NATIONAL QUALITY FORUM

NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PATIENT OUTCOMES, SECOND REPORT FOR PHASES 1 AND 2: A CONSENSUS REPORT

DRAFT REPORT FOR COMMENTING

NATIONAL QUALITY FORUM

TO: NQF Members and Public

FR: NQF Staff

RE: Pre-voting review for *National Voluntary Consensus Standards for Patient Outcomes, Second Report for Phases 1 and 2: A Consensus Report*

DA: June 14, 2010

This draft report is from NQF's multiphase Patient Outcomes project. The project seeks to endorse additional consensus standards for patient outcomes in a variety of high-impact (high-volume, high-cost, high-morbidity, or mortality) conditions:

- Phase 1—pulmonary and some cardiovascular conditions;
- Phase 2—cross-cutting measures, diabetes, GI/biliary conditions, cancer, bone and joint, eye care, surgery, infectious disease, and additional cardiovascular measures; and
- Phase 3—child health and mental health.

A Steering Committee of 24 individuals representing a diverse range of stakeholder perspectives reviewed and considered for endorsement a total of 27 candidate patient outcome standards. This draft report recommends 10 measures be considered for endorsement.

The draft document, *National Voluntary Consensus Standards for Patient Outcomes, Second Report for Phases 1 and 2: A Consensus Report* is posted on the NQF website, along with the following additional information:

- measure submission forms, and
- meeting and call summaries from the Steering Committee.

Pursuant to section II.A of the Consensus Development Process v. 1.8, this draft document, along with the accompanying material, is being provided to you at this time for purposes of review and comment only—not voting. You may post your comments and view the comments of others on the NQF website.

NQF Member comments must be submitted no later than 6:00 pm ET, July 13, 2010.
Public comments must be submitted no later than 6:00 pm ET, July 6, 2010.

NQF is now using a program that facilitates electronic submission of comments on this draft report. **All comments must be submitted using the online submission process.**

Supporting documents related to your comments may be submitted by **e-mail** to outcomes@qualityforum.org, with "*Comment—Patient Outcomes: Second Report*" in the subject line and your contact information in the body of the e-mail.

Thank you for your interest in NQF's work. We look forward to your review and comments.

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EXECUTIVE SUMMARY

The results or outcomes of an episode of healthcare are inherently important because they reflect the reason consumers seek healthcare (e.g., to improve function, decrease pain, or survive) as well as the result healthcare providers are trying to achieve. Outcome measures also provide an integrative assessment of quality reflective of multiple care processes across the continuum of care. There are a variety of types of outcome measures such as health or functional status, physiologic measurements, adverse outcomes, patient experience with care, and morbidity and mortality. To date the National Quality Forum (NQF) has endorsed more than 200 outcome measures in a variety of topic areas. As greater focus is placed on evaluating the outcome of episodes of care, additional measures of patient outcomes are needed to fill gaps in the current portfolio.

This second report of NQF's Patient Outcomes project presents the results of the evaluation of 27 candidate measures considered under NQF's Consensus Development Process (CDP). Ten measures are recommended for endorsement as voluntary consensus standards suitable for public reporting and quality improvement.

- Proportion of patients with a chronic condition that have a potentially avoidable complication during a calendar year (Bridges to Excellence [BTE])
- Proportion of AMI patients that have a potentially avoidable complication (during the index stay or in the 30-day post-discharge period) (BTE)
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- Proportion of pneumonia patients that have a potentially avoidable complication (during the index stay or in the 30-day post-discharge period) (BTE)
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NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PATIENT OUTCOMES, SECOND REPORT FOR PHASES 1 AND 2: A CONSENSUS REPORT

BACKGROUND

The results or outcomes of an episode of healthcare reflect the reason consumers seek healthcare (e.g., to improve function, decrease pain, or survive), as well as the result healthcare providers are trying to achieve. Patient outcomes reflect the wide assortment of care processes and coordination of efforts among all caregivers as well as other contributing factors that determine the end result of an episode of care.

Donabedian defined outcomes as "changes (desirable or undesirable) in individuals and populations that are attributed to healthcare."[1] Outcome measures also provide an integrative assessment of quality reflective of multiple care processes across the continuum of care. There are a variety of types of outcome measures. Some represent an end result such as mortality or function; others are considered intermediate outcomes (e.g., physiological or biochemical values such as blood pressure or LDL cholesterol) that precede and may lead to a longer-range end-result outcome. Sometimes proxies are used to indicate an outcome (e.g., hospital readmission indicates deterioration in health status since discharge). To date the National Quality Forum (NQF) has endorsed more than 200 outcome measures in a variety of topic areas (Appendix C). As greater focus is placed on evaluating the outcome of episodes of care, additional measures of patient outcomes are needed to fill gaps in the current portfolio.

STRATEGIC DIRECTIONS FOR NQF

NQF's mission includes three parts: 1) setting national priorities and goals for performance improvement, 2) endorsing national consensus standards for measuring and publicly reporting on performance, and 3) promoting the attainment of national goals through education and outreach programs. As greater numbers of quality measures are developed and brought to NQF for consideration of endorsement, it is incumbent on NQF to assist stakeholders to "measure what makes a difference" and address what is important to achieve the best outcomes for patients and populations. For more information see http://

www.qualityforum.org/projects/Patient_Outcome_Measures_Phases1-2.aspx.

Several strategic issues have been identified to guide consideration of candidate consensus standards:

DRIVE TOWARD HIGH PERFORMANCE. Over time, the bar of performance expectations should be raised to encourage the achievement of higher levels of system performance.

EMPHASIZE COMPOSITES. Composite measures provide much-needed summary information pertaining to multiple dimensions of performance and are more comprehensible to patients and consumers.

MOVE TOWARD OUTCOME MEASUREMENT. Outcome measures provide information of keen interest to consumers and purchasers, and when coupled with healthcare process measures, they provide useful and actionable information to providers. Outcome measures also focus attention on much-needed system-level improvements because achieving the best patient outcomes often requires carefully designed care processes, teamwork, and coordinated action on the part of many providers.

CONSIDER DISPARITIES IN ALL WE DO. Some of the greatest performance gaps relate to care of minority populations. Particular attention should be focused on identifying disparities-sensitive performance measures and on identifying the most relevant race/ethnicity/language strata for reporting purposes.

NATIONAL PRIORITIES PARTNERSHIP

NQF seeks to endorse measures that address the National Priorities and Goals of the National Priorities Partnership.[2] The National Priorities Partnership represents those who receive, pay for, provide, and evaluate healthcare. The National Priorities and Goals focus on these areas:

- patient and family engagement,
- population health,
- safety,
- care coordination,

- palliative and end-of-life care, and
- overuse.

NQF'S CONSENSUS DEVELOPMENT PROCESS (CDP)

Patient Outcomes Project

NQF's *National Voluntary Consensus Standards for Patient Outcomes* project[3] seeks to endorse additional outcome measures with an emphasis on high-impact (high-volume, high-morbidity, high-cost) conditions and cross-cutting areas. The Patient Outcomes project is structured in several phases:

- Phases 1 and 2— cross-cutting measures and measures on cardiovascular, pulmonary, and bone/joint conditions as well as chronic kidney disease, diabetes, infectious disease, eye care and cancer; and
- Phase 3— child health and mental health.

Additionally, the project will identify gaps in important outcome measures.

Scope of Patient Outcomes

The Steering Committee defined outcomes quite broadly to encompass a variety of types of patient outcomes within the scope of this project:

- patient function, symptoms, health-related quality of life (physical, mental, social);
- intermediate clinical outcomes (physiologic, biochemical);
- patient experience with care; knowledge, understanding, motivation; health risk status or behavior (including adherence);
- service utilization as a proxy for patient outcome (e.g., change in condition) or potential indicator of efficiency;
- non-mortality clinical morbidity related to disease control and treatment;
- healthcare-acquired adverse event or complication (non-mortality); and
- mortality.

Evaluating Potential Consensus Standards

In May 2010, NQF presented a report of the evaluation of an initial group of 12 measures in the areas of pulmonary/intensive care and cardiovascular conditions. This second report presents the results of the evaluation of 27 candidate consensus standards submitted in response to a Call for Measures in September 2009 and actively sought through searches of the National Quality Measures Clearinghouse, NQF Member websites, and an environmental scan. NQF staff contacted potential measure stewards to encourage submission of measures for this project. The candidate consensus standards were evaluated for suitability as voluntary consensus standards for accountability and public reporting.

The measures were evaluated using NQF's standard evaluation criteria.[4] Technical Advisory Panels (TAPs) rated the subcriteria for each condition-specific candidate consensus standard and identified strengths and weaknesses to assist the project Steering Committee (Committee) in making recommendations. The 24-member, multistakeholder Committee provided final evaluations of the four main criteria: importance to measure and report, scientific acceptability of the measure properties, usability, and feasibility, as well as the recommendations for endorsement. The Committee evaluated the subcriteria for three cross-cutting measures that were not evaluated by a TAP. Measure developers participated in the TAP and Committee discussions to respond to questions and clarify any issues or concerns.

RECOMMENDATIONS FOR ENDORSEMENT

This report presents the results of the evaluation of 27 measures considered under NQF's CDP. As a result of the Committee discussions, three measures were considered out of scope as outcome measures, and two measures were withdrawn by the measure steward from further consideration. Ten measures are recommended for endorsement as voluntary consensus standards suitable for public reporting and quality improvement.

Candidate Consensus Standards Recommended for Endorsement

OT2-022-09: Proportion of patients with a chronic condition that have a potentially avoidable complication during a calendar year (Bridges to Excellence [BTE]) *Percent of adult population aged 18-65 years who were identified as having at least one of the following six chronic conditions: diabetes mellitus (DM), congestive heart failure (CHF), coronary artery disease (CAD), hypertension (HTN), chronic obstructive pulmonary disease (COPD), or asthma, were followed for one-year, and had one or more potentially avoidable complications (PACs).* The Committee was very supportive of this patient-centered measure that provides understandable information about complications. The measure developer noted that this measure was developed as a by-product of their work for the Prometheus episode payment model[5] and the episode for chronic conditions is one year. When determining the appropriate care a patient should receive during an episode, the developers created the concept of "potentially avoidable complications" (PACs) – things that should not generally occur to patients. The PACs were identified by an expert panel (convened by the measure developer) as three types: PACs associated with the index condition, PACs associated with co-morbidities, and PACs associated with a patient safety failure. The measure is a sum of all PACs occurring during the year as determined by coding from administrative data. The developers advise that present on admission conditions are not included in the PACs nor are patient factors that are considered risk factors. To date the measure has been developed only in the commercial population for patients below 65 years of age. The developers acknowledge that not all PACs may be avoidable all of the time and a target of 0 percent is not appropriate. Current performance on this measure is approximately 70 percent, which indicates much room for improvement. This measure is not appropriate for use at the individual clinician level and should only be used at the group, plan, or system level of analysis. This measure addresses the priority area of patient safety.

