, readmissions that occurred within 24 hours of discharge or transfer from PICU for which clinical review is not documented, all planned readmissions.	Retrospective and Prospective, Electronic data collection, Manual data collection, or Hybrid (both).
PEDS-HC-05	HOME MANAGEMENT PLAN OF CARE DOCUMENT GIVEN TO PATIENT/CAREGIVER	The Joint Commission	Pediatric asthma inpatients with documentation that they or their caregivers were given a written Home Management Plan of Care (HMPC) document that addresses all of the following: arrangements for follow-up care; environmental control and control of other triggers; method and timing of rescue actions; use of controllers; and use of relievers.	Pediatric asthma inpatients discharged to home, with an ICD-9-CM Principal Diagnosis Code for asthma (refer to Appendix A, Table 6.1). Pediatric asthma inpatient discharges age 2 through 17 years. Pediatric asthma inpatients discharged to home.	■ Pediatric asthma inpatients ages less than 2 years old or 18 years or greater ■ Pediatric asthma inpatients discharged to settings other than home.	Retrospective data sources for required data elements include administrative data and medical records.

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Appendix A – Specifications of the National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures (continued)

PEDIATRICS (continued)

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
PEDS-HC-06	PEDIATRIC HEART SURGERY MORTALITY (PDI 6)	AHRQ	Number of deaths, age under 18 years, with a code for pediatric heart surgery in any procedure field with an ICD-9-CM Code for congenital heart disease in any field.	All discharges, age under 18 years, with ICD-9-CM Procedure Codes for congenital heart disease (1P) in any field or nonspecific heart surgery (2P) in any field with ICD-9-CM diagnosis of congenital heart disease (2D) in any field.	Patients in MDC 14 (pregnancy, childbirth, or puerperium); patients with transcatheter interventions as single cardiac procedures, performed without bypass but with catheterization; patients with septal defects as single cardiac procedures without bypass; heart transplant; premature infants with PDA closure as only cardiac procedure; age less than 30 days with PDA closure as only cardiac procedure; missing discharge disposition; transferring to another short-term hospital and newborns less than 500 grams.	Administrative data (UB-92 hospital discharge data).
PEDS-HC-07	PEDIATRIC HEART SURGERY VOLUME (PDI 7)	AHRQ	Discharges, age under 18 years, with an ICD-9-CM Code for either congenital heart disease (1P) in any field or nonspecific heart surgery (2P) in any field with ICD-9-CM Diagnosis of congenital heart disease (2D) in any field.	Not applicable.	Patients in MDC 14 (pregnancy, childbirth, or puerperium); patients with transcatheter interventions as single cardiac procedures, performed without bypass but with catheterization; patients with septal defects as single cardiac procedures without bypass.	Administrative data (UB-92 hospital discharge data).
PEDS-HC-08	PEDIATRIC INTENSIVE CARE UNIT PAIN ASSESSMENT ON ADMISSION	Pedi-QS Collaborative Measures Workgroup	Number of patients who are assessed for pain on admission to the PICU.	Total number of patients in the PICU. PICU patients <18 years of age.		Retrospective and Prospective, Electronic data collection, Manual data collection, or Hybrid (both).

(more)

Appendix A – Specifications of the National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures (continued)

PEDIATRICS (continued)

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
PEDS-HC-09	PEDIATRIC INTENSIVE CARE UNIT PERIODIC PAIN ASSESSMENT	Pedi-QS Collaborative Measures Workgroup	Number of PICU patients who are assessed for pain at a minimum of every six hours.	Total number of patients in the PICU. PICU patients <18 years of age.		Retrospective and Prospective, Electronic data collection, Manual data collection, or Hybrid (both).
PEDS-HC-10	PEDIATRIC INTENSIVE CARE UNIT STANDARDIZED MORTALITY RATIO	Pedi-QS Collaborative Measures Workgroup	Observed mortality; "observed"= actual number of deaths occurring in PICU.	Predicted mortality;"predicted mortality"=number of deaths expected based on assessed physiologic of risk mortality. Include all PICU patients <18 years of age admitted to the PICU for greater than two hours or with at least two consecutive sets of vital signs consistent with life with risk of mortality assessment.	All PICU patients ≥18 years of age; PICU patients with a stay <2 hours or <2 consecutive sets of vital signs consistent with life; deaths occurring outside the PICU; preterm infants post-gestational age <36 weeks; patients admitted to the PICU for palliative care: Children who were NOT admitted for the purpose of critical care intervention or monitoring, i.e., related to their real or potential risk of physiologic instability, but because there was no other location in the hospital to provide these end-of-life services. **Adjustments** Selection criteria for risk-adjustment tool for PICUs: ■ Tool must allow quality assessment and comparison between ICUs, and must be widely used ■ Tool must be valid and reliable for severity adjustment and measurement of quality of care provided ■ Computation of mortality risk must be in the public domain (i.e., free of charge) ■ Algorithms must receive ongoing validation and recalibration.	Retrospective and Prospective, Electronic data collection, Manual data collection, or Hybrid (both).

(more)

SURGERY AND ANESTHESIA

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
SA-HC-01	ABDOMINAL AORTIC ANEURYSM REPAIR VOLUME (IQI 4)	AHRQ	Discharges, 18 years and older, with ICD-9-CM Codes of 3834, 3844, 3864, or 3971 in any procedure field with a Diagnosis Code for abdominal aortic aneurysm (AAA) (4413 or 4414) in any field.	Not applicable.	Patients in MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).	Administrative data (UB-92 hospital discharge data).
SA-HC-02	ABDOMINAL AORTIC ANEURYSM REPAIR MORTALITY RATE (IQI 11)	AHRQ	Number of deaths (DISP = 20), 18 years and older, with an ICD-9-CM Code for AAA repair in any procedure field and a Diagnosis Code for AAA in any field.	Discharges with ICD-9-CM Codes of 3834, 3844, 3864, 3971 in any procedure field and a Diagnosis Code of AAA in any field.	Patients with missing discharge disposition (DISP=missing); transferring to another short-term hospital (DISP=2); in MDC 14 (pregnancy, childbirth, and puerperium); and in MDC 15 (newborns and other neonates).	Administrative data (UB-92 hospital discharge data).
SA-HC-03	ESOPHAGEAL RESECTION MORTALITY RATE (IQI 8)	AHRQ	Number of deaths (DISP = 20), 18 years and older, with an ICD-9-CM Code for esophageal resection in any procedure field and a Diagnosis Code for esophageal cancer in any field.	Discharges with ICD-9-CM Codes of 4240 through 4242 in any procedure field and a Diagnosis Code for esophageal cancer in any field.	Patients with missing discharge disposition (DISP=missing); transferring to another short-term hospital (DISP=2); in MDC 14 (pregnancy, childbirth, and puerperium); and in MDC 15 (newborns and other neonates).	Administrative data (UB-92 hospital discharge data).
SA-HC-04	ESOPHAGEAL RESECTION VOLUME (IQI 1)	AHRQ	Discharges, 18 years and older, with ICD-9-CM Codes of 424x, 425x, or 426x in any procedure field.	Not applicable.	Patients in MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).	Administrative data (UB-92 hospital discharge data).

(more)

SURGERY AND ANESTHESIA (continued)

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
SA-HC-05	FOREIGN BODY LEFT DURING PROCEDURE (PDI 3)	AHRQ	All discharges, age under 18 years, with ICD-9-CM Codes for foreign body left in during a procedure in any *secondary* diagnosis field.	All surgical and medical discharges, age under 18 years, defined by specific surgical and medical DRG.	Patients with an ICD-9-CM Code of foreign body left in during a procedure in the *principal* diagnosis field, in MDC 14 (pregnancy, childbirth, and puerperium), newborns less than 500 grams and neonates (age <28 days).	Administrative data (UB-92 hospital discharge data).
SA-HC-06	FOREIGN BODY LEFT DURING PROCEDURE (PSI 5)	AHRQ	Number of discharges, age 18 years and older, with an ICD-9-CM Code for foreign body in any *secondary* diagnosis field.	All surgical and medical discharges, age 18 years and older, defined by specific surgical and medical DRG. Include patients in MDC 14.	Exclude patients with ICD-9-CM Principal Diagnosis Code for foreign body.	Administrative data (UB-92 hospital discharge data).
SA-HC-08	INCIDENTAL APPENDECTOMY IN THE ELDERLY RATE (IQI 24)	AHRQ	Number of incidental appendectomies (any procedure field) among cases meeting the inclusion and exclusion rules for the denominator.	All discharges, age 65 years and older, with intra-abdominal procedure based on DRGs.	Patients in MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).	Administrative data (UB-92 hospital discharge data).
SA-HC-09	PANCREATIC RESECTION MORTALITY RATE (IQI 9)	AHRQ	Number of deaths (DISP=20), 18 years and older, with an ICD-9-CM Code for pancreatic resection in any procedure field and a Diagnosis Code for pancreatic cancer in any field.	Discharges with ICD-9-CM Codes of 526 or 527 in any procedure field and a Diagnosis Code for pancreatic cancer in any field.	Patients with missing discharge disposition (DISP=missing); transferring to another short-term hospital (DISP=2); in MDC 14 (pregnancy, childbirth, and puerperium); and in MDC 15 (newborns and other neonates).	Administrative data (UB-92 hospital discharge data).
SA-HC-10	PANCREATIC RESECTION VOLUME (IQI 2)	AHRQ	Discharges, 18 years and older, with ICD-9-CM Codes of 526 or 527 in any procedure field.	Not applicable.	Patients in MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).	Administrative data (UB-92 hospital discharge data).

