NATIONAL QUALITY FORUM

National Voluntary Consensus Standards for Patient Outcomes
Summary of the Pulmonary/ICU Technical Advisory Panel Meeting
December 3, 2009

TAP members present: Barbara Yawn, MD (chair); Richard D. O'Connor, MD; Mark Millard, MD; Margaret Neff, MD, MSc

NQF staff present: Reva Winkler, MD, MPH; Alexis Forman, MPH; Karen Pace, PhD, RN; Emma Nochomovitz, MPH

Measure Steward Representatives present: Amita Rastogi, MD; Larry Hamm, PhD; via telephone: Gerene Bauldoff; R. Adams Dudley; PhD; Francois de Brantes, MBA

Introduction

A meeting of the National Voluntary Consensus Standards for Patient Outcomes Pulmonary Technical Advisory Panel (TAP) was held on Thursday, December 3, 2009 in Washington, DC.
Panel chair Dr. Barbara Yawn opened the meeting and requested that the TAP members, National Quality Forum (NQF) staff and measure developers introduce themselves and disclose any specific interests pertaining to the measures being evaluated. None of the TAP members offered any disclosures regarding the measures to be evaluated.

Orientation to NQF

Dr. Reva Winkler, NQF project consultant and the outcomes project advisor, explained that the panel's expertise was chosen intentionally to include a background in both pulmonary medicine and intensive care unit care, as well as levels of care ranging from primary to tertiary care.

Alexis Forman, project manager, outlined the meeting goals:

- Orientation to NQF and the Patient Outcomes project
- Discussion of NQF's criteria for measure evaluation
- Evaluate the sub-criteria for seven candidate pulmonary/ICU measures

Ms. Forman provided an orientation to NQF which emphasized the organization's structure, multi-stakeholder membership, mission, strategic goals, and measures portfolio. The current portfolio was described within the context of evolving thought surrounding the need for more composite and/or outcome measures that drive high performance, as well as measures that are harmonized and sensitive to disparities.

Ms. Forman explained that the goal of the Patient Outcomes project is to expand NQF's portfolio of outcome measures focusing on the top 20 Medicare conditions plus several others. The project is being conducted in three phases and involves three Steering Committees and eight Technical Advisory Panels. The following project goals were highlighted:

- To identify, evaluate, and endorse additional measures suitable for public reporting and quality improvement that specifically address outcomes of healthcare. This project includes cross-cutting (not condition-specific) outcome measures as well as specific outcome measures for more than 20 common conditions
- To identify gaps in existing outcome measures and recommend potential outcome measures to fill those gaps.

Further context for the project was provided through an explanation of the NQF Consensus Development Process (CDP) with discussion of the role of project's Steering Committees, Technical Advisory Panels (TAPs)

and NQF staff. Specifically, the role of the TAP was explained to be the preliminary evaluation of candidate measures, specifically the sub-criteria from NQF's standard measure evaluation criteria as revised August 2008. This preliminary evaluation will assist the main Steering Committee in evaluating the measures and making recommendations to the NQF membership as to which measures should go forward for endorsement. It was explained that Dr. Yawn, the pulmonary TAP chair, is also a member of the main Steering Committee, to aid the transition of information between the TAP and the Steering Committee.

Measure Stewards' Introductory Remarks

Measure steward representatives from each of the measure submissions to be discussed were given the opportunity to provide introductory remarks prior to the panel's discussion of their measures.

Francois de Brantes, CEO of Bridges to Excellence and PROMETHEUS Payment, introduced the three measures submitted by this group:

1. OT1-018-09: Proportion of COPD patients that have potentially avoidable complications (PACs)
2. OT1-022-09: Proportion of adult asthma patients that have potentially avoidable complications (PACs)
3. OT1-021-09: Proportion of pediatric asthma patients that have potentially avoidable complications (PACs)

De Brantes explained that the PROMETHEUS payment model is the foundation for these measures, which stemmed from an effort to define episodes of care for acute events and chronic diseases within the context of understanding episodes of care and associated costs. Furthermore, the work that went into the PROMETHEUS payment model involved clinical working groups charged with identifying potentially avoidable complications (PACs). It was explained that the measures submitted to this project had been tested for face validity and reproducibility within national and regional commercial claims databases, yet it was acknowledged that the measures may require further testing to strengthen their statistical foundation. Modeling the definitions of PACs, including their prevalence and costs, was identified as one of the main objectives of the data modeling involved in these measures. Dr. Amita Rastogi, medical director of cost of care programs for Bridges to Excellence and PROMETHEUS Payment, provided further explanation of the measures presented for review, which highlighted their episode-based construct intended for use in population-based public reporting. These measures were also described as completely claims-based, reliant on episode triggers and "actionable." For example, hospitalizations related to the condition of interest during a defined time window are defined as PACs. Providers may track this measure over time in an effort to decrease the number of PACs experienced by their patients and improve performance[1].