OT1-030-09: Proportion of AMI patients that have a potentially avoidable complication (during the index stay or in the 30-day post-discharge period) (BTE)
Percent of adult population aged 18-65 years who were admitted to a hospital with acute myocardial infarction (AMI), were followed for one month after discharge, and had one or more

potentially avoidable complications (PACs). PACs may occur during the index stay or during the 30-day post discharge period.

This measure counts the PACs for 30 days after a primary discharge diagnosis of AMI. The Committee discussed the risk-adjustment methodology used with the developers who reported that RAND is comparing this methodology to other methods. Committee members were supportive of the model, which is based on a combination of factors with both clinical significance and as well as statistical significance. The Committee felt risk models should include risk factors that are clinically meaningful and not just statistically significant. The Committee agreed that the model may evolve over time with more use. The developers explained that CABG patients are excluded as they represent a slightly different population. The Committee recommended this measure because it is meaningful to patients and highlights important adverse outcomes. The measure addresses the priority area of patient safety.

OT1-031-09: Proportion of stroke patients that have a potentially avoidable complication (during the index stay or in the 30-day post-discharge period) (BTE)

Percent of adult population aged 18-65 years who were admitted to a hospital with stroke, were followed for one month after discharge, and had one or more potentially avoidable complications (PACs). PACs may occur during the index stay or during the 30-day post discharge period.

Similar to measure #OT1-030-09, this measure counts the PACs for patients discharged with stroke. The developer acknowledged that some PACs are not entirely preventable. The measure developer's expert panel believed that while some complications might be preventable, all complications were included because the goal is not to reach zero PACs but to reduce PACs from current high levels. The Committee recommended the measure because it provides important information for patients and offers an important outcome to improve. The measure addresses the priority area of patient safety.

OT2-013-09: Proportion of pneumonia patients that have a potentially avoidable complication (during the index stay or in the 30-day post-discharge period) (BTE)

Percent of adult population aged 18-65 years who were admitted to a hospital with pneumonia, were followed for one month after discharge, and had one or more potentially avoidable complications (PACs). PACs may occur during the index stay or during the 30-day post discharge period.

This measure counts the PACs for 30 days after hospitalization with a primary diagnosis of pneumonia. As they had with other PAC measures described above, the Committee rated the measure very highly on importance, usability, and feasibility. Consumer members noted the great salience for patients. The measure addresses the priority area of patient safety.

OT1-010-09): Acute myocardial infarction (AMI) mortality rate (Agency for Healthcare Research & Quality [AHRQ])

Number of deaths per 100 discharges with a principal diagnosis code of acute myocardial infarction.

This measure provides a rate of in-hospital AMI mortality using administrative data. It was compared to another in-hospital AMI mortality measure from The Joint Commission that is currently endorsed by NQF. The Joint Commission is no longer reporting their in-hospital AMI mortality measure on their website in favor of CMS's 30-day mortality measure. This candidate AMI mortality measure from AHRQ differs from those measures in that the risk-adjustment model is based on all patient refined diagnosis related groups (APR DRGs), uses administrative coding rather than manual medical record abstraction, and does include transfers into the facility. Reliability of the coding was demonstrated to be 9398 percent. The population measured is determined by the principal diagnosis and the definition of AMI is harmonized with the endorsed 30-day AMI mortality measure from CMS. Committee members asked the developers whether the 30 percent of AMI patients that are excluded with a secondary AMI diagnosis who were not captured in the measure currently. The developer clarified that most excluded patients experienced an AMI postoperatively and the Committee suggested that future measures should address this population.

OT1-013-09: The STS CABG composite score (Society of Thoracic Surgeons [STS])

This multidimensional performance measure is comprised of four domains consisting of 11 individual NQF-endorsed cardiac surgery metrics: (1) operative care—use of the internal mammary artery; (2) perioperative medical care (use of preoperative beta blockade; discharge beta blockade, antiplatelet agents, and lipid-lowering agents—an "all-or-none" measure); (3) risk-adjusted operative mortality; and (4) risk-adjusted postoperative morbidity (occurrence of postoperative stroke, renal failure, prolonged ventilation, re-exploration, or deep sternal wound infection—an "any-or-none" measure).

The STS database collects data from 90 percent of hospitals performing CABG surgery and 95 percent of all of the CABG surgeries performed in the United States. The Committee generally supported the method of combining process and outcome measures to create a summary score and noted the equal weightings of the four domains. The Committee, however, had numerous concerns with the specified 98 percent confidence levels required for reporting the measure and the embedded star reporting system as reporting protocols have not been specified in other NQF-endorsed measures. The Committee expressed numerous concerns with the specifics of the reporting system presented with this measure. The use of 98 percent confidence limits was felt to be unprecedented and atypical for performance measurement and the Committee strongly recommended that NQF adopt standard statistical reporting criteria that embraces the more typical 95 percent confidence interval used by most reporting initiatives. Many Committee members voiced concern that the star system does not provide understandable information for the public as the public might interpret the one, two, and three stars as good, better, and best, respectively, when, according to the developers, the stars indicate performing below the STS average, performing at the STS average, and performing above the STS average, respectively.

The Steering Committee recommended the composite measure methodology with a numerical result and confidence intervals only. The Committee did not recommend that the star reporting system using the 98 percent confidence intervals be part of the endorsement. Until NQF establishes policies addressing the inclusion of reporting mechanisms, the Committee recommended the composite measure should be endorsed without an embedded reporting mechanism.

In addition, the Committee recommended that NQF consider adopting overall policies that distinguish between how the measure is calculated and how it is reported. If reporting mechanisms are to be considered by NQF, appropriate evaluation criteria, testing, and standards should be established.

OT1-029-09: Diabetes composite (National Committee for Quality Assurance [NCQA])

The percentage of individuals 18-75 years of age with diabetes (type 1 and type 2) who had each of the following:

- *HbA1c poor control (>9.0 percent)**
- *HbA1c control (<8.0 percent)*
- *HbA1c control for a special population (<7.0 percent)*
- *Blood pressure control (≥140/90 mm Hg)**
- *Eye examination*
- *Smoking status and cessation advice or treatment*
- *LDL control (≥130 mg/dL)*
- *LDL control (<100 mg/dL)*
- *Nephropathy assessment*

This composite measure includes eight endorsed component measures which were recently reviewed by the Diabetes TAP for their scheduled maintenance review. While the Committee did not recommend endorsement of the measure *#OT1-028-09 HbA1c control (<7.0 percent)* as a standalone measure as discussed later in this report, the Committee was supportive of all three HbA1c control measures being used together to describe the complete picture of diabetes management by a provider. The composite uses threshold cutoffs and weights to generate a summary score out of a possible 100 points.

OT2-005-09: 30-day post-hospital PNA (pneumonia) discharge care transition composite measure (Brandeis University/Centers for Medicare & Medicaid Services [CMS])

This measure scores a hospital on the incidence among its patients during the month following discharge from an inpatient stay having a primary diagnosis of PNA for three types of events: readmissions, ED visits, and evaluation and management (E&M) services.

This pneumonia transition composite measure is similar to the care transition composite measures for AMI and heart failure that were recommended in the first report of Patient Outcomes Phases 1 and 2. This composite measure combines the NQF-endorsed® 30-day readmission measure for pneumonia and two new measures: 30-day ED visit measure and 30-day E&M service measure. All three component measures are risk-adjusted using the same risk-adjustment methodology as the previously recommended measures. The Committee rated the measure very highly on importance, usability, and feasibility. The Committee evaluated the new component measures and found them to be satisfactory as components for the composite measure though not sufficiently usable as stand alone measures. The composite measure addresses the priority area of care coordination.

OT2-002-09: Risk-adjusted colorectal surgery outcomes measure (American College of Surgeons [ACS])

This is a hospital based, risk-adjusted, case-mix-adjusted morbidity and mortality composite outcome measure of adults 18+ years undergoing colorectal surgery.

This surgery outcome measure captures mortality and major morbidity for colorectal surgery and the measures is currently used in the National Surgical Quality Improvement Program (NSQIP)[6] where 270 hospitals participate. The measure has been specified for broader implementation by hospitals who do not participate in NSQIP. The risk-adjustment model uses a parsimonious set of clinical risk factors collected in the database. The sample size requirement of 65 cases per year would capture only 40 percent to 50 percent of hospitals but would capture 85 percent of colorectal surgery cases. Overall, the Steering Committee rated the measure highly though rated feasibility lower given the reliance on clinical data that could not be collected using administrative data. The measure addresses the priority area of patient safety.

OT1-015-09: Risk-adjusted case-mix-adjusted elderly outcomes measure (ACS)

This is a hospital based, risk-adjusted, case-mix-adjusted elderly surgery aggregate clinical outcomes measure of adults 65 years of age and older.

This surgery outcomes measure captures mortality and major morbidity for many different surgeries. Groups of risk-similar surgeries are scaled and the scores are used in the regression model. The Committee supported the broad scope of the measure and clarified with the developer that hip fractures from standing or walking would be included in the measure, though a fracture from a fall or other major trauma would not be. Committee members suggested that a separate measure for outcomes of hip fracture would fill a huge gap for the elderly population as well as a similar measure for patients under the age of 65. As with the colorectal surgery measure, Committee member highlighted the data abstraction burden and the need to conform to the NSQIP methodology as challenges to feasibility for non-NSQIP hospitals. This measure addresses the priority area of patient safety.

Candidate Consensus Standards not Recommended for Endorsement

OT1-011-09: Post-operative stroke or death in asymptomatic patients undergoing carotid endarterectomy (Society for Vascular Surgery [SVS])

Percentage of patients without carotid territory neurologic or retinal symptoms within the 12 months immediately preceding carotid endarterectomy (CEA) who experience stroke or death following surgery while in the hospital. This measure is proposed for both hospitals and individual surgeons.

Stroke and death are typical outcomes to assess in patients undergoing carotid endarterectomy (CEA). The Committee has numerous concerns with this in-hospital measure for asymptomatic patients undergoing CEA, including the 2-day average length of stay for carotid endarterectomy patients which limits the window for capturing stroke complications and the lack of a standardized evaluation for stroke. TAP members noted the variation in diagnosis of stroke depending on whether the assessment is performed by the surgeon, a neurologist or use of a standardized assessment tool. Committee members also noted that the measure does not address the appropriate use of carotid endarterectomy procedures, which may be another focus for

measurement. In addition, data were not provided by the measure developer on the reliability of the results and the stroke diagnosis.

OT1-012-09: Coronary artery bypass graft (CABG) procedure and postoperative stroke during the hospitalization or within 7 days of discharge (Ingenix)

This measure identifies patients 20 years and older with a coronary artery bypass graft (CABG) procedure who had a postoperative stroke (CVA) during the hospitalization or within seven days of discharge.

NQF has previously endorsed a risk-adjusted, 30-day postoperative stroke morbidity measure for CABG patients from STS. The Committee did not believe that this candidate measure provided added value as it is not risk-adjusted and includes a shorter observation period. The Cardiovascular TAP noted that strokes are more frequently identified by neurologists rather than surgeons and that use of a stroke assessment tool would standardize capture of the data.

OT1-028-09: HbA1c control for a selected population (National Committee for Quality Assurance [NCQA])

Comprehensive diabetes care: The percentage of patients 18-65 years of age with either type I or type II diabetes who had an HbA1c level of less than or equal to 7.0 percent.

