Tab 7-A

RADM Deborah Parham Hopson, PhD, RN, FAAN

Deborah Parham Hopson is the Senior Advisor for HIV/AIDS Policy at the Health Resources and Services Administration (HRSA). As Senior Advisor, Dr. Parham Hopson provides expert guidance on initiatives involving national and international HIV/AIDS policies and issues. Prior to assuming this position in February 2013, Dr. Parham Hopson served as the Associate Administrator of the HIV/AIDS Bureau (HAB) for 11 years. As HAB's Associate Administrator, Dr. Parham Hopson was responsible for managing over $2.4 billion for programs authorized under the Ryan White HIV/AIDS Program. The Ryan White HIV/AIDS program funds training for health care professionals and medical care, treatment, referrals and support services, for over 546,000 uninsured, underinsured, and underserved people living with HIV disease in the United States and the U.S. Territories. In addition, as part of the President's Emergency Plan for AIDS Relief, she directed a multi-million dollar global HIV/AIDS program with training, care and treatment activities in Africa, Asia, and the Caribbean. Dr. Parham Hopson received her undergraduate degree in nursing and health from the University of Cincinnati and her Master of Science and Doctor of Philosophy degrees in health policy and management from the University of North Carolina at Chapel Hill School of Public Health.

Tab 7-A

Louise Y. Probst

Louise Probst is Executive Director of the St. Louis Area Business Health Coalition (BHC). The coalition represents St. Louis employers in their efforts to improve the health of their employees and the quality and affordability of health care.

BHC employers seek a transparent health care market where physicians, consumers, and others have information about quality and cost differences and actively use this information to improve health care.

Ms. Probst also serves as the Executive Director of the Midwest Health Initiative (MHI). The MHI brings together health care stakeholders such as hospitals, health care providers, purchasers and consumers who share a belief in the power of information and collaboration to improve health and create a high-value health care system.

Ms. Probst began her career in health care as a critical care nurse. She has experience as a clinician, an educator, a hospital administrator, and a purchaser advocate. She has a Master's Degree in Business Administration from the University of Denver.

Ms. Probst serves on the board of directors of the National Quality Forum and is Co-Chair of its Consumer-Purchaser Council. She is also a member of the National Quality Forum's MAP Hospital Workgroup. Ms. Probst serves on the National Committee for Quality Assurance's (NCQA) Clinical Programs Committee. In past years, she has served on the Commonwealth Fund's Commission on a High Performance Health System, the NCQA's Standards Committee, various National Quality Forum (NQF) Steering Committees, and other initiatives to enhance the quality and affordability of health care. She is also a past Chairperson of the National Business Coalition on Health (NBCH).

NATIONAL QUALITY FORUM

Tab 7-B

Meeting of the Board of Directors
December 6, 2013

A meeting of the Board of Directors of the National Quality Forum (NQF) was held on December 6, 2013, at NQF's offices.

Participants

Board Members Attending: Helen Darling (Chair); Terry Adirim (HRSA Designee); Lawrence Becker (Treasurer); Peter Briss (CDC Designee); Christine Cassel (President & CEO); Jim Chase; Patrick Conway (CMS Designee); Maureen Corry; Carol Cronin; Leonardo Cuello; Joyce Dubow; Liz Fowler; Marge Ginsburg; Kate Goodrich (CMS Designee); Ardis Hoven; Karen Ignagni; Don Kemper; Bill Kramer; Harold Miller; Dolores Mitchell; Elizabeth Mitchell; Mary Naylor; Debra Ness; Marc Overhage; David Shahian; John Tooker; Nancy Wilson (AHRQ Designee)

Non-Voting Ex Officio Board Members Attending: Paul Tang (HITAC Chair)

Board Members Not Attending: Jack Cochran; Bob Galvin; Bill Roper; Bruce Siegel; Rich Umbdenstock

Non-Voting Ex Officio Board Members Not Attending: Frank Opelka (CSAC Chair)

NQF Staff: Karen Adams; Helen Burstin; Neal Comstock; Ann Greiner; Ann Hammersmith (General Counsel and Corporation Secretary); Nicole Silverman; Jeffrey Tomitz; Kyle Vickers

EXECUTIVE SESSION

The Board met in executive session at 8:30 a.m., EST.

CLOSED SESSION

The Board met in closed session and took the following actions:

ACTION: The Board approved the NQF compensation framework and the merit and incentive pools for senior staff.

ACTION: The Board evaluated the CEO's performance and determined the CEO's merit increase and incentive compensation.

ACTION: The Board approved the following appointments:

Rich Umdenstock as Vice Chair of the Board;
Elizabeth Mitchell and Bruce Siegel as Executive Committee members;
Liz Fowler and Mary Naylor as Governance Committee members; and
Louise Probst to fill the previously vacant consumer/purchaser seat on the Board.

ACTION: The Board approved the 2014 budget.

In addition, the Board discussed NQF's membership strategy.

Dr. Cassel, President and CEO, noted that discussions on the Board Conflict of Interest Policy and the Bylaws would be postponed to a later meeting because Board discussions on other topics ran longer than anticipated.

OPEN SESSION

Welcome and Approval of Minutes

Helen Darling, Chair, welcomed new Board members Jim Chase; Carol Cronin; Liz Fowler; Marge Ginsburg; Karen Igagni; and David Shahian, as well as re-elected Board members Ardis Hoven and Dolores Mitchell. Ms. Darling also reported the actions taken by the Board during its closed session.