Dr. Larry Hamm, professor in the department of exercise science at The George Washington University School of Public Health and Health Services and Gerene Bauldoff, associate professor of clinical nursing at The Ohio State University and a member of the Board of Directors for American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR) represented the AACVPR and the two measures submitted by this group:

1. OT1-019-09: Health-related quality of life in COPD patient before and after pulmonary rehabilitation
2. OT1-020-09: Functional capacity in COPD patients before and after pulmonary rehabilitation

In explaining the foundation for these measures, Dr. Hamm cited recent time-limited NQF endorsement of several cardiac rehabilitation measures and an expectation for an increase in access to and utilization of pulmonary rehabilitation following new Medicare benefit to begin in 2010. Additionally, Ms. Bauldoff commented on the scientific evidence supporting these measures, as well as the feasibility and usability of these

[1] At a conference call with the project co-chairs, measure developer and NQF staff on December 17, 2009, it was decided that these measures would be withdrawn at this time. It is anticipated that the measures will be considered by NQF in the future.

measures, given the appropriate data collected by rehabilitation centers and efforts to create a pulmonary rehabilitation registry using cardiac rehabilitation as a model.

Dr. Adams Dudley from the University of California San Francisco's Philip R. Lee Institute for Health Policy Studies spoke on behalf of the following measures:

1. OT1-023-09: Intensive care unit (ICU) length of stay (LOS)
2. OT1-024-09: Intensive care: in-hospital mortality rate

These measures were described as modifications of models that have existed since the 1980s to assess quality of care in ICUs. The data were driven by the voluntary participation of 246 California hospitals, just under 200 of which have ICUs. The data are currently used for public reporting based on 400 patients per year in the CHART program (www.CalHospitalCompare.org).

Reviewing the Measures

Each Committee member was asked by NQF staff to review two or three measures in advance of the in-person meeting, which resulted in two completed reviews for each measure. The primary and secondary reviewers of each measure led the discussion of the measures' strengths and weaknesses for each of the sub-criteria. A member of the Committee was unable to attend the meeting; however, his comments on his assigned measures were projected onto a screen for the group to view and discuss. Questions that arose were referred to the measure stewards/developers during the meeting. The tables below provide the Committee's ratings of the sub-criteria and a summary of the major discussion points.

OT1-019-09 Health-related quality of life in COPD patients before and after pulmonary rehabilitation

The percentage of patients with COPD enrolled in pulmonary rehabilitation (PR) who are found to increase their health-related quality of life score (HRQOL).

IMPORTANCE TO MEASURE AND REPORT		
1a Impact	Completely	It is estimated that there may currently be 16 million people in the United States currently diagnosed with COPD. Only 15-20 percent are referred for PR and PR is not widely available. A new Medicare benefit for PR begins in 2010, with new PR facilities/programs anticipated. CMS benefit will define minimum criteria for PR. PR has been shown to improve QoL in multiple studies. There is limited data available on current performance. Doesn't address appropriate referral to PR or completion rates of PR - all affect outcomes.
1b Gap	Partially	
1c Relation to Outcomes	Completely	
SCIENTIFIC ACCEPTABILTY		
2a Specs	Completely	Specifications are precise - validated tool and structured interview technique for collecting data. CRQ instrument is well validated. Literature says that 0.5 is the "minimum clinical difference" - why use 1.0 in the measure? Why age > 20 years? Most measures for COPD is age 40 -harmonization. Developer: "to include alpha-1-antitrypsin patient who are younger". No risk-adjustment -change in individual score used. No data on discrimination but expert opinion is that is does discriminate. CRQ tool has been well-tested but the measure has not been
2b Reliability	Not at All	
2c Validity	Not at All	
2d Exclusions	Completely	
2e Risk Adjustment	Not Applicable	
2f Meaningful Differences	Minimally	
2g Comparability	Minimally	