This candidate standard is part of a group of process and outcome measures for diabetes, most of which have been endorsed by NQF. This measure assesses a smaller population compared to the other HbA1c control measures, focusing on younger patients without significant comorbidities. The Diabetes/Metabolic TAP and Steering Committee members discussed the implications of the recent published results of the ADVANCE[7] and ACCORD trials,[8,9] that suggested that very strict control does not lead to better clinical outcomes and may be associated with significant side effects. Committee members also noted that the measure is not risk-adjusted. The Committee thought this measure would be valuable when used with the other NQF-endorsed HbA1c control measures (#0575: HgbA1c <8% and #0059: HgbA1c >9%) as a group, but not as a stand-alone measure. The measure developer did not agree with grouping the three HbA1c control measures

together so the Committee did not recommend this measure, except within the diabetes composite measure.

OT2-003-09: 30-day post-hospital PNA discharge ED measure (Brandeis University/CMS)

This measure estimates the percentage of Medicare beneficiaries age 65 years and older discharged from the hospital with the diagnosis of pneumonia (PNA) who had an emergency department (ED) visit within 30 days of the hospital discharge and prior to any hospital readmission.

OT2-004-09: 30-day post-hospital PNA discharge evaluation and management service visit measure (Brandeis University/CMS)

This measure estimates the percentage of eligible Medicare hospital discharges with a diagnosis of pneumonia (PNA) for which beneficiaries receive an evaluation and management (E&M) service within 30 days of hospital discharge and prior to a hospital readmission or ED visit.

These two measures are included in the recommended pneumonia care transition composite measure previously recommended. As with the care transition composite measures for heart failure and AMI, the Committee did not consider the individual measures for ED visits and E&M service sufficiently strong as stand-alone measures. Concerns were raised by some Committee members on the use of a hierarchical risk model and they pointed to the information provided in the technical report that demonstrates that application of the hierarchical model eliminated 50 percent of the outliers.

OT2-008-09: Bariatric surgery and complications during the hospitalization or within 180 days of discharge (Ingenix)

This measure identifies patients 12 years and older with bariatric surgery who had a defined complication during hospitalization or within 180 days of discharge.

OT2-012-09: Bariatric surgery and complications during the hospitalization or within 30 days of discharge (Ingenix)

This measure identifies patients 12 years and older with bariatric surgery who had a defined complication during hospitalization or within 30 days of discharge.

The GI/Biliary TAP and Steering Committee had concerns with the lack of risk adjustment for these measures. Committee members felt that patient risk was likely to vary based on degree of obesity (body mass index [BMI]) 30-35 compared to BMI >50), type of surgery (laparoscopy compared to open surgical procedures) and comorbidities. The developer offered possible stratifications for BMI (30-34.9; 35-39.9 and >40) by four types of procedure or by the number of co-morbidities. The developer noted that only 55 percent of bariatric surgery cases include the codes to capture BMI. Committee members felt that these measures need further development and testing to determine the best methods to adjust for patient risk factors before they could be considered for endorsement.

OT2-015-09: Functional assessment of chronic illness therapy-fatigue (FACIT-F) (FACIT*)*

The Functional Assessment of Chronic Illness Therapy-Fatigue Scale (FACIT-F Scale) is a 13-item questionnaire that assesses self-reported fatigue and its impact upon daily activities and function. It was developed in 1994-1995 to meet a growing demand for the precise evaluation of fatigue associated with anemia in cancer patients. Subsequent to its development, it has been employed in over 70 published studies including over 20,000 people. Since 1995, studied groups have included cancer patients receiving chemotherapy, cancer patients not receiving chemotherapy, long term cancer survivors, childhood cancer survivors and several other clinical samples including people with rheumatoid arthritis, multiple sclerosis, psoriasis, paroxysmal nocturnal hemoglobinuria, and Parkinson's disease, as well as the general United States population. In all cases, the FACIT-F Scale has been found to be reliable and valid. It has been validated for use in adults with chronic health conditions. There is also a validated modified version suitable with pediatric populations. It has been translated into over 60 non-English languages.

OT2-016-09: Functional assessment of cancer therapy-lung (FACT-L) (FACIT*)*

The Functional Assessment of Cancer Therapy-Lung (FACT-L) Scale is a 36-item self-report instrument which measures multidimensional quality of life. It was developed from 1987-1993

and was first published in 1995. The FACT-L meets a growing need for disease-specific health-related quality of life (HRQOL) questionnaires that address the general and unique concerns of patients diagnosed with lung cancer. Subsequent to its development, it has been employed in over 20 papers from 15 unique data sets including over 2,500 people with lung cancer. Since 1995, studied groups have included cancer patients receiving chemotherapy, cancer patients receiving radiotherapy, terminally-ill patients, and disease-free survivors. In all cases, the FACT-L scale has been found to be reliable and valid. It has been validated with adult lung cancer patients and disease-free survivors.

OT2-017-09: Functional assessment of cancer therapy-breast (FACT-B) (FACIT*)*

The measurement system, under development since 1987, began with the creation of a generic CORE questionnaire called the Functional Assessment of Cancer Therapy-General (FACT-G). The FACT-G (now in Version 4) is a 27-item compilation of general questions divided into four primary QOL domains: physical well-being, social/family well-being, emotional well-being, and functional well-being. It is considered appropriate for use with patients with any form of cancer, and has also been used and validated in other chronic illness conditions (e.g., HIV/AIDS and multiple sclerosis) and in the general population (using a slightly modified version). In the case of FACT-B, it is comprised of the aforementioned FACT-G plus the 9-item BCS (breast cancer subscale). Combined, the questionnaire is called the FACT-B.

OT2-019-09: Functional assessment of cancer therapy-general version (FACT-G) (FACIT*)*

The FACIT Measurement System is a collection of QOL questionnaires targeted to the management of chronic illness. "FACIT" (Functional Assessment of Chronic Illness Therapy) was adopted as the formal name of the measurement system in 1997 to portray the expansion of the more familiar "FACT" (Functional Assessment of Cancer Therapy) series of questionnaires into other chronic illnesses and conditions. Thus, FACIT is a broader, more encompassing term that includes the FACT questionnaires under its umbrella. The measurement system, under development since 1987, began with the creation of a generic CORE questionnaire called the Functional Assessment of Cancer Therapy-General (FACT-G). The FACT-G (now in Version 4) is a 27-item compilation of general questions divided into four primary QOL domains: physical well-being, social/family well-being, emotional well-being, and functional well-being. It is

considered appropriate for use with patients with any form of cancer, and has also been used and validated in other chronic illness conditions (e.g., HIV/AIDS and multiple sclerosis) and in the general population (using a slightly modified version).

These measures are a sample of patient–level survey tools available from Functional Assessment of Chronic Illness Therapy (FACIT)[11] that assess patient functioning and quality of life that are generally used in clinical trials and care management. The tools are well-tested and widely used at the individual patient level; however, the tools have not been used to assess the quality of care at a clinician or practice level. The Cancer TAP and Steering Committee agreed the survey tools are excellent, but believed that additional work was needed to determine how they could be used for public reporting and making comparisons among providers.

Candidate Consensus Standards without Final Recommendation

OT1-009-09: Optimal diabetes care (Minnesota Community Measurement)

The percentage of adult diabetes patients who have optimally managed modifiable risk factors (A1c, LDL, blood pressure, tobacco non-use, and daily aspirin usage) with the intent of preventing or reducing future complications associated with poorly managed diabetes.

Patients ages 18-75 with a diagnosis of diabetes, who meet all the numerator targets of this composite measure: A1c <8.0, LDL <100, blood pressure (BP) <130/80, tobacco non-user, and for patients age 41+ daily aspirin use unless contraindicated.

The Committee noted that this "all or none" composite measure aligns with endorsed component measures with the exception of the BP target level at <130/80. Committee members referred to the recently published results of the ACCORD trial[10] that did not find improved outcomes for aggressive blood pressure management below 140/90, while the occurrence of adverse outcomes such as syncope were higher. The Committee generally supported the measure but asked the developers about any potential changes to the measure in light of the ACCORD trial. The developers responded that the measure is based on the guidelines from the Institute for Clinical Systems Improvement (ICSI) and they will wait until any changes are made to the guidelines before considering changes to the measure. ICSI expects to complete its review of the diabetes

guidelines in August 2010. Overall the Committee was supportive of the measure and would recommend after resolution of the BP threshold. In addition, some Committee members suggested that the developer should also consider including eye exams and screening for renal function.

Gaps in Desirable Outcome Measures

During its deliberations, the Committee noted the lack of measures for important outcomes, particularly in the areas of health status and functional status. As part of the Patient Outcomes project, the TAPs and Committee are formulating recommendations for development of important, desirable outcome measures. The recommendations will be presented in a later report.

Additional Recommendations

1. **Apply measures to the broadest populations possible.**
   The Committee strongly recommends that measure developers consider the broadest application of measures and not include restrictive specifications, such as payer or coverage type, or age limitations, unless appropriate for the condition.

2. **Give more attention to disparities.**
   The Committee strongly recommends that measure developers address measurement of disparities in measure specifications. According to NQF measure evaluation criteria, factors such as race, ethnicity, and socioeconomic status should not be included in risk models; however, the data should be collected to allow for stratification. Some providers serve patient populations that are extremely vulnerable to disparities, and for facilities located in areas of underserved populations, the stratified results would not necessarily be small numbers.

3. **Provide rationale for use of hierarchical modeling.**

Committee members recommend that measure developers provide the rationale for using hierarchical modeling and describe the impact on discrimination and usability of the results for public reporting and quality improvement compared to other methods. The Committee also discussed the use of stepwise modeling that can leave out important confounders or effect modifiers.

4. **Consider endorsing reporting mechanisms.**

NQF should consider whether evaluation and endorsement should extend to reporting mechanisms and rating systems as a general policy for all projects. If so, appropriate criteria should be established for this evaluation.

NOTES

1. Donabedian A, The quality of care. How can it be assessed? *JAMA*, 1988;260(12):1743-1748.
2. National Quality Forum (NQF), *National Priorities Partnership*, Washington, DC: NQF. Available at www.nationalprioritiespartnership.org. Last accessed April 2010.
3. www.qualityforum.org/projects/Patient_Outcome_Measures_Phases1-2.aspx. Last accessed April 2010.
4. NQF, *Measure Evaluation Criteria*, Washington, DC: NQF; 2008. Available at www.qualityforum.org/docs/measure_evaluation_criteria.aspx. Last accessed April 2010.
5. Information regarding the Prometheus payment model is available at www.prometheuspayment.org.
6. Information regarding the American College of Surgeons' National Surgical Quality Improvement Program (NSQIP) is available at https://acsnsqip.org/main/about_overview.asp .
7. Information regarding the Action in Diabetes and Vascular Disease: Preterax and Diamicro MR Controlled Evaluation (ADVANCE) trial is available at www.advance-trial.com/static/html/prehome/prehome.asp.
8. ACCORD Study Group, Effects of intensive glucose lowering in type 2 diabetes, *N Engl J Med,* 2008;358(24):2545-2559. Epub 2008 Jun 6. Press announcement available at http://public.nhlbi.nih.gov/newsroom/home/GetPressRelease.aspx?id=2573.
9. ACCORD Study Group, Effects of intensive blood-pressure control in type 2 diabetes mellitus, *N Engl J Med,* 2010;362(17):1575-1585. Epub 2010 Mar 14.
10. Information regarding the FACIT tools is available at www.facit.org.
11. ACCORD Study Group, Effects of intensive blood-pressure control in type 2 diabetes mellitus, *N Engl J Med,* 2010;362(17):1575-1585. Epub 2010 Mar 14.