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SURGERY AND ANESTHESIA (continued)

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
SA-HC-16	POSTOPERATIVE WOUND DEHISCENCE (PDI 11)	AHRQ	Number of discharges, age under 18 years, with an ICD-9-CM Code for postoperative disruption of abdominal wall (54.61) in any procedure field.	All discharges, age under 18 years, for abdominopelvic surgery.	Patients in MDC 14 (pregnancy, childbirth, and pueperium); where a procedure for reclosure of postoperative disruption of abdominal wall occurs before or on the same day as the first abdominopelvic surgery procedure; where the length of stay is less than two days; any Diagnosis Code for high and intermediate-risk immunocompromised states; with Procedure Codes for gastroschisis or umbilical hernia repair before reclosure and neonates less than 500 grams.	Administrative data (UB-92 hospital discharge data).
SA-HC-17	POSTOPERATIVE WOUND DEHISCENCE (PSI 14)	AHRQ	Discharges with an ICD-9-CM Code for postoperative disruption of abdominal wall (54.61) in any procedure field.	All discharges, age 18 years and older, post abdominopelvic surgery.	Patients in MDC 14 (pregnancy, childbirth, and puerperium); where a procedure for reclosure of postoperative disruption of abdominal wall occurs before or on the same day as the first abdominopelvic surgery procedure; where the length of stay is less than two days; any Diagnosis Code for immunocompromised states.	Administrative data (UB-92 hospital discharge data).
SA-HC-18	SURGERY PATIENTS ON BETA BLOCKER THERAPY PRIOR TO ADMISSION WHO RECEIVED A BETA BLOCKER DURING THE PERIOPERATIVE PERIOD	CMS The Joint Commission	Surgery patients on beta blocker therapy prior to admission who receive a beta blocker during the perioperative period.	All surgery patients on beta blocker therapy prior to admission. Inclusions: ICD-9-CM Principal Procedure Code of selected surgeries (refer to Appendix A, Table 5.10).	■ Patients less than 18 years of age ■ Patients who did not receive beta blockers due to contraindications as documented in the medical record ■ Patients whose ICD-9-CM principal procedure occurred prior to the date of admission ■ Patients whose ICD-9-CM principal procedure was performed entirely by laparoscope	Administrative data and medical records

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Appendix A – Specifications of the National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures (continued)

SURGERY AND ANESTHESIA (continued)

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
SA-HC-18 *continued*					■ Patients who expired during the perioperative period ■ Pregnant patients taking a beta blocker prior to admission ■ Patients involved in clinical trials	
PS-HC-10a	FAILURE TO RESCUE IN-HOSPITAL MORTALITY	The Children's Hospital of Philadelphia	Patients who died with a complication plus patients who died without documented complications. Death is defined as death in the hospital. All patients in an FTR analysis who have developed a complication (by definition). Complicated patient has at least one of the complications defined in Appendix B of measure specifications. Complications are defined using the *secondary* ICD-9 Diagnosis and Procedure Codes and the DRG Code of the current admission. Comorbidities are defined in Appendix C (of measure specifications) using *secondary* ICD-9 Diagnosis Codes of the current admission and primary or *secondary* ICD-9 Diagnosis Codes of the previous admission within 90 days of the admission date of the current admission.* *When Physician Part B file is available, the definition of complications and comorbidities are augmented to include CPT Codes.	General Surgery, Orthopedic, and Vascular patients in specific DRGs with complications plus patients who died in the hospital without complications. **Inclusions** Adult patients admitted for one of the procedures in the General Surgery, Orthopedic, or Vascular DRGs (see appendix A of measure specifications).	Patients over age 90 and under age 18.	Linked patients hospitalizations claims records, such as MEDPAR; can also use unlinked data if linked files are not available.

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Appendix A – Specifications of the National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures (continued)

SURGERY AND ANESTHESIA (continued)

Measure #	Measure Name	IP Owner(s)[1]	Numerator	Denominator	Exclusions	Data Source
PS-HC-10b	FAILURE TO RESCUE 30-DAY MORTALITY	The Children's Hospital of Philadelphia	Patients who died with a complication plus patients who died without documented complications. Death is defined as death within 30 days from admission. Complicated patient has at least one of the complications defined in Appendix B of measure specifications. Complications are defined using the *secondary* ICD-9 Diagnosis and Procedure Codes and the DRG Code of the current admission. Comorbidities are defined in Appendix C of the measure specifications using *secondary* ICD-9 Diagnosis Codes of the current admission and primary or *secondary* ICD-9 Diagnosis Codes of the previous admission within 90 days of the admission date of the current admission.* *When Physician Part B file is available, the definition of complications and comorbidities are augmented to include CPT Codes.	General Surgery, Orthopedic, and Vascular patients in specific DRGs with complications plus patients who died without complications within 30 days of admission. **Inclusions** Adult patients admitted for one of the procedures in the General Surgery, Orthopedic, or Vascular DRGs (see Appendix A of measure specifications).	Patients over age 90 and under age 18.	Linked patients hospitalizations claims records, such as MEDPAR; can also use unlinked data if linked files are not available.

Appendix B
Steering Committee, Technical Advisory Panels, and Project Staff

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Appendix C
NQF-Endorsed National Voluntary Consensus Standards—Hospital Care

This appendix presents a list of all of the NQF-endorsed™ national voluntary consensus standards for hospital care.

NQF-Endorsed™ National Voluntary Consensus Standards—Hospital Care

MEASURE	MEASURE STEWARD(S)	NQF PROJECT
Percutaneous coronary intervention (PCI) mortality (risk adjusted)	ACC/AHA Task Force on Performance Measures	Hospital Care 2003
Use of relievers for inpatient asthma	The Joint Commission	Hospital Care 2003
Use of systemic corticosteroids for inpatient asthma	The Joint Commission	Hospital Care 2003
Blood cultures performed in the emergency department prior to initial antibiotic received in hospital	The Joint Commission CMS	Hospital Care 2003
Influenza vaccination	The Joint Commission CMS	Hospital Care 2003
Pneumococcal vaccination	The Joint Commission CMS	Hospital Care 2003
Initial antibiotic received within 4 hours of hospital arrival	The Joint Commission CMS	Hospital Care 2003
Vaginal birth after cesarean delivery — rate (risk adjusted)	The Joint Commission	Hospital Care 2003
Third- or fourth-degree laceration (risk adjusted)	The Joint Commission	Hospital Care 2003
Neonatal mortality (risk adjusted)	The Joint Commission	Hospital Care 2003
Cesarean delivery rate	The Joint Commission	Hospital Care 2003
Acute myocardial infaction (AMI) inpatient mortality (risk adjusted)	The Joint Commission	Hospital Care 2003
Angiotensin converting enzyme inhibitor (ACEI) for left ventricular systolic dysfunction (LVSD)	The Joint Commission CMS	Hospital Care 2003
Primary PCI within 90 minutes of hospital arrival	CMS	Hospital Care 2003
Thrombolytic agent within 30 minutes of arrival for AMI	CMS	Hospital Care 2003
PCI volume	ACC/AHA Task Force on Performance Measures	Hospital Care 2003
ACEI or angiotensin receptor blocker for left ventricular systolic dysfunction	The Joint Commission CMS	Hospital Care 2003
Urinary catheter-associated urinary tract infection for intensive care unit (ICU) patients	CDC	Hospital Care 2003 Nursing Sensitive 2004
Falls prevalence	ANA	Hospital Care 2003 Nursing Sensitive 2004
Central line catheter-associated blood stream infection rate for ICU and high-risk nursery (HRN) patients	CDC	Hospital Care 2003 Nursing Sensitive 2004
Adult smoking cessation advice/counseling for heart failure	The Joint Commission CMS	Hospital Care 2003 Nursing Sensitive 2004
Aspirin at arrival for AMI	The Joint Commission CMS	Hospital Care 2003
Left ventricular function assessment	The Joint Commission CMS	Hospital Care 2003
Evaluation of left ventricular systolic function	The Joint Commission CMS	Hospital Care 2003

(more)

NQF-Endorsed™ National Voluntary Consensus Standards—Hospital Care (continued)