ACTION: The Board approved the minutes of the September 19, 2013 Board meeting.

Mission Statement

The Board discussed the Executive Committee's recommendation for a new mission statement, designed to be clearer and more concise.

ACTION: The Board approved the following mission statement:

> The National Quality Forum leads national collaboration to improve health and healthcare quality through measurement.

Consensus Task Force Report: Final Recommendations

Larry Becker, Co-Chair of the Consensus Task Force, reviewed the Task Force's recommendations. Mr. Becker reported that the Task Force considered the concerns, opportunities, process transparency, member engagement, and balance of interests surrounding the consensus process. After gathering feedback from a number of groups, the Task Force decided to limit its work to increased efficiency and incremental efforts to improve consensus. The Task Force also had the opportunity to apply its redesign ideas to a cost and resource use measure in real time.

The Task Force determined that NQF needs a process for achieving clearer consensus where approval of a measure falls in the "grey zone" of 40 to 60% approval. The Task Force made recommendations for handling a measure in the grey zone at the Steering Committee, Member Councils, or the Consensus Standards Approval Committee (CSAC). If the grey zone occurs at the Steering Committee level, the measure will go out for comment and the Steering Committee will re-vote after consideration of the comments. If the second vote remains in the grey zone, the measure will move forward to Member Council voting. If the grey zone occurs at the Member Council level, Council chairs will represent stakeholder perspectives to the CSAC with the CSAC as the arbiter of endorsement. If the CSAC vote falls in the grey zone, the CSAC will ask Council chairs to represent stakeholder perspectives and will re-vote. If the CSAC re-vote still falls in the grey zone, the measure will not be endorsed.

The Board discussed the Consensus Task Force recommendations at length, including length of time involved in the new process, inclusion of an executive summary to increase understanding of the decision required, and training Steering Committee members and NQF staff on leading a consensus process. The Board also discussed the wisdom of relying on voting as an indication of consensus and whether a measure that is in the grey zone at CSAC should go to the full Board for discussion and decision. The Board agreed that bringing grey zone decisions to the Board for final decision would jeopardize streamlining the process, but noted that the Board should recognize grey zone decisions as possibly part of a larger issue that the Board should consider.

The Board also discussed whether the Councils accurately represent stakeholders and if the consumer/purchaser perspective is lost in this structure. The Board agreed that a new task force should be appointed to grapple with the question of the nature of stakeholder groups and whether the Council process is effective for stakeholders and NQF.

ACTION: The Board endorsed the final recommendations of the Consensus Task Force and agreed that a new task force should be appointed to deal with stakeholder and representation issues within the consensus process.

Measure #2158: Medicare Spending per Beneficiary Measure

Dr. Helen Burstin, Senior Vice President for Performance Measurement, and Cristie Upshaw Travis, CSAC Co-Chair, summarized the process surrounding the CSAC's approval of Measure #2158, Medicare

Spending per Beneficiary. When the measure came before the CSAC, committee members decided that they would pilot the new deliberative process by getting input from councils because the support for the measure at the Council level fell in the grey zone. Ms. Travis reported that the CSAC found this level of engagement by the Councils very helpful and was ultimately comfortable with moving forward with a measure vote. The CSAC voted to endorse the measure at the hospital and facility level, but not at the clinician level. The measure developer agreed to work on a measure that could be used at the clinician level and CSAC expects that measure to come through the endorsement process.

The measure is before the Board for consideration because two Board members pulled the measure from the Board's automatic ratification process. The Executive Committee reviewed the process applied to the measure and agreed that process was properly followed. The Board was asked to vote on whether process surrounding measure endorsement was followed. The Board was not asked to vote on the substance of the measure.

ACTION: The Board voted to uphold the Executive Committee's recommendation that process was followed with respect to Measure #2158 and that the measure should retain endorsement.

Congressional Update

Ann Greiner, Vice President for Public Affairs, and Dr. Cassel presented the Guidelines for NQF Policy Comments and Advocacy. They noted that NQF's historic stance of "no comment" when asked for technical input was becoming increasingly unworkable. In addition, NQF needs to respond quickly when advocating for NQF's current role in statute and regulations.

The Executive Committee has proposed that it function as a policy committee when NQF is asked for comment on issues outside of areas prescribed in the Guidelines. The three main principles of the Guidelines are that NQF should: (1) remain non-partisan when commenting on policy requests; (2) respond when asked for technical input; and (3) confine its comments to quality measurement and improvement issues. If NQF is asked to comment on issues other than quality measurement and improvement, staff will seek guidance from the Executive Committee.

The Executive Committee further proposed that staff may advocate for NQF's current role in statute and regulations without seeking further approval from the Executive Committee.

The Board discussed its support for the Executive Committee's proposal, but cautioned that NQF not stray into advocacy.

Ms. Greiner then updated the Board on activities on Capitol Hill that affect NQF.

ACTION: The Board approved the proposed Guidelines for NQF Policy Comments and Advocacy.

There was no comment from the public regarding any items on the Board agenda.

The Board considered no other business and the meeting adjourned at 2:44 p.m.