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
OT1-010-09	Acute myocardial infarction (AMI) mortality rate	Agency for Healthcare Research and Quality	Number of deaths per 100 discharges with a principal diagnosis code of acute myocardial infarction.	Number of inpatient deaths (DISP = 20) among cases meeting the inclusion and exclusion rules for the denominator.	All discharges, age 18 years and older, with a principal diagnosis code of acute myocardial infarction.	• Missing discharge disposition (DISP = missing) • Transferring to another short-term hospital (DISP = 2) • MDC 14 (pregnancy, childbirth, and puerperium) Case-Mix Adjustment: Adjustments were made for age, 3M™ All Patient Refined Diagnosis	Electronic adminstrative data/claims	Facility/ Agency

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						Groups Risk of Mortality subclass, MDC and transfer in status using a regression-based standardization methodology.		
OT1-013-09	The STS CABG composite score©	The Society of Thoracic Surgeons (STS)	This multidimensional performance measure is comprised of four domains consisting of 11 individual NQF-endorsed cardiac surgery metrics: 1) Operative Care	Due to the complex methodology used to construct the composite measure, it is impractical to separately discuss the numerator and denominator. The following discussion	Please see response in numerator statement above.	Please see response in numerator statement above.	Electronic health/ medical records, electronic clinical data, registry data, lab data, pharmacy data, paper medical record/	Facility/ Agency

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			(use of the internal mammary artery); 2) Perioperative Medical Care (use of preoperative beta blockade, discharge beta blockade, antiplatelet agents, and lipid-lowering agents—an "all-or-none" measure); 3) Risk-adjusted Operative Mortality; and 4) Risk-adjusted Postoperative Morbidity (occurrence of	describes how each domain score is calculated and how these are combined into an overall composite score. Additional documentation is available in the attached article published as a supplement of *The Annals of Thoracic Surgery*.			flowsheet	

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			postoperative stroke, renal failure, prolonged ventilation, re-exploration, or deep sternal wound infection—an "any-or-none" measure). All measures are based on audited clinical data collected in a prospective registry and are risk-adjusted (with the exception of internal mammary					

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			artery use and the four perioperative medications). Based on their percentage scores, a 1 (below average), 2 (average), or 3 (above average) star rating is provided for each STS database participant for each performance domain and overall. Furthermore, the composite score is also					

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			deconstructed into its components to facilitate performance improvement activities by providers. This scoring methodology has now been implemented for over two years and has become for many stakeholders the preferred method of evaluating cardiac surgery performance. STS plans to make this report publicly					

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			available in the near future. (Additional materials are available upon request.)					
OT1-015-09	Risk adjusted case mix adjusted elderly surgery outcomes measure	American College of Surgeons	This is a hospital-based, risk-adjusted, case mix-adjusted, elderly surgery, aggregate, clinical outcomes measure of adults 65 years of age and older.	The outcome of interest is hospital-specific risk-adjusted mortality, a return to the operating room, or any of the following morbidities as defined by American College of Surgeons National Surgical Quality Improvement	Patients undergoing any ACS NSQIP listed (CPT) surgical procedure who are 65 years of age or older (see separate list of ACS NSQIP CPT codes). Data are derived from a systematic sample collected	Adjustments: From 271,368 patient records in the 2008 ACS NSQIP data file, 83,832 acceptable records from 211 hospitals (mean/hospital = 397) were analyzed. Records were included if	Electronic Health/ Medical Records, Electronic clinical data, paper medical record/ flowsheet	Facility/ Agency

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				Program (ACS NSQIP): Cardiac arrest requiring CPR, myocardial infarction, DVT requiring therapy, sepsis, septic shock, deep incisional SSI, organsSpace SSI, wound disruption, unplanned reintubation without prior ventilator dependence, pneumonia without pre-operative pneumonia, pulmonary	over a one-year period constructed to meet sample size requirements specified for the measure.	patients were 65 years of age or older and excluded either because of missing values for critical variables or because the primary CPT code could not be categorized into 1 of the 136 pre-established CPT "Groups." These categorizations have been defined and implemented for risk-adjustment		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				embolism, progressive renal insufficiency or acute renal failure without pre-operative renal failure or dialysis, or UTI within 30 days of any ACS NSQIP listed (CPT) surgical procedure. Targeted events within 30 days of the operation are included.		in previously published research.* An outcome was defined as 30-day mortality or any serious morbidity including: cardiac arrest requiring CPR, myocardial infarction, DVT requiring therapy, sepsis, septic shock, organ space SSI, deep incisional SSI,		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						wound disruption, unplanned reintubation without prior ventilator dependence, pneumonia without pre-operative pneumonia, pulmonary embolism, progressive renal insufficiency or acute renal failure without pre-operative renal failure or dialysis, urinary		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						tract infection, or return to the operating room, according to ACS NSQIP definitions. Of the 83,832 patients, 13,960 (16.7%) experienced death or a serious morbidity event. CPT Group was originally considered a categorical variable but, because of frequent empty		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						cells, which precluded logistic model convergence (quasi-complete separation), CPT Group was converted to continuous risk variable. This was accomplished by making the categorical Group variable a single predictor for mortality/morbidity and invoking the Firth penalized		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						likelihood method in the logistic modeling software (SAS PROC LOGISTIC). For one CPT Group, composed of only two subjects, both of whom experience an event, the estimated log odds was unacceptably large and was replaced by the next largest		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						value. The patient-based predicted log odds from this model was then used as a continuous predictor in subsequent logistic models, which also included the standard predictors. Step-wise logistic regression (P < 0.05 for inclusion), which selected		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						from a total of 26 NSQIP predictors, identified 21 predictors for inclusion in the model. In order of inclusion these variables were: Log Odds CPT Group, pre-operative Functional Status, ASA Class, Emergent, history of COPD, Wound Class, Ventilator		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						Dependent, Weight Loss, Dyspnea, Steroid Use, Disseminated Cancer, Age Group, Ascites, Smoking, Bleeding Disorder, Radio Therapy, BMI Class, Previous Vascular Event/Disease, Alcohol Use, Previous Neurological Event/Disease, and Diabetes. The c-statistic was 0.774 and		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						the Hosmer-Lemeshow was 0.002. Because of the very large sample sizes studied here, a statistically significant Hosmer-Lemeshow statistic is not considered informative with respect to calibration. Using only the first three selected variables (Log Odds CPT		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						Group, Functional Status, and ASA Class), the c-statistic was 0.764 and the Hosmer-Lemeshow was 0.002. The use of these three predictors for modeling was further evaluated. Using a 95% confidence interval for the ratio of observed to expected events (O/E), this		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						three-variable logistic model identified 30 statistical outliers (16 low outliers and 14 high outliers). When the same three variables were used in a random intercept, fixed slope, hierarchical model (SAS PROC GLIMMIX) using only the fixed portion of the prediction equation		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						(NOBLUP option), 28 outliers were detected (14 low outliers and 14 high outliers). Thus, using a 95% confidence interval, logistic and hierarchical models identified 7% of hospitals as high outliers. When the logistic model parameters were applied to an independent validation data		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						set (the 2007 data file composed of 65,056 patients) after coding CPT Groups with log odds derived from the original one-variable model on 2008 data, the c-statistic was essentially unchanged (c-statistic = 0.762). A GEE (generalized estimating equations)		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						approach (SAS PROC GENMOD) with compound symmetry was used to estimate the intraclass correlation (ICC), which is reported in GENMOD as the exchangeable working correlation. The ICC was 0.00377. The relationship between sample size, the ICC, and reliability is		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						defined as: $N = R / [ICC(1 – R)] – R / (1 – R)$, where N is the required number patients per hospital and R is reliability. Based on the estimated ICC, patients per hospital to achieve reliability levels of 0.3, 0.4, 0.5, 0.6, and 0.7 are 114, 177, 265, 397, and 617, respectively.		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						For the table detailing risk factors, odds ratios, and parameters for the logistic model, please see attachment (Parsimonious Model for Elderly.doc). For initial year(s) of measure use, ACS NSQIP data-derived model parameters will be used to construct risk-		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						adjusted O/E ratios for participating hospitals. Once data from measure-participating hospitals is substantial, models will be derived from that data. *References utilizing CPT groups Exclusions: Major multisystem trauma and		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						transplant surgeries are excluded as are surgeries not on the ACS NSQIP CPT list as eligible for selection. Patients who are ASA 6 (brain-death organ donor) are not eligible surgical cases. Surgeries following within 30 d of an index procedure are an outcome (return to OR) and are not		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						eligible to be new index cases.		
OT1-029-09	Comprehensive diabetes care	National Committee for Quality Assurance	The percentage of individuals 18-75 years of age with diabetes (type 1 and type 2) who had each of the following: • Hemoglobin A1c (HbA1c) testing • HbA1c poor control (>9.0%) • HbA1c control (<8.0%) • HbA1c control (<7.0%)* • Eye exam	Percentage of members 18-75 years of age with diabetes (type 1 and 2) who had each of the following: 1) HbA1c Testing—An HbA1c test performed during the measurement year as identified by claim/encounter or automated lab data.	Members with diabetes (type 1 and 2) as of December 31 of the measurement year	Optional Exclusions: • Members with a diagnosis of polycystic ovaries who did not have any face-to-face encounters with a diagnosis of diabetes, in any setting, during the measuremen	Electronic adminstrative data/claims, Electronic Health/ Medical Record, Electronic clinical data, Lab data, pharmacy data	Clinicians: Group, Clinicians: Individual, Clinicians: Other

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			(retinal) performed • LDL-C screening • LDL-C control (<100 mg/dL) • Medical attention for nephropathy • BP control (<130/80 mm Hg) • BP control (<140/90 mm Hg)	2) HbA1c Poor Control >9%—Use automated lab data to identify the most recent HbA1c test during the measurement year. The member is numerator compliant if the most recent automated HbA1c level is >9.0% or is missing a result or if an HbA1c test was not done during the measurement		t year or the year prior to the measurement year. • Members with gestational diabetes or steroid-induced diabetes who did not have any face-to-face encounters with a diagnosis of diabetes, in any setting,		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				year. The member is not numerator compliant if the automated result for the most recent HbA1c test during the measurement year is ≤9.0%. An organization that uses CPT Category II codes to identify numerator compliance for this indicator must search for all codes and use the most recent code during the		during the measurement year or the year prior to the measurement year.		