MEASURE	MEASURE STEWARD(S)	NQF PROJECT
Detailed discharge instructions	The Joint Commission CMS	Hospital Care 2003
Aspirin prescribed at discharge for AMI	The Joint Commission CMS	Hospital Care 2003
Beta blocker prescribed at discharge for AMI	The Joint Commission CMS	Hospital Care 2003
PCI within 120 minutes for AMI	CMS	Hospital Care 2003
Fibrinolytic therapy received within 30 minutes of hospital arrival	CMS	Hospital Care 2003
Oxygenation assessment	The Joint Commission CMS	Hospital Care 2003
Smoking cessation counseling for AMI	The Joint Commission CMS	Hospital Care 2003 Nursing Sensitive 2004
Death among surgical inpatients with serious, treatable complications	AHRQ	Hospital Care 2007 In press Nursing Sensitive 2004
Beta blocker at arrival for AMI	The Joint Commission CMS	Hospital Care 2003
Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients	The Joint Commission CMS	Hospital Care 2003
Surgical re-exploration	The Society of Thoracic Surgeons	Cardiac Surgery 2004
Risk-adjusted operative mortality for coronary artery bypass graft (CABG)	The Society of Thoracic Surgeons	Cardiac Surgery 2004
Risk-adjusted operative mortality for CABG	The Society of Thoracic Surgeons	Cardiac Surgery 2004
Risk-adjusted operative mortality for aortic valve replacement (AVR)	The Society of Thoracic Surgeons	Cardiac Surgery 2004
Risk-adjusted operative mortality for mitral valve replacement/repair (MVR)	The Society of Thoracic Surgeons	Cardiac Surgery 2004
Risk-adjusted operative mortality MVR+CABG	The Society of Thoracic Surgeons	Cardiac Surgery 2004
Risk-adjusted operative mortality for AVR+CABG	The Society of Thoracic Surgeons	Cardiac Surgery 2004
Surgical volume for isolated CABG surgery, valve surgery, CABG+valve surgery	CMS	Cardiac Surgery 2004
Timing of antibiotic prophylaxis for cardiac surgery patients	CMS	Cardiac Surgery 2004
Selection of antibiotic prophylaxis for cardiac surgery patients	CMS	Cardiac Surgery 2004
Prolonged intubation (ventilation)	The Society of Thoracic Surgeons	Cardiac Surgery 2004
Stroke/cerebrovascular accident	The Society of Thoracic Surgeons	Cardiac Surgery 2004
CABG using internal mammary artery (IMA)	CMS	Cardiac Surgery 2004
Participation in a systematic database for cardiac surgery	The Society of Thoracic Surgeons	Cardiac Surgery 2004
Post-operative renal failure	The Society of Thoracic Surgeons	Cardiac Surgery 2004
Anti-platelet medications at discharge	The Society of Thoracic Surgeons	Cardiac Surgery 2004
Beta blockade at discharge	The Society of Thoracic Surgeons	Cardiac Surgery 2004
Anti-lipid treatment at discharge	The Society of Thoracic Surgeons	Cardiac Surgery 2004

(more)

NQF-Endorsed™ National Voluntary Consensus Standards—Hospital Care (continued)

MEASURE	MEASURE STEWARD(S)	NQF PROJECT
Pre-operative beta blockade	The Society of Thoracic Surgeons	Cardiac Surgery 2004
Duration of prophylaxis for cardiac surgery patients	The Society of Thoracic Surgeons	Cardiac Surgery 2004
Deep sternal wound infection rate	The Society of Thoracic Surgeons	Cardiac Surgery 2004
CABG mortality (risk adjusted)	Office of Statewide Health Planning and Development	Cardiac Surgery 2004
Ventilator-associated pneumonia for ICU and HRN patients	CDC	Nursing Sensitive 2004
Smoking cessation counseling for pneumonia	The Joint Commission CMS	Nursing Sensitive 2004
Pressure ulcer prevalence	California Nursing Outcomes Coalition	Nursing Sensitive 2004
Falls with injury	American Nurses Association	Nursing Sensitive 2004
Restraint prevalence (vest and limb only)	California Nursing Outcomes Coalition	Nursing Sensitive 2004
Skill mix (Registered Nurse [RN], Licensed Vocational/Practical Nurse [LVN/LPN], unlicensed assistive personnel [UAP], and contract)	American Nurses Association	Nursing Sensitive 2004
Nursing care hours per patient day (RN, LPN, and UAP)	American Nurses Association	Nursing Sensitive 2004
Voluntary turnover	VHA, Inc.	Nursing Sensitive 2004
HCAHPS	AHRQ	HCAHPS 2005
AMI 30-day mortality	Yale CMS	Hospital Care 2005
Heart failure 30-day mortality	Yale CMS	Hospital Care 2005
3-Item Care Transition Measure (CTM)	University of Colorado	Hospital Care 2005
Inpatient pneumonia mortality	AHRQ	Hospital Care 2005
Electrocardiogram performed for non-traumatic chest pain	ACEP AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Aspirin at arrival for AMI	ACEP AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Vital signs for community-acquired bacterial pneumonia	ACEP AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Assessment of oxygen saturation for community-acquired bacterial pneumonia	ACEP AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Assessment of mental status for community-acquired bacterial pneumonia	ACEP AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007

(more)

NQF-Endorsed™ National Voluntary Consensus Standards—Hospital Care (continued)

MEASURE	MEASURE STEWARD(S)	NQF PROJECT
Empiric antibiotic for community-acquired bacterial pneumonia	ACEP AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Use of IMA in isolated CABG	The Society of Thoracic Surgeons	Hospital Care Specialty Clinician Measures 2007
Use of IMA in isolated CABG	CMS PQRI	Hospital Care Specialty Clinician Measures 2007
Preoperative beta blocker in patient with isolated CABG	The Society of Thoracic Surgeons	Hospital Care Specialty Clinician Measures 2007
Preoperative beta blocker in patient with isolated CABG	CMS PQRI	Hospital Care Specialty Clinician Measures 2007
Antiplatelet medication on discharge	The Society of Thoracic Surgeons	Hospital Care Specialty Clinician Measures 2007
Beta blocker on discharge	The Society of Thoracic Surgeons	Hospital Care Specialty Clinician Measures 2007
Venous thromboembolism (VTE) prophylaxis	ACS AMA PCPI NCQA	Hospital Care Specialty
Timing of prophylactic antibiotics—ordering physician	ACEP AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Timing of prophylactic antibiotics—administering physician	ACEP AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Selection of prophylactic antibiotic—first- OR second-generation cephalosporin	ACEP AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Discontinuation of prophylactic antibiotics (non-cardiac procedures)	ACEP AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Discontinuation of prophylactic antibiotics (cardiac procedures)	ACEP AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Deep vein thrombosis (DVT) prophylaxis for ischemic stroke or intracranial hemorrhage	AAN ACR AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Discharged on antiplatelet therapy	AAN ACR AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007

(more)

NQF-Endorsed™ National Voluntary Consensus Standards—Hospital Care (continued)

MEASURE	MEASURE STEWARD(S)	NQF PROJECT
Anticoagulant therapy prescribed for atrial fibrillation at discharge	AAN ACR AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Tissue plasminogen activator (t-PA) considered	AAN ACR AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Screening for dysphagia	AAN ACR AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Consideration of rehabilitation services	AAN ACR AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Carotid imaging reports	AAN ACR AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Computed tomography (CT) or magnetic resonance imaging (MRI) reports	AAN ACR AMA PCPI NCQA	Hospital Care Specialty Clinician Measures 2007
Central line bundle compliance	IHI	Healthcare-Associated Infections 2007
Surgical site infection rate	CDC	Healthcare-Associated Infections 2007
Cardiac patients with controlled 6 AM postoperative serum glucose	CMS The Joint Commission	Healthcare-Associated Infections 2007
Surgery patients with appropriate hair removal	CMS The Joint Commission	Healthcare-Associated Infections 2007
Ventilator bundle	IHI	Healthcare-Associated Infections 2007
Late sepsis or meningitis in neonates	Vermont Oxford Network	Healthcare-Associated Infections 2007
Late sepsis or meningitis in very low birth weight neonates	Vermont Oxford Network	Healthcare-Associated Infections 2007
Surgery performed on the wrong body part	NQF	Serious Reportable Events 2002/2006
Surgery performed on the wrong patient	NQF	Serious Reportable Events 2002/2006

(more)

NQF-Endorsed™ National Voluntary Consensus Standards—Hospital Care (continued)

MEASURE	MEASURE STEWARD(S)	NQF PROJECT
Wrong surgical procedure performed on a patient	NQF	Serious Reportable Events 2002/2006
Unintended retention of a foreign object in a patient after surgery or other procedure	NQF	Serious Reportable Events 2002/2006
Intraoperative or immediately postoperative death in an ASA Class I patient	NQF	Serious Reportable Events 2002/2006
Patient death or serious disability associated with the use of contaminated drugs, devices, or biologics provided by the healthcare facility	NQF	Serious Reportable Events 2002/2006
Patient death or serious disability associated with the use or function of a device in patient care, in which the device is used or functions other than as intended	NQF	Serious Reportable Events 2002/2006
Patient death or serious disability associated with intravascular air embolism that occurs while being cared for in a healthcare facility	NQF	Serious Reportable Events 2002/2006
Infant discharged to the wrong person	NQF	Serious Reportable Events 2002/2006
Patient death or serious disability associated with patient elopement (disappearance)	NQF	Serious Reportable Events 2002/2006
Patient suicide, or attempted suicide resulting in serious disability, while being cared for in a healthcare facility	NQF	Serious Reportable Events 2002/2006
Patient death or serious disability associated with a medication error (e.g., errors involving the wrong drug, wrong dose, wrong patient, wrong time, wrong rate, wrong preparation, or wrong route of administration)	NQF	Serious Reportable Events 2002/2006
Patient death or serious disability associated with a hemolytic reaction due to the administration of ABO/HLA-incompatible blood or blood products	NQF	Serious Reportable Events 2002/2006
Maternal death or serious disability associated with labor or delivery in a low-risk pregnancy while being cared for in a healthcare facility	NQF	Serious Reportable Events 2002/2006
Patient death or serious disability associated with hypoglycemia, the onset of which occurs while the patient is being cared for in a healthcare facility	NQF	Serious Reportable Events 2002/2006
Death or serious disability (kernicterus) associated with failure to identify and treat hyperbilirubinimia in neonates	NQF	Serious Reportable Events 2002/2006
Stage 3 or 4 pressure ulcers acquired after admission to a healthcare facility	NQF	Serious Reportable Events 2002/2006
Patient death or serious disability due to spinal manipulative therapy	NQF	Serious Reportable Events 2002/2006
Artificial insemination with the wrong donor sperm or wrong egg	NQF	Serious Reportable Events 2006
Patient death or serious disability associated with an electric shock while being cared for in a healthcare facility	NQF	Serious Reportable Events 2002/2006
Any incident in which a line designated for oxygen or other gas to be delivered to a patient contains the wrong gas or is contaminated by toxic substances	NQF	Serious Reportable Events 2002/2006
Patient death or serious disability associated with a burn incurred from any source while being cared for in a healthcare facility	NQF	Serious Reportable Events 2002/2006