Respectfully submitted,

Ann F. Hammersmith
Corporation Secretary

Tab 8

BOARD OF DIRECTORS
CONFLICT OF INTEREST POLICY

Members of the National Quality Forum's ("NQF") Board of Directors each owe a duty of loyalty to NQF, which requires they act at all times in NQF's best interest. They must have an undivided allegiance to NQF's mission, and may not use their position with NQF, information they have about NQF, or NQF's property, in a manner that allows them to secure a financial or other material benefit for themselves or their relatives. In addition, the Internal Revenue Code requires NQF, as a tax-exempt organization, to ensure that no part of NQF's net earnings inure to the benefit of any individual.

This Conflict of Interest Policy is designed to:

(1) Guide the Board in identifying, disclosing, and managing conflicts of interest.
(2) Satisfy IRS requirements regarding conflict of interest policies for nonprofit organizations.
(3) Identify apparent or actual conflicts of interest or bias in connection with carrying out NQF's mission.

1. What Is a Conflict of Interest?

A conflict of interest may arise in any circumstance that compromises, or appears to compromise, the ability of a Board member to make unbiased and impartial decisions on NQF's behalf. Such circumstances may involve family relationships, business transactions, professional activities, or personal affiliations.

NQF recognizes that Board members have many interests, activities, and relationships, which may or may not be related to the Board's work. Some interests may subject NQF and individual Board members to legal and reputational risk. It is the Board's responsibility to examine and manage actual and apparent conflicts of interest.

2. What Is the Process for Disclosing a Potential Conflict of Interest?

NQF's Board of Directors requires all Board members to complete and submit an annual Disclosure Statement detailing any facts or circumstances that might constitute a conflict of interest. The Board further requires Board members to submit an amended Disclosure Statement to reflect any material changes or additions during the course of the year. The Board encourages Board members to err on the side of disclosure and to report any set of circumstances that may appear to pose a conflict of interest, even if the Board member is uncertain as to whether such circumstances should be disclosed.

Following completion of the Disclosure Statement, Board members will orally disclose significant interests on an annual basis at a meeting of the Board of Directors. Board members will have the opportunity to discuss these disclosures with each other if they wish.

A Board member should notify the Board Chair if the Board member believes that a particular matter before the Board appears to pose a conflict of interest for that Board member. This notification should occur prior to a Board meeting to the extent that the Board member is aware of the issue in advance. If the Board member is not aware of the issue in advance, the Board member should alert the Board chair during the meeting and prior to discussion of the issue.

3. <u>How Are Conflicts of Interest Identified?</u>

NQF's General Counsel will review each Disclosure Statement for any set of facts or circumstances that may reflect an apparent or actual conflict of interest. The General Counsel will notify the Executive Committee of a Board member's apparent or actual conflicts of interest.

While evaluating a particular set of facts or circumstances, the reviewer shall consider the following non-exhaustive list of factors that may indicate a conflict of interest:

(A) Solicitation or acceptance of gifts or other items of value that may create an appearance or expectation of special treatment in NQF matters;
(B) Any incident of abuse or misuse of a leadership position for personal or third-party gain or benefit;
(C) Situations in which a Board member may be divided between personal interests or the interests of another organization and NQF's best interests;
(D) Business, professional, or other activities that would materially and adversely affect NQF, either directly or indirectly; and

(E) Any arrangement in which a Board member provides goods or service to NQF as a paid vendor.

The General Counsel, the Executive Committee, or the Board of Directors may request additional information from any Board member at any time. No Board member whose relationships or activities are under review may participate in deliberations, debate, or any vote of the Executive Committee or the Board of Directors.

4. How Are Conflicts of Interest Resolved?

If the Board of Directors identifies an apparent or actual conflict of interest upon referral of a matter by the Executive Committee, the Board may take one of the following actions to resolve such conflict:

(A) ***Waive*** the conflict of interest as unlikely to affect the Board member's ability to act in NQF's best interest;
(B) Determine that the Board member should be ***recused*** from all deliberation and decision-making related to the particular transaction or relationship that gives rise to the conflict of interest. This course of action should apply particularly when the transaction or relationship is one which presents an apparent or real conflict only with respect to one or two discrete programs or activities; or
(C) Determine that Board member must ***resign*** from service to NQF. This course of action should apply when the conflict of interest is so pervasive that the Board member would likely seldom, if ever, be able to act solely in NQF's best interest, or would give the appearance of being unable to do so.

NQF's Board of Directors reserves final authority over the resolution of all conflicts of interest regarding a Board member.

5. May Board Members Do Business with NQF?

A conflict of interest exists any time a Board member seeks to enter into a business relationship with NQF. Similar conflicts may arise through family members or through organizations in which Board members serve in a leadership, advisory, employment, or ownership capacity.

Such conflicts do not, however, necessarily preclude business relationships with NQF. The following procedure is designed to resolve conflicts of interest whenever a Board member seeks to provide goods or services to NQF as a paid vendor or applies for a significant grant or contract from NQF.

(A) The Board member must promptly disclose the intent to enter into a business relationship with NQF to the Board's Executive Committee.

(B) The Board member must recuse himself or herself from any deliberation, debate, and voting related to the contemplated business relationship.

(C) If the value of the transaction exceeds $5,000, NQF must solicit proposals or applications from at least two other candidates for the agreement or grant under consideration.

(D) The Executive Committee must determine, without the presence or participation of the Board member under review, that the transaction is fair and in the NQF's best interest.

(E) If the Executive Committee approves the business relationship under consideration, the Board member involved may not participate in any process by which his or her performance as a vendor, grantee, or recipient is evaluated, or in any such evaluation of a related party.