The following table presents the detailed specifications for the proposed consensus standards. All information presented has been derived directly from measures developers without modification or alteration (except where measure developers agreed to such modifications) and is current as of June 01, 2010. All proposed voluntary consensus standards are open source, meaning they are fully accessible and disclosed. Measures were developed by the Phillip R. Lee Institute for Health Policy Studies at the University of California at San Francisco; Bridges to Excellence; Yale University; Brandeis University; the Agency for Healthcare Research and Quality; the National Committee for Quality Assurance; the Centers for Medicare and Medicaid Services (CMS); The Society of Thoracic Surgeons; the American College of Surgeons; and the American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR).

Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				measurement year to evaluate whether the member is numerator compliant. Note: For this indicator, a lower rate indicates better performance (i.e., low rates of poor control indicate better care). 3) HbA1c Control <8%—Use automated laboratory data to identify the most recent HbA1c test				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				during the measurement year. The member is numerator compliant if the most recent automated HbA1c level is <8.0%. The member is not numerator compliant if the automated result for the most recent HbA1c test is ≥8.0% or is missing a result, or if an HbA1c test was not done during the measurement year. An				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				organization that uses CPT Category II codes to identify numerator compliance for this indicator must search for all codes and use the most recent code during the measurement year to evaluate whether the member is numerator compliant. 4) HbA1c Control <7%—Use automated				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				laboratory data to identify the most recent HbA1c test during the measurement year. The member is numerator compliant if the most recent automated HbA1c level is <7.0%. The member is not numerator compliant if the automated result for the most recent HbA1c test is ≥7.0% or is missing a result, or if an HbA1c test was not done				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				during the measurement year. An organization that uses CPT Category II codes to identify numerator compliance for this indicator must search for all codes and use the most recent code during the measurement year to evaluate whether the member is numerator compliant. Note: This				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				indicator uses the eligible population with additional eligible population criteria (e.g., removing members with required exclusions). 5) Eye Exam—An eye screening for diabetic retinal disease as identified by administrative data. This includes diabetics who had one of the following:				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				• A retinal or dilated eye exam by an eye care professional (optometrist or ophthalmologist) in the measurement year, or • A negative retinal exam (no evidence of retinopathy) by an eye care professional in the year prior to the measurement year. Refer to codes to identify eye				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				exams. For exams performed in the year prior to the measurement year, a result must be available. 6) LDL-C Screening—An LDL-C test performed during the measurement year, as identified by claim/ encounter or automated laboratory data. The organization may use a calculated or direct LDL for				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				LDL-C screening and control indicators. 7) LDL-C Control <100 mg/dL—Use automated laboratory data to identify the most recent LDL-C test during the measurement year. The member is numerator compliant if the most recent automated LDL-C level is <100 mg/dL. If the automated result for the most				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				recent LDL-C test during the measurement year is ≥100 mg/dL or is missing, or if an LDL-C test was not done during the measurement year, the member is not numerator compliant. An organization that uses CPT Category II codes to identify numerator compliance for this indicator must search for all codes and use				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				the most recent code during the measurement year to evaluate whether the member is numerator compliant. 8) Medical Attention for Nephropathy—A nephropathy screening test or evidence of nephropathy, as documented through administrative data.				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				9) BP Control <130/80 mmHg—Use automated data to identify the most recent BP reading during the measurement year. The member is numerator compliant if the BP is <130/80 mmHg. The member is not compliant if the BP is ≥130/80 mmHg or if there is no automated BP reading during the measurement				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				year. If there are multiple BPs on the same date of service, use the lowest systolic and lowest diastolic BP on that date as the representative BP. An organization that uses CPT Category II codes to identify numerator compliance for this indicator must search for all codes and use the most recent codes during the measurement year				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				to evaluate whether the member is numerator compliant for both systolic and diastolic levels. 10) BP Control <140/90 mmHg—Use automated data to identify the most recent BP reading during the measurement year. Refer to Table CDC-N and use the most recent code to evaluate whether the member is				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				numerator compliant. The member is numerator compliant if the BP is <140/90 mmHg. The member is not compliant if the BP is ≥140/90 mmHg or if there is no automated BP reading during the measurement year. If there are multiple BPs on the same date of service, use the lowest systolic and lowest diastolic BP on				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				that date as the representative BP. An organization that uses CPT Category II codes to identify numerator compliance for this indicator must search for all codes and use the most recent codes during the measurement year to evaluate whether the member is numerator compliant for both systolic and diastolic levels.				

NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PATIENT OUTCOMES, SECOND REPORT FOR PHASES 1 AND 2: A CONSENSUS REPORT
APPENDIX A: MEASURE SPECIFICATIONS

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
OT1-030-09	Proportion of patients hospitalized with AMI that have a potentially avoidable complication (during the index stay or in the 30-day post-discharge period)	Bridges To Excellence	Percent of adult population aged 18-65 years who were admitted to a hospital with acute myocardial infarction (AMI), were followed for one month after discharge, and had one or more potentially avoidable complications (PACs). PACs may occur during the index stay or during the 30-day post-discharge period. We define PACs	Outcome: Potentially avoidable complications (PACs) in patients hospitalized for AMI occurring during the index stay or in the 30-day post-discharge period. The time window starts with a hospitalization for AMI and continues for one month after discharge.	Adult patients aged 18-65 years who had a relevant hospitalization for AMI (with no exclusions) and were followed for one month after discharge. The time window starts with a hospitalization for AMI and continues for one month after discharge.	Denominator exclusions include exclusions of either “patients” or “claims” based on the following criteria: 1) “Patients” excluded are those that have any form of cancer, ESRD (end-stage renal disease), transplants such as lung or heart-lung transplant or	Electronic adminstrative data/claims, Pharmacy data A two-year, national commercially insured population (CIP) claims database was used as our developmental database. The database had 4.7 million covered lives and $95	Clinicians: group, health plan, Population: national, Population: regional/network. Population: states, Population: counties or cities

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			during each time period as one of three types: A) PACs During the Index Stay (Hospitalization): 1) PACs related to the index condition: The index stay is regarded as having a PAC if during the index hospitalization the patient develops one or more complications such as cardiac arrest, ventricular fibrillation,			complications related to transplants, pregnancy and delivery, HIV, or suicide. 2) "Claims" are excluded from the AMI measure if they are considered not relevant to AMI care or are for major surgical services that suggest that AMI may be a comorbidity associated with the procedure, e.g., CABG	billion in "allowed amounts" for claims costs. The database was an administrative claims database with medical as well as pharmacy claims. The methodology can be used on any claims database with at least two years of data and a	

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			cardiogenic shock, stroke, coma, acute post-hemorrhagic anemia, etc. that may result directly due to AMI or its management. 2) PACs due to comorbidities: The index stay is also regarded as having a PAC if one or more of the patient's controlled comorbid conditions is exacerbated during the			procedure. Patients where the index hospitalization claim is excluded are automatically excluded from both the numerator and the denominator. Risk-Adjustment Conceptual Model: Variations in outcomes across populations may be due to	minimum of 150 patients with the index condition or hospitalization. Having pharmacy data adds to the richness of the risk-adjustment models. A standardized SAS-based program has been developed that users could	

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			hospitalization (i.e., it was not present on admission). Examples of these PACs are diabetic emergency with hypo- or hyperglycemia, tracheostomy, mechanical ventilation, pneumonia, lung complications gastritis, ulcer, GI hemorrhage, etc. 3) PACs suggesting patient safety failures: The index stay is regarded as			patient-related factors or due to provider-controlled factors. When we adjust for patient-related factors, the remaining variance in PACs is due to factors that could be controlled by all providers that are managing or co-managing the patient, both during and after	download from the website to calculate PAC rates using their own data. The methodology has been tested on databases of several health plans as well as on a few employer databases.	

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			having a PAC if there are one or more complications related to patient safety issues. Examples of these PACs are septicemia, meningitis, other infections, phlebitis, deep vein thrombosis, pulmonary embolism, or any of the CMS-defined hospital acquired conditions (HACs).			hospitalization. We have developed a "severity index" based on patient-related factors such as patient demographics and comorbidities. The severity-adjusted PAC rates give a fair comparison of PAC rates from population to population and help providers determine the		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			B) PACs During the 30-Day Post-Discharge Period: 1) PACs related to the index condition: Readmissions and emergency room visits during the 30-day post-discharge period after an AMI are considered as PACs if they are for angina, chest pain, another AMI, stroke, coma, heart failure, etc. 2) PACs due to comorbidities:			degree of PACs that are not related to patient-level factors but due to factors that they could control and thus result in fewer PACs being incurred by patients and paid for by payers. Methodology Overview: A severity index is calculated for each patient based on the		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			Readmissions and emergency room visits during the 30-day post-discharge period are also considered PACs if they are due to an exacerbation of one or more of the patient's comorbid conditions, such as a diabetic emergency with hypo- or hyperglycemia, pneumonia, lung complications, tracheostomy, mechanical			risk-adjustment model for professional and other services that determines the cost drivers for typical care for a given condition. Demographic variables, comorbid conditions, various types of services as well as different patient-level pharmacy indicators are fed into the model.		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			ventilation, etc. 3) PACs suggesting patient safety failures: Readmissions or emergency room visits during the 30-day post-discharge period are considered PACs if they are due to sepsis, infections, phlebitis, deep vein thrombosis, or for any of the CMS-defined hospital acquired conditions (HACs).			Conditions and services that lead to higher costs and increased resource consumption are weighted more heavily in our model. For example, use of intracoronary thrombolytics or stents in the setting of AMI, are associated with higher coefficients in the model. The model determines the		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			The information is based on a two-year, national, commercially insured population (CIP) claims database. The database had 4.7 million covered lives and $95 billion in "allowed amounts" for claims costs. The database was an administrative claims database with medical as well as pharmacy claims..			patient-level factors that are drivers for increased financial risk. For each patient the "predicted" log coefficients from the severity adjustment model are summed to give the patient-level severity-index. Adjusting the overall PAC rates by the severity index for the population helps		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						adjust for variations in outcomes related to severity.		
OT1-031-09	Proportion of patients hospitalized with stroke that have a potentially avoidable complication (during the index stay or in the 30-day post-discharge	Bridges To Excellence	Percent of adult population aged 18-65 years who were admitted to a hospital with stroke, were followed for one month after discharge, and had one or more potentially avoidable complications (PACs). PACs may occur during	Outcome: Potentially avoidable complications (PACs) in patients hospitalized for stroke occurring during the index stay or in the 30-day post-discharge period. The time window starts with a hospitalization for stroke and	Adult patients aged 18-65 years who had a relevant hospitalization for stroke (with no exclusions) and were followed for one month after discharge. The time window starts with a hospitalization for stroke and	Denominator exclusions include exclusions of either "patients" or "claims" based on the following criteria: 1) "Patients" excluded are those that have any form of cancer, ESRD	Electronic adminstrative data/claims, Pharmacy data A two-year, national, commercially insured population (CIP) claims database was used as our development	Clinicians: Group, Health Plan, Population: national, Population: regional/network, Facility/Agency