(more)

NQF-Endorsed™ National Voluntary Consensus Standards—Hospital Care (continued)

MEASURE	MEASURE STEWARD(S)	NQF PROJECT
Patient death or serious disability associated with a fall while being cared for in a healthcare facility	NQF	Serious Reportable Events 2002/2006
Patient death or serious disability associated with the use of restraints or bedrails while being cared for in a healthcare facility	NQF	Serious Reportable Events 2002/2006
Any instance of care ordered by or provided by someone impersonating a physician, nurse, pharmacist, or other licensed healthcare provider	NQF	Serious Reportable Events 2002/2006
Abduction of a patient of any age	NQF	Serious Reportable Events 2002/2006
Sexual assault on a patient within or on the grounds of a healthcare facility	NQF	Serious Reportable Events 2002/2006
Death or significant injury of a patient or staff member resulting from a physical assault (i.e., battery) that occurs within or on the grounds of a healthcare facility	NQF	Serious Reportable Events 2002/2006
Create and sustain a healthcare culture of safety.	NQF	Safe Practices 2003/2006
Ask each patient or legal surrogate to "teach back" in his or her own words key information about the proposed treatments or procedures for which he or she is being asked to provide informed consent.	NQF	Safe Practices 2003/2006
Ensure that written documentation of the patient's preferences for life-sustaining treatments is prominently displayed in his or her chart.	NQF	Safe Practices 2003/2006
Following serious unanticipated outcomes, including those that are clearly caused by systems failures, the patient and, as appropriate, the family should receive timely, transparent and clear communication concerning what is known about the event.	NQF	Safe Practices 2006
Implement critical components of a well-designed nursing workforce that mutually reinforce patient safeguards, including the following: 1) a nurse staffing plan with evidence that it is adequately resourced and actively managed and that its effectiveness is regularly evaluated with respect to patient safety; 2) senior administrative nursing leaders such as a Chief Nursing Officer, as part of the hospital senior management team; 3) governance boards and senior administrative leaders that take accountability for reducing patient safety risks related to nurse staffing decisions and the provision of financial resources for nursing services; and 4) the provision of budget resources to support nursing staff in the ongoing acquisition and maintenance of professional knowledge and skills.	NQF	Safe Practices 2003/2006
Ensure that non-nursing direct care staffing levels are adequate, that the staff is competent, and that they have had adequate orientation, training and education to perform their assigned direct care duties.	NQF	Safe Practices 2006
All patients in general ICUs (both adult and pediatric) should be managed by physicians who have specific training and certification in critical care medicine ("critical care certified").	NQF	Safe Practices 2003/2006
Ensure that care information is transmitted and appropriately documented in a timely manner and in a clearly understandable form to patients and to all of the patient's healthcare providers/ professionals, within and between care settings, who need that information in order to provide continued care.	NQF	Safe Practices 2003/2006

(more)

NQF-Endorsed™ National Voluntary Consensus Standards—Hospital Care (continued)

MEASURE	MEASURE STEWARD(S)	NQF PROJECT
For verbal or telephone orders or for telephonic reporting of critical test results, verify the complete order or test result by having the person who is receiving the information record and "read-back" the complete order or test result.	NQF	Safe Practices 2003/2006
Implement standardized policies, processes, and systems to ensure accurate labeling of radiographs, laboratory specimens, or other diagnostic studies so that right study is labeled for the right patient at the right time.	NQF	Safe Practices 2003/2006
A "Discharge Plan" must be prepared for each patient at the time of hospital discharge, and a concise discharge summary must be prepared for and relayed to the clinical caregiver accepting responsibility for postdischarge care in a timely manner. Organizations must ensure that there is confirmation of receipt of the discharge information by the independent licensed practitioner who will assume the responsibility for care after discharge.	NQF	Safe Practices 2003/2006
Implement a computerized prescriber order entry (CPOE) system built upon the requisite foundation of re-engineered evidence-based care, an assurance of healthcare organization staff and independent practitioner readiness, and an integrated information technology infrastructure.	NQF	Safe Practices 2003/2006
Standardize a list of "Do Not Use" abbreviations, acronyms, symbols, and dose designations that cannot be used throughout the organization.	NQF	Safe Practices 2003/2006
The healthcare organization must develop, reconcile, and communicate an accurate medication list throughout the continuum of care.	NQF	Safe Practices 2006
Pharmacists should actively participate in medication management systems by, at a minimum, working with other health professionals to select and maintain a formulary of medications chosen for safety and effectiveness, being available for consultation with prescribers on medication ordering, interpretation and review of medication orders, preparation of medications, assurance of the safe storage and availability of medications, dispensing of medications, and administration and monitoring of medications.	NQF	Safe Practices 2003/2006
Standardize methods for the labeling and packaging of medications.	NQF	Safe Practices 2003/2006
Identify all "high alert" drugs and establish policies and processes to minimize the risks associated with the use of these drugs. At a minimum, such drugs should include intravenous adrenergic agonists and antagonists, chemotherapy agents, anticoagulants and antithrombotics, concentrated parenteral electrolytes, general anesthetics, neuromuscular blockers, insulin and oral hypoglycemics, and opiates.	NQF	Safe Practices 2003/2006
Healthcare organizations should dispense medications, including parenterals, in unit-dose, or when appropriate, in unit-of-use form, whenever possible.	NQF	Safe Practices 2003/2006
Action should be taken to prevent ventilator-associated pneumonia by implementing ventilator bundle intervention practices.	NQF	Safe Practices 2003/2006
Adhere to effective methods of preventing central venous catheter-associated blood stream infections, and specify the requirements in explicit policies and procedures.	NQF	Safe Practices 2003/2006
Prevent surgical site infections (SSIs) by implementing four components of care: 1) appropriate use of antibiotics; 2) appropriate hair removal; 3) maintenance of post-operative glucose control for patients undergoing major cardiac surgery; and 4) establishment of postoperative normothermia for patients undergoing colorectal surgery.	NQF	Safe Practices 2003/2006
Comply with current Centers for Disease Control and Prevention (CDC) Hand Hygiene Guidelines.	NQF	Safe Practices 2003/2006

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NQF-Endorsed™ National Voluntary Consensus Standards—Hospital Care (continued)

MEASURE	MEASURE STEWARD(S)	NQF PROJECT
Annually, immunize healthcare workers and patients who should be immunized against influenza annually.	NQF	Safe Practices 2003/2006
For high-risk elective cardiac procedures or other specified care, patients should be clearly informed of the likely reduced risk of an adverse outcome at treatment facilities that participate in clinical outcomes registries and that minimize the number of surgeons performing those procedures with the strongest volume-outcomes relationship.	NQF	Safe Practices 2003/2006
Implement the Universal Protocol for Preventing Wrong Site, Wrong Procedure, Wrong Person Surgery for all invasive procedures.	NQF	Safe Practices 2003/2006
Evaluate each patient undergoing elective surgery for his or her risk of an acute ischemic perioperative cardiac event, and consider prophylactic treatment with beta blockers for patients who either: 1) have required beta blockers to control symptoms of angina or have symptomatic arrhythmias or hypertension, or 2) are at high cardiac risk owing to the finding of ischemia on preoperative testing and are undergoing vascular surgery.	NQF	Safe Practices 2003/2006
Evaluate each patient upon admission, and regularly thereafter, for the risk of developing pressure ulcers. This evaluation should be repeated at regular intervals during care. Clinically appropriate preventive methods should be implemented consequent to this evaluation.	NQF	Safe Practices 2003/2006
Evaluate each patient upon admission, and regularly thereafter, for the risk of developing venous thromboembolism/deep vein thrombosis (VTE/DVT). Utilize clinically appropriate, evidence-based methods of thromboprophylaxis.	NQF	Safe Practices 2003/2006
Every patient on long-term oral anticoagulants should be monitored by a qualified health professional using a careful strategy to ensure an appropriate intensity of supervision.	NQF	Safe Practices 2003/2006
Utilize validated protocols to evaluate patients who are at risk for contrast media-induced renal failure, and utilize a clinically appropriate method for reducing the risk of renal injury based on the patient's kidney function evaluation.	NQF	Safe Practices 2003/2006
Surgery patients with recommended VTE prophylaxis ordered	CMS	VTE: Policy, Preferred Practices, and Initial Performance Measures 2006
Surgery patients who received appropriate VTE prophylaxis within 24 hours prior to surgery to 24 hours after surgery	CMS	VTE: Policy, Preferred Practices, and Initial Performance Measures 2006
VTE prophylaxis	The Joint Commission	VTE: Performance Measures
Intensive Care Unit VTE prophylaxis	The Joint Commission	VTE: Performance Measures
VTE patients with overlap of anticoagulation therapy	The Joint Commission	VTE: Performance Measures
VTE patients receiving unfractionated heparin with dosages/platelet count monitored by protocol (or nomogram)	The Joint Commission	VTE: Performance Measures
VTE discharge instructions	The Joint Commission	VTE: Performance Measures
Incidence of potentially preventable VTE	The Joint Commission	VTE: Performance Measures

Appendix D
Commentary

Introduction

The Hospital Care 2007 project was formally launched in August 2006, based on an agreement between the National Quality Forum (NQF) and the Agency for Healthcare Research and Quality (AHRQ) to pursue the endorsement of a set or group of voluntary consensus standards that can be used for public reporting and specifically address gaps in the availability of measures related to inpatient quality (including patient safety and pediatrics).