6. May the Board delegate its authority to review and resolve conflicts of interest?

The Board shall retain the ultimate authority to review and resolve conflicts of interest under this policy. The Board may delegate its authority under this policy, in whole or in part, to any committee of directors or officers of the corporation. Only individuals who are disinterested with regard to the matters under review may participate in any such review. A delegated committee or officer shall inform the Board of any determinations made or actions taken with regard to conflicts of interest. The Board shall retain the right to modify or reverse any such determination or action, and shall retain the ultimate enforcement authority with respect to the interpretation and application of this policy.

7. Records.

All determinations or actions of a reviewing body or official made pursuant to this policy shall be properly documented in NQF's corporate records.

Policy revision effective February 26, 2014.

Tab 9

NQF "Measuring Success" Campaign

A Proactive Communications Plan

March 17, 2014

Overview

NQF will capitalize on a number of immediate, positive opportunities in the coming weeks and months to proactively raise the visibility of our ground-breaking work and the essential nature of the stakeholder forum we provide to advance quality measurement and improvement. These opportunities include:

- NQF's 15th-year anniversary, a year-long campaign to be launched in April that will showcase how our work has improved quality and specify key challenges NQF will address in the future;
- The NQF report, *Risk Adjustment and Socioeconomic Status or Other Sociodemographic Factors*, which demonstrates NQF's leadership in helping ensure that performance measures reveal but do not exacerbate disparities in care. It will be available for public comment the week of March 17th;
- NQF's project, *Improving Population Health by Working with Communities*, is a three-year comprehensive effort to address a key aim of the National Quality Strategy. Its initial work product, a Community Action Guide, will be released for public comment on April 2nd.

The NQF public affairs team, together with outside consultants, will implement a communications plan to leverage opportunities to proactively position the NQF brand and engage key audiences. Below is an initial plan which will be more fully developed by the end of March 2014.

Audiences

There will be overall messages for all audiences and specific messages for more targeted audiences.

- The NQF Board
- NQF Members
- Stand for Quality members (SQF)
- The broader quality community
- Members of Congress and staff
- Media

Strategy

NQF's 15th anniversary presents a milestone opportunity for the organization and its supporters to make visible 15 accomplishments it has achieved since its founding and to identify five challenges for the future. The 15 achievements could include:

- **The "Top 10" Measures or Standards that Matter, for example:**
    - Reducing infections in the hospital, e.g., overall national rates from CDC, e.g., CLABSI, etc. and local examples, e.g., CA hospitals that received an Eisenberg award ;
    - Improving Maternity Care, e.g., reduction of elective delivery before 39 weeks measure per the Leapfrog survey fell 73% in 3 years;
    - Improvements in health plan quality – a number of examples from NCQA.

- **Five Additional Achievements that are not Measures, for example:**
    - **NQF's efforts to bring in the patient/family voice and preferences**, which are now communicated to providers via standardized surveys making our healthcare system more patient centered, including the array of NQF endorsed Consumer Assessment of Healthcare Providers and Systems (CAHPS) surveys.
    - **Establishment of a viable and effective Forum that tackles tough issues** including: how to define and measure affordability, when and how best to risk adjust measures for sociodemographic factors

- **Five Big Future Challenges**. e.g.,
    - Alignment of a core set of measures used by the public and private sectors that have been proven to drive results
    - An approach to accountability that recognizes both the contribution of individual measures and systems of measures (registries, MOC) to achieving results
    - Affordability –getting to value-based purchasing
    - Care coordination

In addition, the website and potentially a print publication could also include profiles of founding members. In these 15-year member profiles, long-term NQF members would share their insights about how healthcare has changed as a result of NQF and what NQF membership means.

The NQF top 15 accomplishments and 5 challenges ahead will be summarized into a printed and e-document for release to thought leaders, Congressional offices, the media, the NQF membership and other stakeholders in the quality community. In addition, NQF leadership and staff will pursue a number of planned opportunities, meetings and events to engage key audiences about NQF's 15-years of work to improve health care quality, while also gaining visibility for key efforts over the course of the year.

Tab 10

TO: NQF Members and Public
FR: NQF Staff
RE: Review of **Draft** National Quality Forum (NQF) Report:
Risk Adjustment for Socioeconomic Status or Other Sociodemographic Factors
DA: March 18, 2014

Background

Risk adjustment—statistical methods to account for patient-related factors when computing outcome measures—is used to make more accurate evaluations about quality of care. NQF's current policy recommends the adjustment of outcome measures for clinical factors, such as severity of illness and co-morbidities, recognizing that patients who are sicker and have multiple conditions have a higher likelihood of worse outcomes, regardless of the quality of care provided.

Increasingly, policymakers and other leaders have raised the question of whether performance measures used in accountability applications, including public reporting and pay-for-performance, should be adjusted for sociodemographic factors in order to improve the accuracy of performance results. There is a substantial body of evidence that sociodemographic factors influence a variety of patient outcomes and some processes. Two accountability measures in particular have brought this discussion to the forefront: Hospital-wide All-cause Unplanned Readmissions and Medicare Spending per Beneficiary Measure.

NQF's current criteria do not allow adjusting performance measures for sociodemographic factors, out of a desire to make disparities visible in order to motivate efforts to improve care for disadvantaged populations. Rather, NQF policy recommends that performance measures be stratified – or calculated separately -- by sociodemographic factors, e.g., income, race, education etc to make those differences visible.