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
	period)		the index stay or during the 30-day post-discharge period). We define PACs during each time period as one of three types: A) PACs During the Index Stay (Hospitalization): 1) PACs related to the index condition: The index stay is regarded as having a PAC if during the index hospitalization for stroke the patient	continues for one month after discharge.	continues for one month after discharge.	(end-stage renal disease), transplants such as lung or heart-lung transplant or complications related to transplants, intracranial trauma, pregnancy and delivery, HIV, or suicide. 2) "Claims" are excluded from the stroke measure if they are considered not relevant to stroke care or	al database. The database had 4.7 million covered lives and $95 billion in "allowed amounts" for claims costs. The database was an administrative claims database with medical as well as pharmacy claims. The methodology can be used	

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			develops one or more complications such as hypertensive encephalopathy, malignant hypertension, coma, anoxic brain damage, or respiratory failure, etc. that may result directly from stroke or its management. 2) PACs due to comorbidities: The index stay is also regarded as having a PAC if			are for major surgical services that suggest that stroke may be a comorbidity or complication associated with the procedure, e.g., CABG procedure. Patients where the index hospitalization claim is excluded are automatically excluded from both the numerator and the denominator.	on any claims database with at least two years of data and a minimum of 150 patients with the index condition or hospitalization. Having pharmacy data adds to the richness of the risk-adjustment models. A standardized	

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			one or more of the patient's controlled comorbid conditions is exacerbated during the hospitalization (i.e., it was not present on admission). Examples of these PACs are diabetic emergency with hypo- or hyperglycemia, pneumonia, lung complications, acute myocardial infarction, gastritis, ulcer, GI			Risk-Adjustment: Risk-adjustment devised specifically for this measure/ condition Conceptual Model: Variations in outcomes across populations may be due to patient-related factors or due to provider-controlled factors. When we	SAS-based program has been developed that users could download from the website to calculate PAC rates using their own data. The methodology has been tested on databases of several health plans as well as on	

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			hemorrhage, etc. 3) PACs suggesting patient safety failures: The index stay is regarded as having a PAC if there are one or more complications related to patient safety issues. Examples of these PACs are septicemia, meningitis, other infections, phlebitis, deep vein thrombosis, pulmonary embolism, or any			adjust for patient-related factors, the remaining variance in PACs is due to factors that could be controlled by all providers that are managing or co-managing the patient, both during and after the hospitalization. We have developed a "severity index" based on patient-related	a few employer databases.	

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			of the CMS-defined hospital acquired conditions (HACs). B) PACs During the 30-Day Post-Discharge Period: 1) PACs related to the index condition: Readmissions and emergency room visits during the 30-day post-discharge period after a stroke are considered as PACs if they are for hypertensive			factors such as patient demographics and comorbidities. The severity-adjusted PAC counts give a fair comparison of PACs and PAC rates from population to population and help providers determine the degree of PACs that are not related to patient-level factors but due to factors that		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			encephalopathy, malignant hypertension, respiratory failure, coma, anoxic brain damage, etc. 2) PACs due to comorbidities: Readmissions and emergency room visits during the 30-day post-discharge period are also considered PACs if they are due to an exacerbation of one or more of the patient's comorbid			they could control and thus result in fewer PACs being incurred by patients and paid for by payers. Methodology Overview: A severity index is calculated for each patient based on the risk-adjustment model for professional and other services that determines the cost drivers		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			conditions, such as a diabetic emergency with hypo- or hyperglycemia, pneumonia, lung complications, acute myocardial infarction, acute renal failure, etc. 3) PACs suggesting patient safety failures: Readmissions or emergency room visits during the 30-day post-discharge period are considered PACs if they are due to sepsis,			for typical care for a given condition. Demographic variables, comorbid conditions, various types of services as well as different patient-level pharmacy indicators are fed into the model. Conditions and services that lead to higher costs and increased		

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			infections, deep vein thrombosis, pulmonary embolism, or for any of the CMS-defined hospital acquired conditions (HACs). The information is based on a two-year, national, commercially insured population (CIP) claims database. The database had 4.7 million covered lives and $95 billion in			resource consumption are weighted more heavily in our model. For example, DME use is associated with a higher coefficient in the model. The model determines the patient-level factors that are drivers for increased financial risk. For each patient the "predicted" log coefficients from the		

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			"allowed amounts" for claims costs. The database was an administrative claims database with medical as well as pharmacy claims. The two tabs demonstrate the most common PACs that occurred in patients hospitalized with stroke.			severity-adjustment model are summed to give the patient-level severity index. Summing the patient-level severity index helps derive the population-level severity index. Adjusting the overall PAC rates by the severity-index for the population helps adjust for variations in outcomes		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						related to severity.		
OT2-002-09	Risk adjusted colorectal surgery outcome measure	American College of surgeons	This is a hospital-based, risk-adjusted, case mix-adjusted, morbidity and mortality composite outcome measure of adults 18+ years undergoing colorectal	The outcome of interest is hospital-specific, risk-adjusted mortality, a return to the operating room, or any of the following morbidities as defined by American College	Patients undergoing any ACS NSQIP listed (primary CPT) colorectal surgical procedure. (44140, 44141, 44143, 44144, 44145, 44146,	Adjustments: From 271,368 patient records in the 2008 ACS NSQIP data file, 21,694 acceptable records from 211 hospitals (mean/hospital = 103) were	Electronic Health/ Medical Records, Electronic clinical data, paper medical record/ flowsheet.	Facility/ Agency

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			surgery.	of Surgeons National Surgical Quality Improvement Program (ACS NSQIP): Cardiac arrest requiring CPR, myocardial infarction, DVT requiring therapy, sepsis, septic shock, deep incisional SSI, organ/space SSI, wound disruption, unplanned reintubation without prior ventilator dependence, pneumonia	44147, 44150, 44151, 44155, 44156, 44157, 44158, 44160, 44204, 44205, 44206, 44207, 44208, 44210, 44211, 44212, 45110, 45111, 45112, 45113, 45114, 45116, 45119, 45120, 45121, 45123, 45126, 45130, 45135, 45160, 45395, 45397, 45402, 45550) Notes: following codes are not included in this	analyzed. Records were excluded either because of missing values for critical variables or because the primary CPT code could not be categorized into 1 of the 136 pre-established CPT "Groups." These categorizations have been defined and implemented for risk-adjustment in previously		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				without pre-operative pneumonia, pulmonary embolism, progressive renal insufficiency or acute renal failure without pre-operative renal failure or dialysis, or UTI within 30 days of any ACS NSQIP listed (CPT) surgical procedure. Targeted events within 30 days of the operation are included.	denominator list: 44152 (not found), 44153 (not found), 44239 (not found), 45540 (proctopexy without resection), 45499 (unlisted laparoscopy, rectum).	published research.* An outcome was defined as 30-day mortality or any serious morbidity including: cardiac arrest requiring CPR, myocardial infarction, DVT requiring therapy, sepsis, septic shock, organ space SSI, deep incisional SSI, wound		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						disruption, unplanned reintubation without prior ventilator dependence, pneumonia without pre-operative pneumonia, pulmonary embolism, progressive renal insufficiency or acute renal failure without pre-operative renal failure or dialysis, urinary tract infection,		

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						or return to the operating room, according to ACS NSQIP definitions. Of the 21,694 patients, 4,862 (22.4%) experienced death or a serious morbidity event. CPT Group was originally considered a categorical variable but, to maintain methodological consistency with other		

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						proposed measures, CPT Group was converted to continuous risk variable. This was accomplished by making the categorical Group variable a single predictor for mortality/morbidity and invoking the Firth penalized likelihood method in the logistic modeling		

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						software (SAS PROC LOGISTIC). The patient-based predicted log odds from this model was then used as a continuous predictor in subsequent logistic models, which also included the standard predictors. Step-wise logistic regression (P < 0.05 for		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						inclusion), which selected from a total of 26 NSQIP predictors, identified 20 predictors for inclusion in the model. In order of inclusion these variables were: ASA Class, pre-operative Functional Status, Indication, Log Odds CPT Group, Emergent, Wound Class,		

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						Dyspnea, Weight Loss, Steroid Use, Smoking, Disseminated Cancer, History of COPD, Ascites, Hypertension, Ventilator Dependent, Age Group, Radio Therapy, Alcohol Use, Bleeding Disorder, and Previous Vascular Event/Disease. The c-statistic was 0.738 and		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						the Hosmer-Lemeshow was 0.043. Because of the very large sample sizes studied here, a statistically significant Hosmer-Lemeshow statistic is not considered informative with respect to calibration. Using only the first six selected variables (ASA Class, pre-operative		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						Functional Status, Indication, Log Odds CPT Group, Emergent, and Wound Class), the c-statistic was 0.727 and the Hosmer-Lemeshow was 0.177). The use of these six predictors for modeling was further evaluated. Using a 95% confidence interval for the ratio of		

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						observed to expected events (O/E), this six-variable logistic model identified 16 statistical outliers (10 low outliers and 6 high outliers). When the same six variables were used in a random intercept, fixed slope, hierarchical model (SAS PROC GLIMMIX) using only the fixed portion of		

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						the prediction equation (NOBLUP option), 17 outliers were detected (11 low outliers and 6 high outliers). Thus, using a 95% confidence interval, logistic and hierarchical models identified 3% of hospitals as high outliers. When the logistic model parameters were applied to an independent		

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						validation data set (the 2007 data file composed of 18,098 patients) after coding CPT Groups with log odds derived from the original one-variable model on 2008 data, the c-statistic was essentially unchanged (c-statistic = 0.721). A GEE (generalized estimating		

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						equations) approach (SAS PROC GENMOD) with compound symmetry was used to estimate the intraclass correlation (ICC), which is reported in GENMOD as the exchangeable working correlation. The ICC was 0.010562. The relationship between sample size, the ICC,		

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						and reliability is defined as: N = R /[ICC(1 – R)] – R / (1 –-- R), where N is the required number of patients per hospital and R is reliability. Based on the estimated ICC, patients per hospital to achieve reliability levels of 0.3, 0.4, 0.5, 0.6, and 0.7 are 41, 63, 94, 141, and 219, respectively.		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						For the table detailing risk factors, odds ratios, and parameters for the logistic model, please see attachment (Parsimonious Model for Colorectal.doc). For initial year(s) of measure use, ACS NSQIP data-derived model parameters will be used to construct risk-		

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						adjusted O/E ratios for participating hospitals. Once data from measure-participating hospitals are substantial, models will be derived from that data. *References utilizing CPT groups Exclusions: Trauma and transplant surgeries are		

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						excluded as are surgeries not on the ACS NSQIP CPT list as eligible for selection. Patients who are ASA 6 (brain-death organ donor) are not eligible surgical cases.		
OT2-005-09	30-day post-hospital PNA (Pneumonia) discharge care transition	Brandeis University/ CMS	This measure scores a hospital on the incidence among its patients during the month following discharge from an inpatient stay having a primary	The numerator is the weighted sum of the three deviations from their expected values for the individual measures comprising the	The composite measure is the weighted of three individual measures. Thus, the denominator is one.	N/A	Electronic adminstrative data/claims	Population: national

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
	composite measure		diagnosis of PNA for three types of events: readmissions, ED visits, and evaluation and management (E&M) services. These events are relatively common, measurable using readily available administrative data, and associated with effective coordination of care after discharge. The	component measure. The question of appropriate weights on the deviations is difficult and would probably lead to a wide variation in opinion. The weights of –4, –2, and 1 are selected to represent order of magnitude differences in seriousness of the three outcomes, which most would agree to (that is to say: readmission				

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			input for this score is the result of measures for each of these three events that are being submitted concurrently under the Patient Outcomes Measures Phase II project's Call for Measures. Each of these individual measures is a risk-adjusted, standardized rate together with a percentile ranking. This	is more important than ED, which is more important in a negative way than E & M service is in a positive way). The idea on not using weights was also considered, but this was noted to be itself a de facto weight scheme (with all weights the same), and as such, a weight scheme that was less appropriate than the one chosen.				