A "Call for Measures" in the areas of morbidity and mortality, anesthesia and surgery (including surgical volume and mortality), utilization rates for high-risk or often unnecessary procedures, rates for readmission and length of stay, and pediatric pain assessment was issued in August 2006. Following the "Call," Blue Cross Blue Shield Association and America's Health Insurance Plans provided funding to have methodologies for length of stay and readmission rates considered under the auspices of the project. A "Call for Measures" for this portion of the project was subsequently issued.

As with all NQF consensus projects, a Steering Committee representing key healthcare constituencies and Technical Advisory Panels (TAPs) with expertise in the areas to be addressed were convened (appendix B).

This appendix summarizes the Steering Committee's deliberations on the proposed voluntary consensus standards.

Approach to Measure Evaluation

The Steering Committee began its work by affirming its use of the framework delineated in *A Comprehensive Framework for Hospital Care Performance Evaluation: A Consensus Report*[1] and the principles therein that address promoting standardization, driving measure set improvement, and supporting implementation. Additionally, the eight characteristics of a measure set for hospital care articulated in that report were considered to be germane in the consideration of the recommended consensus standards. Throughout the evaluation process, the Steering Committee and TAPs espoused the principles of support for evidence-based practice and support for evidence that candidate measures are reliable and valid.

Identifying Candidate Consensus Standards

Potential candidate consensus standards were identified through the following strategies:

- open solicitation of measures in the areas of interest through "Call for Measures";
- recommendations from the TAPs and the Steering Committee; and
- review of the NQF-endorsed™ consensus standards that were applicable to the areas of interest.

NQF staff prepared detailed measure evaluations using the NQF-endorsed standard criteria of important, scientifically acceptable, useable, and feasible established in *A Comprehensive Framework for Hospital Care Performance Evaluation*. Information for the measure evaluations was obtained from the measure developer and literature review. The Steering Committee had provided detailed guidance to help staff and the TAPs to focus on aspects of the measures of particular interest. The TAPs then reviewed the measure evaluations prepared by NQF staff and, after hearing presentations from representatives of the measure developers, clarified points and concerns with those representatives. Following deliberation of the perceived strengths and weaknesses of each of the measures and the technical reasons why the measures should or should not be recommended, the TAPs made recommendations to the Steering Committee.

At project inception, the Steering Committee provided guidance to ensure that the multiple TAPs worked in a common direction and with a common approach. This guidance specified a purpose, set priorities, and identified criteria to consider when evaluating individual measures within the overall context of hospital measures.

Purpose

The purpose of the overall Hospital Care 2007 project is to improve the quality of healthcare and patient safety by endorsing, for public reporting:

[1] National Quality Forum (NQF), *A Comprehensive Framework for Hospital Care Performance Evaluation: A Consensus Report,* Washington, DC: NQF; 2003.

- hospital care measures, including composite measures, that fill gaps or voids in the current measure set, especially in the areas of pediatrics, surgery and anesthesia, morbidity and mortality, and patient safety;
- methodologies for length of stay and readmission rates;
- guidance for evaluating composite measures; and
- guidance for public reporting of measures.

Scope

The Steering Committee charged the TAPs with considering a number of factors in recommending measures for endorsement, including that the measures:

- apply to general acute care hospitals, as relevant based on scope of service;
- are open source;
- are considered fully developed and specified;
- are useful to and useable by the public, including stakeholder groups; and
- reflect those aspects of care over which hospitals have control or those aspects of care that hospitals can substantially influence.

Furthermore, the Steering Committee charged that the recommended measures as a group encompass those that:

- address to the extent possible reducing disparities in the quality and safety of care for minority populations regardless of the primary focus; and
- include elements such as education and awareness to improve the public's ability to understand and use performance data.

Priority Areas Within the Candidate Consensus Standards

The Steering Committee set the overarching priority that recommended measures advance NQF's effort to develop a set of measures that are representative of the six Institute of Medicine (IOM) aims for a more ideal healthcare system. The Steering Committee also accorded priority to measures that increase the value of the set, such as measures that:

- fill gaps or voids in the NQF-endorsed hospital care consensus standards;
- can be applied to multiple units or services within the acute hospital setting (i.e., cross-cutting);
- are in common, widespread use and/or are required for other purposes (e.g., meeting accreditation requirements, addressing national goals or initiatives);
- are suitable for accountability;
- address misuse or overuse;
- are directly applicable to specific at-risk populations (e.g., neonates, frail elderly);
- are based on high-level evidence;
- address one or more of the six NQF-endorsed healthcare system quality "aims"[2]; and
- minimize burden through use of electronically available data.

[2] Identified in the NQF 2003 publication, *A Comprehensive Framework for Hospital Care Performance Evaluation: A Consensus Report.*

Criteria for Selection of Measures

To evaluate the measures, the TAPs and Steering Committee used the NQF-endorsed criteria from *A Comprehensive Framework for Hospital Care Performance Evaluation*—that is, that the measures should be important, scientifically acceptable, useable, and feasible. Additionally, an evidence-grading tool then being piloted in NQF projects was used to assign an overall grade to the strength of its recommendation, because feedback from Steering Committees that had previously used the tool indicated that the standardized grading system provided more uniform recommendations from the various TAPs.

The Voluntary Consensus Standards for Hospital Care 2007: Performance Measures

The strengths and weaknesses of each measure, as assessed by the relevant TAPs and outlined in each measure evaluation, were fully considered by the Steering Committee in its deliberations. At least one representative of each TAP, usually the Chair, attended the Steering Committee meetings to present TAP recommendations. Additionally, representatives of the measure developers were present to respond to questions from the Steering Committee.

Of particular note, when the Steering Committee took a position that differed from that of a TAP with respect to advancing a measure, it did so with TAP input and only after reviewing whether the measure met selection criteria and whether the concerns could be mitigated through adjustments by the developer or were not directly related to the construct or application of the measures—for example, the method for reporting. In the event that recommendations were made specific to individual measures, those recommendations were conveyed to the developers for appropriate action. In most cases, the recommendations were acted upon prior to final action by the Steering Committee and are reflected in the discussion that follows.

Of the 44 endorsed measures included in *National Voluntary Consensus Standards for Hospital Care 2007: Performance Measures,* the following eight use 3M APR-DRG in their risk adjustment:

- Acute stroke mortality rate
- Bilateral cardiac catheterization rate
- Congestive heart failure mortality
- Hip fracture mortality rate
- Abdominal aortic aneurysm repair mortality rate
- Esophageal resection mortality rate
- Incidental appendectomy in the elderly rate
- Pancreatic resection mortality rate

The steward of these eight measures, AHRQ, holds a limited license 3M APR-DRG grouper, which is included with the AHRQ QI Software to which users have free access. An explanation of the APR-DRG methodology and access to the APR-DRG definitions manual and a DRG calculator are available at http://www.aprdrgassign.com. This tool provides the DRG, severity of

illness (SOI), and risk of mortality (ROM) assignment as well as an explanation of the results. Access to the site is available via the URL listed above with the following case-sensitive login:

User Name: AHRQUser
Password: aprdrg101

The following summary does not include all topics discussed during the Steering Committee's deliberations. It is intended to capture key points and areas of concern, recommendations that were made for measure improvement, and actions taken by developers to address Steering Committee recommendations.

Length of Stay/Readmission

Risk-Adjusted Average Length of Inpatient Hospital Stay. In its initial deliberations, the Steering Committee was divided in its support of this measure. Its concerns mirrored those of the TAP—that is, that the information provided by the developer was not sufficient to allow for a thorough assessment of the comorbidity-adjusted complication risk (CACR) and that the inclusion of socioeconomic variables in the model was problematic. With respect to the latter issue, the developer advised the Steering Committee that these variables were included in an effort to avoid penalizing a hospital for providing care to populations whose socioeconomic status or ethnicity have been shown to be predictors of poorer outcomes. The Steering Committee asserted that the inclusion could have the unintended consequence of improperly crediting institutions that provide substandard care to these populations. Thus, prior to making a final recommendation, the Steering Committee asked that the developer supply additional details to allow the TAP to conduct a more detailed review of the CACR, including of its implied moral hazard, and to determine, based solely on its technical merits, whether its use would be appropriate in a measure advanced for endorsement. Having secured additional documents and detailed examples of the model, the TAP reconsidered the soundness and generalizability of the CACR and agreed that it is a valid, robust probability model that could feasibly be implemented on a national scale. Although its concerns related to the inclusion of socioeconomic variables remained unchanged, the TAP acknowledged that the long-standing socioeconomic variable debate is an issue of moral hazard, and is thus philosophical rather than technical in nature. With the technical merits of the measure clarified and confirmed by the TAP, the Steering Committee recommended advancement of the measure, while acknowledging the ongoing concern regarding the use of socioeconomic variables in this and in any measure.