To answer the question "what, if anything should be done about sociodemographic factors in relation to outcome performance measurement," NQF convened an Expert Panel of 26 individuals with a variety of expertise related to disparities, performance measurement and risk adjustment methods, as well as varied stakeholders (e.g., consumers, purchasers and providers). This project is funded by HHS.

Current Policy and the Impact on Disparities

An important aspect of the Expert Panel's work was a focus on the effects of current policy – no adjustment of measures for sociodemographic factors – on disadvantaged patient populations. The issues that concerned the Panel include:

- Providers avoiding serving disadvantaged populations to ward off being labeled a poor performer, which then worsens access to care for vulnerable patients;
- Funds – based on performance-based incentives – shifting from those that serve the disadvantaged to those that serve the affluent. Safety net providers then have fewer resources to care for vulnerable populations and the array of additional services that they need;
- Consumers and payers avoiding providers who serve disadvantaged populations because they are labeled poor performers, which may not accurately reflect underlying quality of care.

Considering these issues together, most of the Expert Panel concluded that the current policy is unintentionally weakening the network of providers that serve disadvantaged populations, which could end up worsening disparities.

Specific Recommendations

The Expert Panel's eight recommendations are intended to support making correct conclusions about quality of care and prevent unintended consequences such as the worsening of healthcare disparities. They also make a distinction between uses of performance measures for accountability and for identifying disparities. The Expert Panel largely found common ground and consensus around its recommendations. However, a very small minority supports maintaining current guidance to not adjust for sociodemographic factors based on concerns about masking disparities or accepting different standards.

The first four recommendations are directed at adjusting performance measures for sociodemographic factors and specifically address:

1) Distinguishing different methods for the different purposes of measurement: sociodemographic adjustment for accountability and stratification for identifying disparities;
2) Revision of the NQF criteria related to risk adjustment to include sociodemographic factors as appropriate;
3) Guidelines for selecting risk factors to include appropriate sociodemographic adjustment; and
4) Expectations for information needed when outcome measures that may be adjusted for sociodemographic factors are submitted to NQF.

The final four recommendations address related issues, some of which are not currently within NQF's scope of work. The recommendations address:

5) assessing the impact of accountability applications on disadvantaged patient populations and providers serving them;
6) identifying and collecting a standard set of sociodemographic variables for performance measurement and identifying disparities;
7) A request that NQF consider expanding its role to include guidance on implementation of performance measures for accountability;
8) A request that NQF clarify that endorsement pertains to performance measures as specified and tested for a specific patient population, data source, level of analysis, and setting.

No Absolutes – Each Measure and Context Must be Considered

The recommendations neither indicate that all performance measures should always be adjusted for sociodemographic factors, nor that they should never be adjusted for sociodemographic factors.

For example, outcomes and processes that are directly under the control of healthcare providers, such as central line infections occurring during a hospital stay, or administering the right medication at the right time, would not be adjusted for sociodemographic factors. Conversely, outcomes that are influenced by factors other than the quality of care provided, such as more frequent readmissions of homeless populations over other populations, might be adjusted to account for this and related factors. Such an approach is consistent with widely accepted guidelines for selecting clinical factors for inclusion in a risk adjustment model. Carefully done, sociodemographic adjustment would provide a more accurate reflection of performance, but would not mask poor quality.

Peer group comparisons, such as the approach recommended by MedPAC, could also be used in combination with sociodemographic adjustment. Further, the Panel recommended that when the objective is to identify disparities, stratification is the most effective approach.

The Expert Panel also pointed out that the lack of high quality and readily available sociodemographic data presents a major barrier to implementing its recommendations. The recent Tri-Committee SGR bill recognizes this important limitation and proposes a major effort with significant federal support to identify sociodemographic data and analyze its effects on performance measurement to inform future payment policy.

Conclusions

There is concern that NQF's current policy to not adjust performance measures for sociodemographic factors results in incorrect conclusions about quality. Coupled with use of performance measures for accountability, this could lead to greater disparities in care, due to disadvantaged populations losing access to care as providers become more hesitant to treat them. There is also concern that without proper adjustments, safety net providers may have fewer resources to treat disadvantaged populations. Therefore, the Expert Panel is recommending changes to NQF's measure evaluation criteria and guidance for which NQF is seeking public comment. Ultimately, the goal of this work is to help the healthcare community reduce disparities in care, while simultaneously drawing accurate conclusions about the quality of care rendered.

Submit Comments

NQF is interested in receiving comments from the broader NQF membership and the public about this draft report by April 16, 2014. The draft report is posted on the NQF web site for purposes of review and comment only and is not intended to be used for voting purposes. You may post your comments and view the comments of others on the NQF website using the online commenting process.

All comments must be submitted no later than 6:00 PM ET, April 16, 2014.

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

Risk Adjustment for Socioeconomic Status or Other Sociodemographic Factors

DRAFT TECHNICAL REPORT FOR REVIEW

March 18, 2014

NATIONAL QUALITY FORUM

Contents

Risk Adjustment for Socioeconomic Status or Other Sociodemographic Factors

DRAFT TECHNICAL REPORT FOR REVIEW

Introduction

NQF endorses performance measures that are suitable for both performance improvement and "accountability applications" (e.g., pay-for-performance, public reporting), when those measures meet a standard set of criteria. Measures of outcomes of care are among those endorsed by NQF. Clinical outcomes (e.g., survival, improvement or maintenance of function, relief of pain or distressing symptoms) are considered important for performance measurement because they often are the reasons for seeking and providing healthcare and reflect the quality of care received. Other outcomes for which measures may be endorsed include cost or resource use, referred to broadly as economic outcomes.