2h Disparities	Not Applicable	tested. Measure is not stratified to identify disparities.
USEABILITY		
3a Distinctive	Completely	Participants in PR determined by selection criteria and benefit design. Measure captures patients who complete PR, currently a small number will be measured. Better quality PR programs will have higher completion rates. Has not been used in public reporting. Harmonization needed for age.
3b Harmonization	Partially	
3c Added Value	Not Applicable	
FEASIBILITY		
4a Data a Byproduct of Care	Completely	Survey done as part of care - typically hand-scored, though no reason it can't be embedded in an EHR. Use in certifications programs - unsure how available data will be. Many faculties currently use SGRQ instead of CRG tool. Doesn't include SGQR - also a well-validated and commonly used tool — will force many to change.
4b Electronic	Not at All	
4c Exclusions	Not Applicable	
4d Inaccuracies	Completely	
4e Implementation	Completely	

OT1-020-09 Functional capacity in COPD patients before and after pulmonary rehabilitation

The percentage of patients who are enrolled in pulmonary rehabilitation (PR) who are found to increase their functional capacity by at least 54 meters (176 feet), as measured by a standardized 6 minute walk test (6MWT)

IMPORTANCE TO MEASURE AND REPORT		
1a Impact	Partially	Doesn't measure who dropped out of PR; same issues as OT1-019-08. 1b. Unknown - no data; suspect a gap exists and likely varies by region; 1c. benchmark of 54 meters may be set too high; what is attainable? Reidlemeyer (1997) identifies 54 m as benchmark but 38 m is also cited by Goldstein. Using 54 m as the minimal clinical difference indicates that the current published data on pulmonary rehab programs do not meet minimum level of clinical significance, and it is not likely that they ever will. We need a frequency distribution curve to understand how many patients can achieve this benchmark. Developer, "If there is no improvement > 54 m then there is no impact on ADLs and other functioning." There is probably a better metric that is more sensitive to improvements in pulmonary rehab which is "constant low endurance time".
1b Gap	Not at All	
1c Relation to Outcomes	Not at All	
SCIENTIFIC ACCEPTABILTY		
2a Specs	Completely	The 6 MWT is a standardized validated assessment. Specifications are precise. The measure has not been tested for reliability or
2b Reliability	Completely	

2c Validity	Partially	validity as a quality measure. The benchmark used is not related to function or QoL. PR quitters are excluded. 2e. No need for risk-adjustment as patient is compared to himself. 2f - meaningful differences are known only about the 6MWT not the measure. Disparities exist as to access to PR as a results of availability and insurance coverage.
2d Exclusions	Completely	
2e Risk Adjustment	Completely	
2f Meaningful Differences	Partially	
2g Comparability	Not Applicable	
2h Disparities	Not Applicable	
USEABILITY		
3a Distinctive	Completely	The 6MWT is easily understandable by public and is widely used. Measure is not pubic reported. Harmonization needed for age. Few programs meet the target of this measure- 8 of 14 program in the literature failed to meet the target.
3b Harmonization	Not Applicable	
3c Added Value	Minimally	
FEASIBILITY		
4a Data a by Product of Care	Completely	Registries are proposed to collect and aggregate the data.
4b Electronic	Not at All	
4c Exclusions	Completely	
4d Inaccuracies	Partially	
4e Implementation	Partially	

OT1-023-09 Intensive care unit (ICU) length of stay (LOS)

For all patients admitted to the ICU, total duration of time spent in ICU until time of discharge; both observed and risk-adjusted LOS reported with the predicted LOS measured using an adjustment model based on the (Mortality Probability Model) MPM III.

IMPORTANCE TO MEASURE AND REPORT		
1a Impact	Completely	1a. Important hospital cost area; 1b. there is national data on variation in LOS; 1c. Outcome, How does availability of step or monitored beds affect the measure? Used in voluntary California program - CHART - reported by 246 hospitals (400 patients/year) of mostly community hospitals, flow issues from ED need to be addressed.
1b Gap	Completely	
1c Relation to Outcomes	Completely	
2a Specs	Completely/ Partially	2a. P/C - only caveat is when to start ICU stay -- in the ED or PACU? What is the impact of the hospital infrastructure - could have a systematic bias is hospital structure limits moving patients in or out of ED or PACU - may affect comparability; this measure should be paired with the mortality measure 2b. solid reliability testing; 2c. validity testing of the model; reasonable exclusions; 2d. Risk Adjustment -- C=0.83 calibration curve; not yet publicly reported in CHART, Disparities -- not included in risk factors -- not
2b Reliability	Completely	
2c Validity	Completely	
2d Exclusions	Completely	
2e Risk Adjustment	Completely	
2f Meaningful Differences	Completely	