Overall Inpatient Hospital Average Length of Stay (ALOS) and ALOS by Diagnosis-Related Group (DRG) Service Category. The Steering Committee identified average length of stay as an important and necessary area for measurement and considered this measure together with the measure for an all-cause readmission index

informed by the TAP evaluation. The Steering Committee agreed with the TAP's assessment of the weaknesses of the measures—a risk-adjustment model based on resource-based DRGs, the need for additional testing, and a failure of the ALOS measure to effectively account for outliers, which compromises its alignment with the All-Cause Readmission Index measure. After consulting with the TAP, the Steering Committee addressed its concern regarding outliers by recommending that the arithmetic mean be replaced by the geometric mean, thus eliminating the need for the exclusion. Additionally, acknowledging that DRGs are inherently resource related and that their use in risk adjustment is an extrapolation, and in accordance with NQF's intellectual property policy, the Steering Committee made clear that its recommendation for endorsement is contingent on the use of CMS-DRGs rather than APR-DRGs, because the former are in the public domain. In doing so, the Steering Committee recognized that certain populations will not be captured (i.e., pediatric and obstetric patients), and because MS-DRGs will replace CMS-DRGs in the next few years, measure maintenance will be necessary to ensure that the measures remain current. Furthermore, the Steering Committee noted that this measure is not suitable for mental health, substance abuse, and transplant patients—groups that the developer has agreed to exclude. Finally, it recommended that whenever reported this measure should be paired with the All-Cause Readmission Index measure.

During the report review phase, the developer asked the Steering Committee to reconsider the use of the geometric mean because of its 1) concern that the geometric mean inappropriately raises the average, allowing poor performers to appear to perform "better" because they are being compared to an inflated mean; 2) position that the arithmetic mean with outlier exclusions represents a normative approach to addressing outliers; and 3) belief that the arithmetic mean with outliers is the industry standard. After reviewing documents from its prior deliberations, the Steering Committee recommended advancing the measure to vote with the arithmetic mean with outlier exclusions. It further recommended that the developer continue testing to ensure that this approach consistently results in a less biased mean.

All-Cause Readmission Index. The importance and the strengths and weaknesses of this measure parallel those of the Overall Inpatient Hospital Average Length of Stay measure discussed above. Specific to this measure is the concern that same-day readmissions are excluded from the denominator population. In its deliberations, the TAP determined that an occurrence of true, unplanned readmissions (as opposed to planned transfers to another acute care facility) above 20 percent of all same-day readmissions would cause it to rule against advancing the measure and requested that the developer provide the information regarding unplanned readmissions and planned transfers. With the developer's documentation that, when intended transfers are excluded, the rate at its highest

is 11 percent, the Steering Committee supported the measure—again with the stipulation that CMS-DRGs be used for risk adjustment. The Steering Committee recommended that this and the Overall Inpatient Hospital Average Length of Stay measure be reported together.

30-Day All-Cause Risk-Standardized Readmission Rate Following Heart Failure Hospitalization. This disease-specific measure is limited to the Medicare fee-for-service population and, by including all causes for readmission, expands the potential for improving care beyond the specified diagnosis. It employs the same hierarchical risk-adjustment methodology used in the recently NQF-endorsed heart failure, acute myocardial infarction, and pneumonia 30-day mortality measures. The developer reports that its data demonstrate that for this patient population, about 25 percent of hospital readmissions within 30 days are due to a recurrence of heart failure, suggesting that 30 days is a reasonable timeframe for the measure. Furthermore, validation of administrative against medical record data showed that administrative data captured most of the risk and that there was high correlation between the two. The Steering Committee discussed two concerns in some detail: 1) the way in which the measure is reported could reduce its usefulness by identifying outliers only at the high and low extremes and 2) how hierarchical models reflect low-volume hospitals at the population mean rather than at the true performance of the hospital. In recommending the measure, the Steering Committee pointed out that there is some lower limit to the measure's utility in terms of its interpretation, improvement, or patient or payer choice. Accordingly, it strongly recommended that when the measure is publicly reported, a volume threshold should be identified below which results are only marginally affected by a hospital's own data and that results below that threshold should be suppressed (i.e., not reported).

Severity-Standardized Average Length of Stay—Routine Care, Severity-Standardized Average Length of Stay—Special Care, Severity-Standardized Average Length of Stay—Deliveries. These three measures were recommended for endorsement as individual consensus standards but were considered together because of their fundamental methodologic similarities. A readmission risk adjuster, formerly a fourth measure, is to be incorporated into each to discourage inappropriate early release of patients to improve LOS scores.

The Steering Committee agreed with the TAP's assessment of the strengths and weaknesses of the measures—specifically that the measures address an important topic, employ a feasible data source, and include risk variables that are well chosen and applied but could benefit from additional testing. Although the measures target an insured, commercial population, the Steering Committee was of the opinion that they are generalizable if the appropriate datasets can be accessed. The Steering Committee ultimately recommended the measures with two adjustments, to which the developer agreed: 1) removing

pregnancy as a complication in the "deliveries" measure and 2) removing "cases where accommodation revenue codes are missing" from the list of exclusions.

Patient Safety—Adult and Pediatric

Accidental Puncture or Laceration (adult and pediatric). These two measures were considered together, because their methodologies are similar although their risk adjustments and comorbidities differ based on the populations. The strengths of these measures are that they address an important issue, their coded events have high accuracy, they have good predictive value particularly with surgical cases, and their user feedback indicates strong feasibility. It was noted that reporting caution often results in coding only when additional care is required. The Steering Committee stressed that, in reporting the pediatric measure, it is important that comparisons should be among pediatric populations only, whether care is provided in general acute care hospitals or in children's hospitals. The developer agreed with the Steering Committee's recommendation to add a volume standard to the specifications for the pediatric measure.

Death in Low-Mortality DRGs (adult). This developer originally submitted this measure as a rate. The TAP recommended that it be changed to a count, because low rates are difficult to interpret. However, the Steering Committee recommended that this measure advance as originally submitted, because rates can be risk adjusted and therefore considered within the context of the hospital size and population- and patient-specific factors. There was considerable discussion about the relationship between this measure and the NQF-endorsed serious reportable events; however, ultimately, all acknowledged that the serious reportable events do not meet the criteria of measures. A concern about positive predictive value, of which the most recent studies are from the 1980s, resulted in the one dissenting vote.

Iatrogenic Pneumothorax (adult), Iatrogenic Pneumothorax in Non-Neonates (pediatrics). As with all of the AHRQ quality indicators advanced in this project, these two measures are already in public use. The Steering Committee addressed its single concern by confirming that the case-mix adjustment in these measures is on the patient level and recommended that both measures advance.

Decubitus Ulcer (pediatric). This measure directly addresses quality of care, because decubiti are largely preventable. The measure is currently reported publicly, relates to the NQF-endorsed nursing-sensitive measure of pressure ulcer prevalence, and complements NQF-endorsed Safe Practice 27, which requires evaluation of each patient upon admission and regularly thereafter for risk of developing pressure ulcers. Nevertheless, the Steering Committee raised several concerns about the measure. First, it excludes certain patients with an ulcer present on admission (POA) or transferred from a long-term care facility to avoid penalizing providers that care for these patients. Second, POA coding is not widely used currently, although it is now

included in the specifications. Third, the measure captures an infrequent occurrence, and its results might not be easily understood by consumers. Of note, the software used to calculate the measure stratifies the population into high and low risk, and the incidence of decubiti is much greater in the high-risk population; however, the ability of the public to interpret such information was of concern. The TAP did not recommend advancing the measure, primarily because it considered the potential for public misinterpretation of the results to be too great. The Steering Committee ultimately recommended the measure for endorsement because of its value, but suggested that guidance regarding the interpretation of the results be included in public reporting.

Transfusion Reaction (adult and pediatric). The TAP and the Steering Committee questioned the value to the consumer of expressing these measures as a rate when such events occur rarely. Additionally, it was noted that one of the NQF-endorsed *Serious Reportable Events in Healthcare* calls for reporting such events individually (counts) as they occur. The Steering Committee recommended advancing the measures contingent on their being reported as counts rather than as rates.

Death Among Surgical Inpatients with Serious, Treatable Complications (adult). This was one of two similar measures considered by the Patient Safety TAP, which ultimately recommended this measure as the more "actionable" of the two. The measure captures a limited set of five complications, which permits hospitals to pinpoint the issues that contributed to events and to take prompt corrective action. This measure has been reconciled with the NQF-endorsed measure by the same name in the nursing-sensitive set; each now uses the same numerator and denominator and will continue to be aligned and maintained by AHRQ as a single measure. The Steering Committee recommended advancing the measure in this set as specified and as a materially changed update to the NQF-endorsed nursing-sensitive measure of the same name. Additionally, it recommended that a parallel measure for pediatrics be explored by the developer.

Acute Stroke Mortality Rate (adult). This measure remains relevant to consumers because of the ongoing concern regarding timely treatment of stroke, despite the fact that no more than 15 percent of stroke deaths occur in hospitals. Although there is general agreement that a 30-day mortality measure would be a useful adjunct, an in-hospital mortality measure can be collected in real time whereas 30-day data are generally not available in less than a year. The Steering Committee recommended advancing the measure as specified and further recommended that the developer explore the development of companion measures related to 1) patient functional status post stroke and 2) 30-day mortality. An NQF Member present at the meeting expressed concern that the use of a risk-adjustment model results in the measure inappropriately including hemorrhagic and subarachnoid events rather than only

ischemic events. Although this concern did not affect the Steering Committee's action, it was forwarded to the developer for review and appropriate action.