Because outcomes can be influenced by many factors other than the healthcare services and interventions received, the current NQF criteria include risk adjustment or stratification for outcome performance measures on the basis of clinical factors like comorbidity or severity of illness. Risk adjustment is designed to improve the ability to make accurate conclusions about quality. Making correct conclusions about quality is important to consumers/patients and purchasers in making informed decisions; to payers and providers in applying rewards/penalties; and to providers in terms of reputation.

Current NQF criteria for performance measures direct that some sociodemographic factors, for which disparities in quality of care have been documented in the past, such as socioeconomic status (SES) and race should not be included in statistical risk models; and the related current NQF guidance (provided in a footnote) indicates that stratification is the preferred approach for these factors. The main reason for this current position on sociodemographic factors is a concern that adjustment on the basis of variables like income, education, or English proficiency would "mask disparities", and essentially allow or create lower standards of performance for healthcare providers serving low-SES or other "disadvantaged"[a] populations. This concern will be examined in this report.

Risk adjusting outcome performance measures to account for differences in patient health status and clinical factors (e.g., co-morbidities, severity of illness) that are present at the start of care is widely accepted because adjustment improves the accuracy of conclusions about quality and minimizes perceptions of unfairness. In addition to quality of care received, outcomes are known to be associated with a range of clinical variables, generally reflecting the concepts of severity and complexity of illness. In general, more severe or more complex disease in a cohort of patients, all else being equal, is associated with poorer outcomes. Performance measures are adjusted because of that association. This report explores also adjusting performance measures for sociodemographic factors when appropriate.

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[a] In this report, "disadvantaged" is used to refer to social, economic, and/or environmental disadvantage. It could be related to a variety of sociodemographic factors such as income, race, and education.

See Box 1 for examples of clinical and sociodemographic factors that affect complexity of condition and care and can influence patient outcomes.

NQF also endorses process performance measures; the current NQF criteria and guidance suggest that process performance measures do not need to be adjusted because they represent standards of care for specific patients. Process performance measures also will be addressed in this report.

Box 1.Clinical and Sociodemographic Complexity

Clinically Complex Patient	**Sociodemographically Complex Patient**
• Multiple Chronic Conditions	• Poverty – Low income and/or no liquid assets
• Severe Primary Condition (e.g., severe heart failure, metastatic cancer, end-stage renal disease)	• Low levels of formal education, literacy, or health literacy
• Concurrent mental and physical health problems	• Limited English proficiency
• Disease affects multiple organ systems	• Minimal or no social support –not married, living alone, no help available for essential health-related tasks
• Disease causes significant functional deficit or disability	• Poor living conditions – homeless, no heat or air conditioning in home or apartment, unsanitary home environment, high risk of crime
• Condition requires treatment by multiple providers and/or specialized sites of care	• No community resources – social support programs, public transportation, retail outlets

Consensus on NQF endorsement of outcome performance measures for use in accountability applications has become increasingly controversial over the issue of adjusting outcome performance measures for SES or other sociodemographic factors. Recent examples are NQF# 1789: Hospital-wide all-cause unplanned readmission (See the Readmissions Project, section titled Candidate Consensus Standards Review) and NQF# 2158-Medicare Spending per Beneficiary Measure (MSBP) (See Cost and Resource Use Phase 1, section titled Pre-Meeting Member Comment, Phase 1). Although the impact of sociodemographic factors on health and healthcare has been well-documented,[1-3] there are at least two divergent views regarding adjustment for sociodemographic factors:

1) Adjusting for sociodemographic factors is necessary because it is essential to the accuracy of conclusions about quality for consumers/patients, payers, and others making decisions about choice of providers or assigning rewards or penalties. Disadvantaged patients confront varying barriers to adherence and self-management, and failing to account for the sociodemographic factors creates an uneven playing field for performance measurement. For example, Satin[4] states "Asking clinics and physicians who work primarily with poor patient populations to achieve the same results as those working with wealthier populations is effectively asking for more, and in some cases, impossibly more from these providers. The results of such unrealistic demands may be fewer and fewer providers willing to serve the already underserved."
2) Adjusting for sociodemographic factors should not be done because it obscures disparities and implies that differences in outcomes based on SES are expected and accepted. For example, Iezzoni[5, p. 21] states: "For some purposes, ethical concerns raise questions about whether and how to risk-adjust. Such situations arise when persons with certain attributes (e.g., gender, race, SES) that might be potential risk factors for a given outcome simultaneously face the likelihood of receiving substandard care because of those attributes."

Interestingly, both of these positions are based, at least in part, on a concern about entrenching or worsening disparities in health or healthcare.

Although the issues about effects of sociodemographic adjustment on disparities or on outcomes for "disadvantaged" patient populations will be explored in depth in the main body of this report, it is important to note here that the Expert Panel, in its deliberations and in its recommendations, has been primarily focused on the effects of its recommendations on patients, particularly on the poor, the homeless, the limited English-speaking, members of racial and ethnic minority groups, and others who may experience some form of sociodemographic "disadvantage" in the realm of healthcare. There will be discussion on the effects of adjustment (or absence of adjustment) on providers of various types, but providers are of interest because they represent the means through which patients who most need it obtain their healthcare. The Panel did not discuss effects on providers of its recommendations, except in the sense that those effects influence the access to care, or quality of care, for patients.