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			composite measure is a weighted average of the deviations of the three risk-adjusted, standardized rates from the population mean for the measure across all patients in all hospitals. Again, the composite measure is accompanied by a percentile ranking to help with its interpretation.					
OT2-013-09	Proportion of patients	Bridges To Excellence	Percent of adult population aged	Outcome: Potentially	Adult patients aged 18-65 years	Denominator exclusions	Electronic adminstrative	Clinicians: Group,

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	hospitalized with pneumonia that have a potentially avoidable complication (during the index stay or in the 30-day post-discharge period)		18-65 years who were admitted to a hospital with pneumonia, were followed for one month after discharge, and had one or more potentially avoidable complications (PACs). PACs may occur during the index stay or during the 30-day post-discharge period. We define PACs during each time period as one of	avoidable complications (PACs) in patients hospitalized for pneumonia occurring during the index stay or in the 30-day post-discharge period. The time window starts with a hospitalization for pneumonia and continues for one month after discharge.	who had a relevant hospitalization for pneumonia (with no exclusions) and were followed for one month after discharge. The time window starts with a hospitalization for pneumonia and continues for one month after discharge.	include exclusions of either "patients" or "claims" based on the following criteria: 1) "Patients" excluded are those that have any form of cancer (especially cancer of lung and bronchus), thalassemia, sickle-cell disease, ESRD (end-stage renal disease),	data/claims, Pharmacy data A two-year, national, commercially insured population (CIP) claims database was used as our developmental database. The database had 4.7 million covered lives and $95 billion in "allowed	Health Plan, Population: national, Population: regional/network, Population: states, Population: counties or cities

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			three types: A) PACs During the Index Stay (Hospitalization): 1) PACs related to the index condition: The index stay is regarded as having a PAC if during the index hospitalization the patient develops one or more of the avoidable complications that can result from pneumonia, such as respiratory			transplants such as lung or heart-lung transplant or complications related to transplants, pregnancy and delivery, HIV, or suicide. 2) "Claims" are excluded from the pneumonia measure if they are considered not relevant to pneumonia care or are for major surgical services that	amounts" for claims costs. The database was an administrative claims database with medical as well as pharmacy claims. The methodology can be used on any claims database with at least two years of data and a minimum of 150 patients	

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			failure, respiratory insufficiency, pneumothorax, pulmonary collapse, or requires respiratory intubation and mechanical ventilation, incision of pleura, thoracocentesis, chest drainage, tracheostomy, etc. 2) PACs due to comorbidities: The index stay is also regarded as having a PAC if one or more of the			suggest that pneumonia may be a comorbidity associated with the procedure, e.g., CABG procedure. Patients where the index hospitalization claim is excluded are automatically excluded from both the numerator and the denominator. Risk-	with the index condition or hospitalizatio n. Having pharmacy data adds to the richness of the risk-adjustment models. A standardized SAS-based program has been developed that users could download from the	

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			patient's controlled comorbid conditions is exacerbated during the hospitalization (i.e., it was not present on admission). Examples of these PACs are diabetic emergency with hypo- or hyperglycemia, stroke, coma, gastritis, ulcer, GI hemorrhage, acute renal failure, etc. 3) PACs suggesting patient			Adjustment Conceptual Model: Variations in outcomes across populations may be due to patient-related factors or due to provider-controlled factors. When we adjust for patient-related factors, the remaining variance in PACs is due to factors that could be controlled by all	website to calculate PAC rates using their own data. The methodology has been tested on databases of several health plans as well as on a few employer databases.	

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			safety failures: The index stay is regarded as having a PAC if there is one or more complication related to patient safety issues. Examples of these PACs are infections, sepsis, phlebitis, deep vein thrombosis, pulmonary embolism, or any of the CMS-defined hospital acquired conditions (HACs).			providers that are managing or co-managing the patient, both during and after the hospitalization.. We have developed a "severity index" based on patient-related factors such as patient demographics and comorbidities. The severity-adjusted PAC		

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			B) PACs During the 30-Day Post-Discharge Period: 1) PACs related to the index condition: Readmissions and emergency room visits during the 30-day post-discharge period are considered PACs if they are for potentially avoidable complications of pneumonia such as respiratory			counts give a fair comparison of PACs and PAC rates from population to population and help providers determine the degree of PACs that are not related to patient-level factors but are due to factors that they can control and thus result in fewer PACs being incurred by patients and paid for by		

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			failure, respiratory insufficiency, pneumonia, respiratory intubation, mechanical ventilation, etc. 2) PACs due to comorbidities: Readmissions and emergency room visits during the 30-day post-discharge period are also considered PACs if they are due to an exacerbation of one or more of the patient's			payers. Methodology Overview: A severity index is calculated for each patient based on the risk-adjustment model for professional and other services that determines the cost drivers for typical care for a given condition. Demographic variables, comorbid conditions,		

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			comorbid conditions, such as a diabetic emergency with hypo- or hyperglycemia, stroke, coma, gastritis, ulcer, GI hemorrhage, acute renal failure, etc. 3) PACs suggesting patient safety failures: Readmissions or emergency room visits during the 30-day post-discharge period are considered PACs if they are due to			various types of services as well as different patient-level pharmacy indicators are fed into the model. Conditions and services that lead to higher costs and increased resource consumption are weighted more heavily in our model. For example, DME use is associated		

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			sepsis, infections, phlebitis, deep vein thrombosis, or for any of the CMS-defined hospital acquired conditions (HACs). The information is based on a two-year, national, commercially insured population (CIP) claims database. The database had 4.7 million covered lives and $95 billion in "allowed			with a higher coefficient in the model. The model determines the patient-level factors that are drivers for increased financial risk. For each patient the "predicted" log coefficients from the severity-adjustment model are summed to give the patient-level severity index.		

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			amounts" for claims costs. The database was an administrative claims database with medical as well as pharmacy claims.					
OT2-022-09	Proportion of patients with a chronic condition that have a potentially avoidable complicati-on during a calendar year.	Bridges To Excellence	Percent of adult population aged 18-65 years who were identified as having at least one of the following six chronic conditions: Diabetes Mellitus (DM), Congestive Heart Failure (CHF), Coronary	Outcome: Potentially avoidable complications (PACs) in patients having one of six chronic conditions: Diabetes Mellitus (DM), Congestive Heart Failure (CHF), Coronary Artery Disease	Adult patients aged 18-65 years who had a trigger code for one of the six chronic conditions: Diabetes Mellitus (DM), Congestive Heart Failure (CHF), Coronary Artery Disease (CAD), Hypertension	Denominator exclusions include exclusions of either "patients" or "claims" based on the following criteria: 1) "Patients" excluded are those who have	Electronic administrative data / claims, Pharmacy data A two-year, national, commercially insured population (CIP) claims	Health Plan, Clinicians: group, Population: national, Population: regional / network

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			Artery Disease (CAD), Hypertension (HTN), Chronic Obstructive Pulmonary Disease (COPD) or Asthma, were followed for one year, and had one or more potentially avoidable complications (PACs). A potentially avoidable complication is any event that negatively impacts the	(CAD), Hypertension (HTN), Chronic Obstructive Pulmonary Disease (COPD) or Asthma, during the episode time window of one calendar year (or 12 consecutive months). The time window starts with a professional claim that carries a trigger code for one of the six chronic care conditions:	(HTN), Chronic Obstructive Pulmonary Disease (COPD) or Asthma (with no exclusions), and were followed for one year from the trigger code. The time window starts with a professional claim that carries a trigger code for one of the six chronic care conditions: Diabetes Mellitus (DM), Congestive	any form of cancer, ESRD (end-stage renal disease), transplants such as lung or heart-lung transplant or complications related to transplants, pregnancy and delivery, HIV, or suicide. 2) "Patients" are also excluded if they have case-breaker situations such as cardiac arrest, shock,	database was used as our developmental database. The database had 4.7 million covered lives and $95 billion in "allowed amounts" for claims costs. The database was an administrative claims database with medical as well as pharmacy	

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			patient and is potentially controllable by the physicians and hospitals that manage and co-manage the patient. Generally, any hospitalization related to the patient's core chronic condition or any comorbidity is considered a potentially avoidable complication, unless that hospitalization is	Diabetes Mellitus (DM), Congestive Heart Failure (CHF), Coronary Artery Disease (CAD), Hypertension (HTN), Chronic Obstructive Pulmonary Disease (COPD) or Asthma, and continues for a period of one year (12 months) from the trigger code.	Heart Failure (CHF), Coronary Artery Disease (CAD), Hypertension (HTN), Chronic Obstructive Pulmonary Disease (COPD) or Asthma, and continues for a period of one year from the trigger code.	coma or brain damage. 3)"Claims" are excluded from the chronic care measure if they are not considered relevant to the care for the chronic condition, such as trauma-related claims; or are for major surgical services that suggest that the chronic condition should be a comorbidity	claims. The methodology can be used on any claims database with at least two years of data and a minimum of 150 patients with the index condition. Having pharmacy data adds to the richness of the risk-adjustment	

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			considered to be a typical service for a patient with that condition. Additional PACs that can occur during the calendar year include those related to emergency room visits, as well as other professional or ancillary services tied to a potentially avoidable complication. We define PAC hospitalizations			associated with the procedure, e.g., CABG procedure or hip replacement surgery, etc. 4) Additionally, the episode does not start until there is a stable trigger claim. For patients where the initial trigger code is on a hospital claim, or if the initial trigger claim has a trigger exclusion code (suggesting that	models. A standardized SAS-based program has been developed that users could download from our website (www.prometheuspayment.org) to calculate PAC rates using their own data. The methodology has been	

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			and PAC professional and other services as one of three types: A) PAC-Related Hospitalizations: 1) Hospitalizations related to the index condition: Hospitalizations due to acute exacerbations of the index condition are considered PACs. For example, a hospitalization for a diabetic			the patient is unstable at the time of trigger), the episode is triggered only when a stable trigger claim is identified. Claims relevant to the chronic condition but prior to the trigger claim are therefore excluded from the measure. This gives the physicians the benefit of being measured on	tested on databases of several health plans as well as on a few employer databases.	