During its deliberations, the NQF Consensus Standards Approval Committee (CSAC) referred the measure to the Prevention and Management of Stroke Across the Continuum of Care Steering Committee to be evaluated within the context of its work. This Committee was divided in its appreciation of the measure. Those opposed to endorsement were concerned about limitations of inpatient stroke mortality rates in differentiating the quality of stroke care, while those in favor believed that stroke mortality rates provide valuable, if limited, information about the quality of stroke care. Subsequently, the measure was recommended for approval.

Hip Fracture Mortality Rate (adult). This measure is widely used, and the data are easy to collect. However, there was concern that the measure might be unfair to hospitals if the fracture occurred days prior to admission, which would reduces a hospital's ability to prevent morbidity/mortality. It was noted that the literature shows some variability in admission delays; however, most patients are admitted within 12 hours of fracture. Because studies of the percentages of admissions within specified periods are not population based and administrative data do not include time of fracture, the issue of time delay has not been evaluated. It was determined that no data exist to suggest that some element around the incidence of hip fracture mortality varies systematically across hospitals such that some hospitals will be more vulnerable to rate elevation. It was noted that, if properly identified and coded, the measure's risk adjustment will capture the comorbidities that result from admission delay. The Steering Committee recommended that the measure be advanced, provided that the age specification was changed to 65 as recommended by AHRQ's advisory panel. This has been done.

Bilateral Cardiac Catherization Rate (adult). By reporting information about the rates of bilateral cardiac catherterization, this measure offers an opportunity to evaluate potential overuse or inappropriate use of the practice. Concluding that the concern regarding over-/inappropriate use is strongly supported by the evidence and that the measure is valid and reliable, the Steering Committee recommended advancing the measure.

Blood Cultures Performed Within 24 Hours Prior to or 24 Hours After Hospital Arrival for Patients Who Were Transferred or Admitted to the ICU Within 24 Hours of Hospital Arrival (adult). Approximately 12 percent of patients who are admitted to the intensive care unit (ICU) either directly or by transfer have been diagnosed with pneumonia. The national average for performance on this measure, based on 30,000 admissions during the first quarter of 2007, was 91 percent, with considerable variability. Discussion ensued regarding whether there is value in advancing a measure with a relatively high level of performance, as well as whether there is an association between performing blood cultures and

patient outcomes. Information available to the Committee indicated that the evidence for an association is sparse and conflicting. The Committee determined that the behavior called for by the measure is appropriate and recommended advancing the measure. It also recommended that the developer refine the language of the numerator and denominator to improve clarity, which has been done.

Congestive Heart Failure Mortality (adult). This measure is similar to and, per the developer, has a 90 percent correlation with an NQF-endorsed congestive heart failure 30-day mortality measure. The endorsed measure, however, applies only to the Medicare fee-for-service population. The Steering Committee opined that more could be learned by using the measures together than by using either alone and recommended advancing the measure. Additionally, Committee members recommended that the developer explore a parallel 30-day measure.

Pediatrics

Pediatric ICU (PICU) Severity-Adjusted Length of Stay, PICU Unplanned Readmission Rate, Review of Unplanned PICU Readmissions. These three measures are advanced for individual endorsement with the recommendation that they be reported as either a pair (PICU Severity-Adjusted Length of Stay and PICU Unplanned Readmission Rate) or as a bundle of all three. The Committee did not recommend that any be reported singly. In arriving at this recommendation, the Committee considered information from the developer and noted that the combination of PICU Severity-Adjusted Length of Stay and PICU Unplanned Readmission Rate has the potential to illuminate issues surrounding premature discharge and postdischarge care. It also noted that Review of Unplanned PICU Readmissions was an appropriate companion to PICU Unplanned Readmission Rate, but would have little value if reported only with PICU Severity-Adjusted Length of Stay. The Steering Committee discussed the need to ensure that the risk-adjustment methodology is standardized and in the public domain. Committee members asked the developer a series of questions related to the risk- adjustment methodology: whether the developer recommended the three as a bundle or paired, the definition of "unplanned readmission," and how the reliability and validity of the unplanned readmission review could be enhanced. As a result, the developer has advised NQF through the Steering Committee that it is revising the measure specifications to reflect that:

- PICU Severity-Adjusted Length of Stay will include additional specifications to indicate that (with endorsement of the measure) PRISM III is the only risk-adjustment methodology for use with the measure because it resides in the public domain, is widely used, has been validated in the United States, and incorporates a mechanism for ongoing validation and recalibration;
- it proposes that PICU Severity-Adjusted Length of Stay and PICU Unplanned Readmission Rate be publicly reported together;

- the definition of "unplanned readmission" is clarified to mean a readmission to the PICU within 24 hours of discharge or transfer to the PICU for which there is no pre-existing documentation of a planned readmission (exclusions: all planned readmissions as identified by pre-existing documentation in chart, e.g., surgical note, physician note); and
- it is working with The Leapfrog Group to operationalize an approach to enhance the reliability and validity of Review of Unplanned PICU Readmissions.

Home Management Plan of Care Document Given to Patient/Caregiver. Although the Steering Committee recommended advancing this measure, it expressed concern that it requires only that a document be provided. In other words, the measure can be met without the important components of education and care coordination actually having taken place. The Steering Committee noted that there is no evidence that the simple presence of a written care management plan affects outcomes. While the measure was under consideration by the TAP, its specifications were modified to reflect that "arrangements for a follow-up appointment" were initiated to demonstrate an effort at care coordination. The Steering Committee also considered the fact that the measure includes evidence-based medication-related elements and that its use to date has displayed variability in providing a plan of care. This discussion lead to acknowledgment that moving the field forward to include a plan of care would be a positive start. The Steering Committee agreed that the measure highlights a number of areas that should be targeted for improvement, including care coordination and patient education, and that implementation of the measure could stimulate quality improvement. It challenged the developer to continue to refine the measure to require evidence that educational effort has occurred and to separate the evidence-based elements from those for which there is little or no evidence.

Pediatric Heart Surgery Mortality, Pediatric Heart Surgery Volume. As confirmed by the TAP, pediatric heart surgeons concur with the timeframe and the notion of public accountability. The Steering Committee readily agreed to the appropriateness of advancing these two measures. Its discussion focused on the value of each measure and how they should be reported. The following are some of the issues that were discussed.

- In some pediatric populations, some of the procedures are so rare that data from use of the measure would be difficult to interpret.
- Reporting the volume is relatively burden free, but often the data elements necessary to report the mortality rate and to adjust for severity are inaccessible.
- It might not be possible for a consumer to make a useful decision based on volume or mortality rate alone.
- The states' regulation of facilities when relationships between volume and quality are identified in the literature, without looking at mortality.

- There is concern over the potential generalization of data gained from pairing volume and mortality rates at the physician level.
- The volume measure is a descriptive structural measure that has predictive value about outcome and for which there is research that provides evidence of this value, especially for high-risk procedures.

After considering these issues, the Steering Committee strongly recommended that these two measures be reported together. However, when it is not possible to report mortality, volume may be reported alone.

PICU Pain Assessment on Admission, PICU Periodic Pain Assessment. The Steering Committee questioned why these two measures were limited to the PICU and was advised that they were developed by pediatric intensivists with a focus on PICU care. The Steering Committee and TAP shared a concern about the lack of specificity for the use of the pain assessment tool. However, a specific tool(s) cannot be included in the specifications, because there is a lack of consensus about the appropriate tool to use, given the wide range of ages encompassed by the measure. The developer agreed to provide a list of generally accepted tools/scales along with the measure specifications on its website. The Steering Committee recommended that research be pursued with the objectives of expanding the measures to the entire pediatric population and of standardizing the tools used to assess pain in the pediatric population.

PICU Standardized Mortality Ratio. The Steering Committee questioned why deaths occurring after transfer from the PICU were excluded from this measure and was advised that, as with the pain assessment measures, this measure was developed by pediatric intensivists with a focus on PICU care. The Steering Committee was advised that the developer will incorporate the palliative care exclusion that was requested by the TAP: *"Children who were NOT admitted for the purpose of critical care intervention or monitoring, i.e., related to their real or potential risk of physiologic instability, but instead because there was no other location in the hospital to provide these end-of-life services."* The Steering Committee also questioned certain variables listed in the risk-adjustment method, including the use of PRISM III. After receiving information that PRISM III has been tested for use in the PICU and is the most widely accepted and that risk adjustments for adults also adjust for previous hospitalizations, the Steering Committee recommended that the measure be advanced.

Surgery and Anesthesia

Prior to beginning the discussion of individual surgery- and anesthesia-related measures, the Steering Committee discussed the pairing of volume and mortality measures for public reporting. After clarifying that there are no additional costs or undue effort associated with downloading the software needed for the AHRQ quality indicators, the Committee recommended that measures of mortality should always be paired with their volume counterparts,

but when reporting the mortality measure is not feasible the volume measure may be reported alone.