The recommendations that follow in this report are based on a concern, held by nearly all members of the Expert Panel, that the current absence of adjustment for sociodemographic factors in certain performance measures can actually harm patients, and exacerbate disparities in care. The mechanisms through which those harms can occur are described in detail in the main body of the report. Most members of the Panel think that the current NQF policy, no matter how carefully considered and well-intentioned, can have the opposite effect of the one intended.

In its review of guidelines for selecting risk factors and effects of risk adjustment, the Expert Panel concludes that risk adjustment including sociodemographic factors (when they meet the guidelines) is necessary to make correct inferences about quality. Further, the Panel concludes that "accountability" and identifying disparities are two distinct analytic purposes that call for different methods as reflected in recommendation #1.

Key Definitions

Throughout this report the following definitions will be used.[b]

- **Risk adjustment** refers to statistical methods to control or account for patient-related factors when computing performance measure scores, including multivariable models, indirect standardization, or direct standardization. These methods can be used to produce a ratio of observed to expected and/or a risk-adjusted rate.
- **Stratification** refers to computing performance scores separately for different strata – i.e., each provider has multiple performance scores (one for each stratum) rather than one overall performance score.
- **Peer groups for comparison** refers to creating peer groups of providers caring for a similar mix of patients, within which to examine performance scores.
- **Sociodemographic** refers to a variety of socioeconomic (e.g., income, education, occupation) and demographic factors (e.g., age, race, ethnicity, primary language).

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[b] Definitions are provided in the glossary in Appendix B.

- **Outcome** – the result of providing healthcare. The term outcome will be used to broadly include the following types of outcomes relevant to performance measurement: quality outcomes of health outcome, intermediate clinical outcome, patient-reported outcome, and economic outcomes of cost and resource use.

Project Purpose, Scope, Approach

There is a large body of evidence that a variety of sociodemographic factors influence outcomes, and thus results on outcome performance measures. There also is a large body of evidence that there are disparities in health and healthcare related to some of those sociodemographic factors. Given the existing bodies of evidence, the overarching question addressed in this project is "What, if anything should be done about sociodemographic factors in relation to outcome performance measurement?"

The purpose of this project was to:

- Identify and examine the issues related to risk adjusting outcome performance measures for SES or other sociodemographic factors.
- Make recommendations regarding if, when, for what, and how outcome performance measures should be adjusted for SES or other sociodemographic factors.
- Make recommendations for NQF's endorsement criteria for outcome performance measures.

During the project, the Expert Panel identified that process performance measures also may need adjustment.

This project did not include recommendations for:

- Specific performance measures
- Adjustment for determining payment for services provided, such as capitated payments
- Use of a particular risk model or statistical model
- Structuring performance reward/penalty programs such as pay-for-performance

A multistakeholder Expert Panel (Appendix A) with a variety of experiences related to outcome performance measurement and disparities reviewed the issues and made recommendations regarding the use of SES and other sociodemographic variables for adjusting outcome performance measures. The Expert Panel's draft recommendations are presented for public comment. After the Expert Panel reviews public comments, it will submit final recommendations for approval by the Consensus Standards Approval Committee (CSAC) and Board of Directors.

Core Principles

The Expert Panel agreed on a set of core principles to ground its recommendations. The principles were not intended to imply a particular direction for recommendations related to risk adjustment for SES and sociodemographic factors; rather, they represented a baseline of agreement on the key issues that must be considered in making recommendations.

1. Outcome performance measurement is critical to the aims of the National Quality Strategy.

2. Disparities in health and healthcare should be identified and reduced.
3. Performance measurement should not lead to increased disparities in health and healthcare.
4. Outcomes may be influenced by patient health status, clinical, and sociodemographic factors, in addition to the quality and effectiveness of healthcare services, treatments, and interventions.
5. When used in accountability applications, performance measures that are influenced by factors other than the care received, particularly outcomes, need to be adjusted for relevant differences in case mix to avoid incorrect inferences about performance.
6. Risk adjustment may be constrained by data limitations and data collection burden.
7. The methods, factors, and rationale for risk adjustment should be transparent.

Recommendations

The Expert Panel made the following recommendations. A brief rationale accompanies each recommendation. However, an in-depth discussion of the issues that led the Panel to these recommendations is in the following sections.

These recommendations are supported by the vast majority of the Expert Panel (21-25 of the 26 members, depending on the specific recommendation); however, a small minority position maintains that sociodemographic factors should not be used for statistical risk adjustment and should only be used for stratification of performance scores for individual providers or creating peer groups for comparison. The concerns are presented in more detail in the next section and followed with the discussion leading to the "super-majority" view in favor of adjustment.

Recommendation 1: When there is a conceptual relationship (i.e., logical rationale or theory) between sociodemographic factors and outcomes or processes of care that is <u>not primarily mediated by quality of care</u>, and empirical evidence that sociodemographic factors affect an outcome or process of care reflected in a performance measure, the analytic method should differ based on the purpose as follows:

- *For purposes of accountability* (e.g., public reporting, pay-for-performance), those sociodemographic factors should be included in risk adjustment of the performance score (using accepted guidelines identified in #3) unless there are conceptual reasons or empirical evidence indicating that adjustment is unnecessary or inappropriate; and
- *For purposes of identifying and reducing disparities*, performance measures should be stratified on the basis of relevant sociodemographic factors when used in analysis by individual providers, policymakers, researchers, and the public working to reduce disparities.