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			emergency in a diabetic patient, or a hospitalization for an acute pulmonary edema in a CHF patient. Note that for patients with CAD, many hospitalizations are part of typical care and are not considered PACs. 2) Hospitalizations due to comorbidities: Hospitalizations due to any of the patient's			patients who are stable at the time the episode period (12 months) is triggered. Risk-Adjustment Conceptual Model: Variations in outcomes across populations may be due to patient-related factors or due to provider-controlled factors. When we adjust for		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			comorbid conditions are considered PACs. For example, a diabetic emergency or pneumonia hospitalization for a patient with heart failure. Note that hospitalizations for a major surgical procedure (such as joint replacement, CABG, etc.) are not counted as PACs. 3)			patient-related factors, the remaining variance in PAC rates is due to factors that could be controlled by all providers that are managing or co-managing the patient, during the entire episode time window. We have developed a severity index based on patient-related		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			Hospitalizations suggesting patient safety failures: Hospitalizations for major infections, deep vein thrombosis, adverse drug events, and other patient safety-related events are considered PACs. B) Other PACs During the Calendar Year Studied: 1) PACs related to the index condition: Emergency room			factors, such as patient demographics and comorbidities. The severity-adjusted PAC counts give a fair comparison of PAC rates from population to population and help providers determine the degree of PACs that are not related to patient-level factors but due to factors that		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			visits, professional and ancillary services related to the index condition are considered PACs if they are due to an acute exacerbation of the index condition such as acute exacerbation of COPD in patients with lung disease, or acute heart failure in patients with CHF. 2) PACs due to comorbidities: Emergency room			they could control. Methodology Overview A severity index is calculated for each patient based on the risk-adjustment model for professional and other services that determines the cost drivers for typical care for a given condition. Demographic variables, comorbid		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			visits, professional and ancillary services are considered PACs if they are due to an exacerbation of one or more of the patient's comorbid conditions, such as an acute exacerbation of COPD or acute heart failure in patients with diabetes. 3) PACs suggesting patient safety failures: Emergency room			conditions, various types of services as well as patient-level pharmacy indicators are fed into the model. Conditions and services that lead to higher costs and increased resource consumption are weighted more heavily in our model. The model determines the patient-level		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			visits, professional and ancillary services for major infections, deep vein thrombosis, adverse drug events, and other patient safety-related events are considered PACs. The information is based on a two-year, national, commercially insured population (CIP), claims database. The database had 4.7 million			factors that are drivers for increased financial risk. For example, DME use is associated with a high coefficient in the diabetes model. For each patient the "predicted" log coefficients from the severity adjustment model are summed to give the patient-level severity index.		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			covered lives and $95 billion in "allowed amounts" for claims costs. The database was an administrative claims database with medical as well as pharmacy claims. It is important to note that while the overall frequency of PAC hospitalizations is low (for all chronic care conditions summed together, PAC frequency			Summing the patient-level severity indices helps derive the population-level severity index. Adjusting the overall PAC rates by the severity index for the population helps adjust for variations in outcomes related to severity. There were six separate risk-adjustment		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			was 6.32% of all PAC occurrences), they amount to more than 58% of the PAC medical costs.			models created for the six chronic conditions under study, namely: Diabetes Mellitus (DM), Congestive Heart Failure (CHF), Coronary Artery Disease (CAD), Hypertension (HTN), Chronic Obstructive Pulmonary Disease (COPD) or Asthma (with no exclusions).		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						The risk-adjustment variables that were included were patient demographic factors such as age and gender, medical comorbidities, procedures performed, as well as pharmacy variables. Some of the risk factor variables were condition specific, e.g., for diabetes, the type of diabetes		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						and whether or not it was controlled were separate risk factors that were fed into the model.		

NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PATIENT OUTCOMES, SECOND REPORT FOR PHASES 1 AND 2: A CONSENSUS REPORT

Appendix B—Main Steering Committee

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NATIONAL QUALITY FORUM

APPENDIX C: NQF-ENDORSED® OUTCOMES MEASURES as of APRIL 2010

NQF #	TITLE	STEWARD
Cross-cutting Measures		
541	Proportion of days covered (PDC): 5 rates by therapeutic category	NCQA
542	Adherence to chronic medications	CMS
22	Drugs to be avoided in the elderly: a. Patients who receive at least one drug to be avoided, b. Patients who receive at least two different drugs to be avoided	NCQA
138	Urinary catheter-associated urinary tract infection for intensive care unit (ICU) patients	CDC
139	Central line catheter-associated blood stream infection rate for ICU and high-risk nursery (HRN) patients	CDC
140	Ventilator-associated pneumonia for ICU and high-risk nursery (HRN) patients	CDC
141	Patient fall rate	ANA
201	Pressure ulcer prevalence	TJC
202	Falls with injury	ANA
263	Patient burn	ASCQC
265	Hospital transfer/admission	ASCQC
266	Patient fall	ASCQC
267	Wrong site, wrong side, wrong patient, wrong procedure, wrong implant	ASCQC
299	Surgical site infection rate	CDC
337	Decubitus ulcer (PDI 2)	AHRQ
344	Accidental puncture or laceration (PDI 1) (risk adjusted)	AHRQ
345	Accidental puncture or laceration (PSI 15)	AHRQ

NQF #	TITLE	STEWARD
346	Iatrogenic pneumothorax (PSI 6) (risk adjusted)	AHRQ
347	Death in low mortality DRGs (PSI 2)	AHRQ
348	Iatrogenic pneumothorax in non-neonates (PDI 5) (risk adjusted)	AHRQ
349	Transfusion reaction (PSI 16)	AHRQ
350	Transfusion reaction (PDI 13)	AHRQ
351	Death among surgical inpatients with serious, treatable complications (PSI 4)	AHRQ
352	Failure to rescue in-hospital mortality (risk adjusted)	Children's Hospital of Philadelphia
353	Failure to rescue 30-day mortality (risk adjusted)	Children's Hospital of Philadelphia
362	Foreign body left after procedure (PDI 3)	AHRQ
363	Foreign body left in during procedure (PSI 5)	AHRQ
364	Incidental appendectomy in the elderly rate (IQI 24) (risk adjusted)	AHRQ
367	Post operative wound dehiscence (PDI 11) (risk adjusted)	AHRQ
368	Post operative wound dehiscence (PSI 14) (risk adjusted)	AHRQ
376	Incidence of potentially preventable VTE	TJC
450	Postoperative DVT or PE (PSI 12)	AHRQ
531	Patient safety for selected indicators	AHRQ
533	Postoperative respiratory failure (PSI #11)	AHRQ
554	Medication reconciliation post-discharge (MRP)	NCQA
167	Improvement in ambulation/locomotion	CMS
171	Acute care hospitalization (risk-adjusted)	CMS
173	Emergent care (risk adjusted)	CMS
174	Improvement in bathing	CMS
175	Improvement in bed transferring	CMS

NQF #	TITLE	STEWARD
176	Improvement in management of oral medications	CMS
177	Improvement in pain interfering with activity	CMS
178	Improvement in status of surgical wounds	CMS
179	Improvement in dyspnea	CMS
181	Increase in number of pressure ulcers	CMS
182	Residents whose need for more help with daily activities has increased	CMS
183	Low-risk residents who frequently lose control of their bowel or bladder	CMS
184	Residents who have a catheter in the bladder at any time during the 14-day assessment period. (risk adjusted)	CMS
185	Recently hospitalized residents with symptoms of delirium (risk-adjusted)	CMS
186	Recently hospitalized residents who experienced moderate to severe pain at any time during the 7-day assessment period	CMS
187	Recently hospitalized residents with pressure ulcers (risk adjusted)	CMS
191	Residents who lose too much weight	CMS
192	Residents who experience moderate to severe pain during the 7-day assessment period (risk-adjusted)	CMS
193	Residents who were physically restrained daily during the 7-day assessment period	CMS
194	Residents who spent most of their time in bed or in a chair in their room during the 7-day assessment period	CMS
195	Residents with a decline in their ability to move about in their room and the adjacent corridor.	CMS
196	Residents with a urinary tract infection	CMS
197	Residents with worsening of a depressed or anxious mood.	CMS
198	High-risk residents with pressure ulcers	CMS

NQF #	TITLE	STEWARD
199	Average-risk residents with pressure ulcers	CMS
422	Functional status change for patients with knee impairments	FOTO
423	Functional status change for patients with hip impairments	FOTO
424	Functional status change for patients with foot/ankle impairments	FOTO
425	Functional status change for patients with lumbar spine impairments	FOTO
426	Functional status change for patients with shoulder impairments	FOTO
427	Functional status change for patients with elbow, wrist or hand impairments	FOTO
428	Functional status change for patients with general orthopedic impairments	FOTO
429	Change in basic mobility as measured by the AM-PAC	CREcare
430	Change in daily activity function as measured by the AM-PAC	CREcare
442	Functional communication measure: writing	American Speech-Language-Hearing Association
443	Functional communication measure: swallowing	American Speech-Language-Hearing Association
444	Functional communication measure: spoken language expression	American Speech-Language-Hearing Association
445	Functional communication measure: spoken language comprehension	American Speech-Language-Hearing Association
446	Functional communication measure: reading	American Speech-Language-Hearing Association
447	Functional communication measure: motor speech	American Speech-

NQF #	TITLE	STEWARD
		Language-Hearing Association
448	Functional communication measure: memory	American Speech-Language-Hearing Association
449	Functional communication measure: attention	American Speech-Language-Hearing Association
200	Death among surgical in-patients with treatable serious complications (failure to rescue)	AHRQ
530	Mortality for selected conditions	AHRQ
5	CAHPS clinician/group surveys - (adult primary care, pediatric care, and specialist care surveys)	AHRQ
6	CAHPS Health Plan Survey v 4.0 - adult questionnaire	AHRQ
7	NCQA supplemental items for CAHPS 4.0 adult questionnaire (CAHPS 4.0H)	NCQA
8	Experience of Care and Health Outcomes (ECHO) Survey (behavioral health, managed care versions)	AHRQ
9	CAHPS Health Plan Survey v 3.0 children with chronic conditions supplement	AHRQ
10	Young Adult Health Care Survey (YAHCS)	Oregon Health & Science University
11	Promoting Healthy Development Survey (PHDS)	Oregon Health & Science University
166	HCAHPS	AHRQ
228	3-Item Care Transition Measure (CTM-3)	University of Colorado Health Sciences Center
517	CAHPS® Home Health Care Survey	CMS
327	Risk-adjusted average length of inpatient hospital Stay	Premier, Inc
328	Inpatient hospital average length of stay (risk adjusted)	United Health Group
329	All-cause readmission index (risk adjusted)	United Health Group

NQF #	TITLE	STEWARD
330	30-Day all-cause risk standardized readmission rate following heart failure hospitalization (risk adjusted)	CMS
331	Severity-standardized average length of stay—routine care (risk adjusted)	Leapfrog Group
332	Severity-standardized ALOS - special care	Leapfrog Group
333	Severity-standardized ALOS – deliveries	Leapfrog Group
495	Median time from ED arrival to ED departure for admitted ED patients	CMS
496	Median time from ED arrival to ED departure for discharged ED patients	CMS
497	Admit decision time to ED departure time for admitted patients	CMS
498	Door to diagnostic evaluation by a qualified medical personnel	LSU
499	Left without being seen	LSU