Abdominal Aortic Aneurysm (AAA) Repair Volume, AAA Repair Mortality Rate. After hearing the strengths (ease of measure calculation, minimal burden caused by use of administrative data) and weaknesses (modest evidence that volume is a predictor of adverse outcomes, heterogeneity of the population captured, poorly defined data collection) of these two measures, the Steering Committee discussed at length the fact that when an AAA has ruptured/is rupturing, transfer to an institution with a high volume of these surgeries is usually not an option. It also noted that the differences between surgery for ruptured aneurysm and elective aneurysm repair may not be properly differentiated in claims. The developer noted that the risk adjustment accounts for these differences and that it is in the process of clarifying definitions to decrease misclassifications. As noted above, the Steering Committee recommended that the mortality measure always be reported with the volume measure when feasible.

Esophageal Resection Mortality Rate, Esophageal Resection Volume. In advancing these two measures, the Steering Committee considered the fact that esophageal resection is both rare (three cases could be considered high volume) and elective and that there is no consensus regarding minimum practice volumes. Its primary concern, however, was the low volume. The Steering Committee advanced the measures with the recommendation that the mortality and volume measures be reported together, but, due to the low numbers for the procedure, the volume measure may be reported alone if reporting the mortality measure is not feasible.

Foreign Body Left During Procedure—Pediatric, Foreign Body Left During Procedure--Adult. Two key issues were the focus of deliberation on these measures: 1) the fact that identification of the foreign body as POA is an option rather than a requirement and 2) the value for public reporting of presenting a measure related to a procedure that occurs rarely as a percentage rather than as a count. With respect to the former, the developer agreed to change POA from an option to a requirement. With respect to the latter, the developer agreed to change the specifications of the measure to a count, rather than a rate, in future releases of the software. The relationship of these measures to the NQF-endorsed serious reportable event that addresses unintended retention of a foreign body after surgery was also discussed. However, the measures provide the ability to audit the occurrence and to compare results across organizations. The Steering Committee recommended the measures for advancement, with the contingency that POA is made a requirement and the results are reported as a count. The importance of the serious reportable events was acknowledged, and a recommendation was made that a project to endorse measures for the full list of serious reportable events be undertaken.

Incidental Appendectomy in the Elderly Rate. In advancing this measure, the Steering Committee agreed with the TAP that the procedure should not occur and that there is wide variability among hospitals; thus, an opportunity for improvement exists. It noted that the developer is revising the definitions to better clarify what constitutes "incidental" in order to increase the accuracy of the measure.

Pancreatic Resection Mortality Rate, Pancreatic Resection Volume. As with other measures that rely on administrative data, the data collection burden for this measure is minimal, and because of the nature of the procedure, there is little miscoding. However, there are few evidence-based processes for decreasing mortality. The developer committed to revise the risk adjustment prior to endorsement to differentiate between a Whipple procedure and a total pancreatectomy. The Steering Committee advanced the measures with the recommendation that they be reported together, but that the volume measure may be reported alone if reporting the mortality measure is not feasible.

Postoperative Wound Dehiscence, Age Under 18 Years; Postoperative Wound Dehiscence, 18 Years and Older. The Steering Committee voted to advance these two measures with relatively brief discussion. The members agreed that the measures are strong and important, there are processes of care that can reduce likelihood of dehiscence, and, in fact, that there should be zero tolerance of dehiscence.

Surgery Patients on Beta Blocker Therapy Prior to Admission Who Received a Beta Blocker During the Perioperative Period. This measure applies only to those individuals who are on beta blockade at the time they enter surgery. Discussion of the measure, which focuses on major surgery, centered on the support for it in terms of its strengths: 1) it reflects current American Heart Association/American College of Cardiology guidelines for use of beta blockers; 2) it is in use through the Centers for Medicare & Medicaid Services QIO (Quality Improvement Organization) program and hospitals accredited by the Joint Commission; 3) the process is within hospitals' control and supports the concepts of medication reconciliation and care coordination; 4) risk adjustment is not required; and 5) there is opportunity for improvement. Both the TAP and the Steering Committee discussed the measure's evidence base in detail. Each concluded that the evidence upon which the measure is based has limitations; however, the measure conforms to current guidelines, and the variability across institutions in the use of those evidence-based guidelines demonstrates opportunity for improvement in patient care. This issue was revisited by the Steering Committee subsequent to the comment period. Although the measure is not an outcome measure, it does seek to ensure the maintenance of beta blockade in a population that, for the most part, receives it for chronic, serious healthcare problems for which the indications for the therapy will continue postsurgery and for which the risk of abrupt cessation, especially

during the stress of surgery, is greater than the risk of continuing the medication. No competing measure was submitted or exists within the NQF-endorsed consensus standards. Additionally, the Steering Committee recommended that this measure be considered for use – appropriately applied to the procedures performed – in surgical settings outside hospitals.

Failure to Rescue. This measure (now measures), which addresses death among general surgery, orthopedic, and vascular patients with or without documented complications, was considered by two TAPs: the Patient Safety TAP and the Surgery and Anesthesia TAP. The Patient Safety TAP asked the Surgery and Anesthesia TAP to evaluate the measure for appropriateness as a surgical mortality measure after recommending the advancement of the similar measure, Death Among Surgical Inpatients with Serious, Treatable Complications, as a patient safety measure. The measure was submitted with death defined as "death within 30 days from admission," although the developer noted that it could be defined as "in-hospital mortality" and that similar results had been seen with both definitions. The discussion of the measure focused on three issues: 1) value and challenges associated with capturing 30-day mortality—that is, complexity associated with ascertainment of the data and attribution of results; 2) complexity associated with the number of complications to be captured and acted upon, acknowledging that the number of complications result in capturing 50 percent more events; and 3) ability to reliably discern hospital-associated issues that can be acted upon to improve rates. Obtaining the 30-day data was acknowledged as a challenge that will require more effort on the part of hospitals. It was determined that the scope of the measure in terms of the complications captured makes it sufficiently different from the similar measure to warrant its advancement in the form of two separate measures—an in-hospital mortality measure and a 30-day mortality measure. The developer agreed to and made the recommended changes, and the two resulting measures were advanced.

Appendix E

Consensus Development Process: Summary

The National Quality Forum (NQF) is a unique, multistakeholder organization dedicated to improving healthcare quality through performance measurement and public reporting. NQF's Consensus Development Process (CDP) is the formal process through which it achieves consensus on the standards it endorses, including performance measures and other standards to improve healthcare quality.

Through this multistep process, NQF brings together diverse healthcare stakeholders who are represented in eight Member Councils: Consumer Council; Purchaser Council; Health Professional Council; Provider Organization Council; Supplier and Industry Council; Quality Measurement, Research, and Improvement Council; Health Plan Council; and Public/Community Health Agencies Council.

Members of the public with particular expertise in a given topic also may be invited to participate in the early identification of draft consensus standards, either as technical advisors or as Steering Committee members. In addition, the NQF process explicitly recognizes a role for the general public to comment on proposed consensus standards and to appeal healthcare quality consensus standards endorsed by NQF. Information on NQF projects, including information on NQF meetings open to the public, is posted at www. qualityforum.org.

NQF's CDP process begins with the formation of a Steering Committee that guides the project and that includes critical expertise and represents a balance of perspectives on the matter(s) under consideration. The purpose of the Steering Committee is to develop and carry out, in conjunction with NQF staff and technical advisors, as needed, a work plan that will result in a recommended product for endorsement by NQF membership, the Consensus Standards Approval

Committee (CSAC), and the NQF Board of Directors. Priority will be given to nominations for Steering Committee members that are made by NQF Members.

The next step involves a "Call for Measures." NQF invites the owners or stewards of performance measures or other types of candidate standards to submit their measures for consideration. Organizations do not need to be NQF Members to participate. Once NQF issues a "Call for Measures," organizations have 30 days to submit the requisite information. Organizations are asked to adhere to NQF Measure Submission Guidelines and must agree to provide free, public access to measures, including technical specifications, if they are endorsed by NQF.

The proposed consensus standards are distributed for review and comment by NQF Members and non-members. After NQF review and comment of the candidate consensus standards, member organizations are provided with a revised draft, on which they generally have 30 days to vote. Each organization has one vote.

Next, the candidate consensus standards and the voting results are submitted to the CSAC to consider in making its decision. Although the CSAC makes most of the final decisions regarding approval, on occasion, it may defer decisionmaking and request additional consensus building, and Member Council chairs are given an opportunity to provide input. As is the case with the Board of Directors, consumers and those who purchase services on their behalf constitute a simple majority on the CSAC.

After approval by the CSAC and ratification by the Board of Directors, NQF Members and non-members are provided 30 days to file an appeal. All appeals are reviewed by the CSAC and are forwarded with their recommendation to the Board of Directors for final consideration.

Once a set of voluntary consensus standards has been approved, the federal government may utilize it for standardization purposes in accordance with the provisions of the National Technology Transfer and Advancement Act of 1995 (P.L. 104-113) and the Office of Management and Budget Circular A-119. Consensus standards are updated as warranted.

For this report, the NQF CDP, version 1.8, was in effect. The complete process can be found at www.qualityforum.org.

The National Quality Forum (NQF) is a private, nonprofit, open membership, public benefit corporation whose mission is to improve the American healthcare system so that it can be counted on to provide safe, timely, compassionate, and accountable care using the best current knowledge. Established in 1999, NQF is a unique public-private partnership having broad participation from all parts of the healthcare industry. As a voluntary consensus standards setting organization, NQF seeks to develop a common vision for healthcare quality improvement, create a foundation for standardized healthcare performance data collection and reporting, and identify a national strategy for healthcare quality improvement. NQF provides an equitable mechanism for addressing the disparate priorities of healthcare's many stakeholders.

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