2g Comparability	Not Applicable	stratified though could be, Are there any racial differences in family/patient care goals or decisions?
2h Disparities	Not Applicable	
USEABILITY		
3a Distinctive	Completely	Currently in use in California; plan for reporting in CHART; should be paired with mortality measure
3b Harmonization	Not Applicable	
3c Added Value	Not Applicable	
FEASIBILITY		
4a Data a by Product of Care	Minimally	4a. very compatible with EHRs - some vendors have built in; usually abstraction is used (reflects slow pace of EHR adoption); CHART has an electronic submission software also; 4d. trauma, burns, CBAG are excluded due to unique characteristics of these patients. First 100 patients per quarter data collection for ease.
4b Electronic	Completely	
4c Exclusions	Completely	
4d Inaccuracies	Completely	
4e Implementation	Completely	

OT1-024-09 Intensive care unit (ICU) mortality rate

For all adult patients admitted to the ICU, the percentage of patients whose outcome is death; both observed and risk-adjusted mortality rates are reported using predicted rates based on the (mortality probability model) MPM III.

IMPORTANCE TO MEASURE AND REPORT		
1a Impact	Completely	Significant financial impact; mortality variability established in national datasets also;
1b Gap	Completely	
1c Relation to Outcomes	Completely	
SCEINTIFIC ACCEPTABILTY		
2a Specs	Completely	Socioeconomic status not in the risk model, can assess disparities; clarification with developer, includes age 18 and over; DNR/palliative care not excluded if in ICU more than 4 hours, discourages inappropriate ICU admissions; exclusion of ICU <4 hours removes post-op patients in lieu or PACU at night, etc; appropriate factors included in the risk model; no severity adjustment because comparisons with APACHE (which includes severity) results in same assessment of hospital quality with much less data collection; the risk model is re-calculated quarterly since there is rapid change in mortality rates for a given level of risk in California; model would need recalibration for other populations
2b Reliability	Completely	
2c Validity	Completely	
2d Exclusions	Completely	
2e Risk Adjustment	Completely	
2f Meaningful Differences	Completely	
2g Comparability	Completely	
2h Disparities	Completely	
USEABILITY		
3a Distinctive	Completely	Dead/alive is very understandable; is publicly reported in California - CHART; No similar measures — risk model uses
3b Harmonization	Completely	

3c Added Value	Completely	minimal needed data elements and provides comparable results for hospital population —is not a prediction model for individual patients; No NQF endorsed outcome measures in this area; results don't directly point out areas of poor performance; Developer notes that the causes of poor performance in Calif hospitals is highly variable
FEASIBILITY		
4a Data a By Product of Care	Completely	Data can be generated electronically by the hospitals with EHRs -- still limited; free software available to collect and transmit data from electronic systems; most hospitals still do hand data abstraction- data collection forms provided free of charge
4b Electronic	Minimally	
4c Exclusions	Completely	
4d Inaccuracies	Completely	
4e Implementation	Completely	

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IMPORTANCE TO MEASURE AND REPORT		
1a Impact	Completely	Episode approach measures; PACs are not condition specific; started with AHRQ's ACSC, then added HACs and others; most PACs are "anything bad that happens", not condition-specific; frequency distribution of PACs differ for each condition: Will fragmented care have fewer PACs than coordinated care that addresses are of these issues?; some PACs don't seem to be complications
1b Gap	Completely	
1c Relation to Outcomes	Minimally	
2a Specs	Partially	level of analysis is for system/plan/large group; these are population measures, not provider level measures; some coding concerns about using the first diagnosis code, particularly upcoding; no comparisons to medical record; face validity only; When everyone (87 percent for COPD) has a PAC - what does it mean? Suggest that a biostatistician review the risk model; based on administrative data, known challenges; validation of PACs, time will tell what is truly preventable
2b Reliability	Not at All	
2c Validity	Minimally	
2d Exclusions	Partially	
2e Risk Adjustment		
2f Meaningful Differences	Minimally	
2g Comparability	Not at All	
2h Disparities	Not at All	
USEABILITY		
3a Distinctive	Partially	
3b Harmonization	Completely	
3c Added Value	Minimally	
FEASIBILITY		
4a Data a By Product of Care	Completely	
4b Electronic	Completely	
4c Exclusions	Completely	
4d Inaccuracies	Partially	
4e	Completely	

Implementation		

*These measures were withdrawn from further consideration after the TAP meeting.

Recommendations for Outcome Measures to Fill Gaps

During their discussion TAP members offered several recommendations for additional outcome measures in these topic areas:

Pulmonary rehab for COPD:

- Appropriateness/selection of referral for PR
- Access to PR
- Evaluation of QoL for patients not receiving PR
- Adherence/Completion rates for PR
- Patient assessment of PR services

Asthma:

- Use of the Asthma Control Test (ACT) tool

Intensive Care Units:

- Returns to ICU/recidivism