Rationale: When outcomes or processes of care are influenced by sociodemographic factors (but <u>not primarily mediated by quality of care)</u>, the sociodemographic factors should be addressed in performance measurement. Accountability (e.g., public reporting, pay-for-performance) and identifying disparities are different purposes that need to be addressed differently.

For accountability applications, if outcomes or processes of care are influenced by sociodemographic factors (but <u>not primarily mediated by quality of care)</u>, the sociodemographic factors should be handled in the same way as clinical or health status factors and the accepted guidelines for selecting clinical risk factors should be applied to sociodemographic factors. However, not all outcomes or processes of care

are affected by sociodemographic factors. For example, outcomes and processes that are directly under the control of healthcare providers, such as the outcome of central line infection occurring during a hospital stay, or the process of administering the correct medication at the correct time, would not need adjustment for sociodemographic factors. Further, not all sociodemographic factors may affect all outcomes. For example, improvement in ambulation has no conceptual relationship to race, but does to age. Additionally, if evidence exists that observed relationships between sociodemographic factors and an outcome (or process) are due primarily to differences in actual quality of care as reflected in measures of key processes of care, then adjustment for those factors is not appropriate. In some cases, the pathway for the effect of the sociodemographic factor may include both inherent patient differences and worse quality of care. In these cases developers and committees will need to weigh how best to account for the patient risk.

The limitations of stratification (e.g., reduced sample size for multiple strata, complexity if more than one factor) might make it impractical for most accountability applications. For most accountability applications, a single number reflecting a provider's performance on a measure is required. Nonetheless, the Panel recognized that having performance data stratified by the relevant sociodemographic factors is important to identify disparities and opportunities to reduce disparities.

For purposes of identifying and reducing disparities, performance data should be stratified on the basis of relevant sociodemographic factors. The Expert Panel did not identify how best to operationalize the use of stratified performance data to identify and reduce disparities and is interested in receiving comments. Clearly, a concerted effort among providers, policymakers, researchers, and the public is needed. For example, when sociodemographic factors influence a performance measure, regardless of adjusted performance scores, providers need to examine their own data to identify opportunities for improvement in serving disadvantaged patient populations. Potentially, the Centers for Medicare & Medicaid Services (CMS) or other producers of performance reporting could make such stratified data available when feasible and relevant. Doing so could serve a dual purpose of providing finer grained data to interested parties and for assessing and addressing healthcare disparities. Policymakers could specifically target resources and improvement initiatives for reducing disparities on the basis of such analyses. If stratified scores are clinically adjusted and sufficiently reliable for estimates in the strata, making stratified data available through some drill-down functionality could provide additional information on disparities. ***The Expert Panel is interested in comments on various approaches***.

Recommendation 2: The NQF criteria for endorsing performance measures used in **accountability applications** (e.g., public reporting, pay-for-performance) should be revised as follows to indicate that patient factors for risk adjustment include both clinical and sociodemographic factors:

> ***2b4.*** *For outcome measures and other measures when indicated (e.g., resource use, some process):*
> *an evidence-based risk-adjustment strategy (e.g., risk models, ~~risk stratification~~) is specified; is based on patient factors (including clinical and sociodemographic factors) that influence the measured outcome (but not primarily mediated by the quality of care ~~factors related to disparities in care or the quality of care~~) and are present at start of care;*[14,~~15~~] *and has demonstrated adequate discrimination and calibration* ***OR*** *rationale/data support no risk adjustment~~/ stratification~~.*

14. Risk factors that influence outcomes should not be specified as exclusions.
~~*15. Risk models should not obscure disparities in care for populations by including factors that are associated with differences/inequalities in care, such as race, socioeconomic status, or gender (e.g., poorer treatment outcomes of African American men with prostate cancer or inequalities in treatment for CVD risk factors between men and women). It is preferable to stratify measures by race and socioeconomic status rather than to adjust out the differences.*~~

Rationale: Essentially all of the guidelines for selecting clinical risk factors to use in adjustment models as discussed in recommendation #3 are relevant to selecting sociodemographic factors. If sociodemographic factors are present at the start of care and affect outcomes in ways not primarily mediated by quality of care, then lack of adjustment for those factors can lead to incorrect inferences about quality.

Recommendation 3: The same guidelines for selecting clinical and health status risk factors for adjustment of performance measures may be applied to sociodemographic factors and include the following:

- Clinical/conceptual relationship with the outcome of interest
- Empirical association with the outcome of interest
- Variation in prevalence of the factor across the measured entities
- Present at the start of care
- Does not represent the quality of care provided (e.g., treatments, expertise of staff)
- Resistant to manipulation or gaming
- Accurate data that can be reliably and feasibly captured
- Contribution of unique variation in the outcome (i.e., not redundant)
- Potentially, improvement of the risk model (e.g., risk model metrics of discrimination, calibration)
- Potentially, face validity and acceptability

Rationale: The guidelines for selecting clinical risk factors apply equally well to sociodemographic factors. Selecting risk factors and developing a model is an iterative process, but is based first on a conceptual relationship and demonstration of an empirical relationship with the outcome or process of interest.

Recommendation 4: When there is a conceptual relationship and evidence that sociodemographic factors affect an outcome or process of care reflected in a performance measure submitted to NQF for endorsement, the following information should be included in the submission:

- A detailed discussion of the rationale and decisions for selecting or not selecting sociodemographic risk factors and methods of adjustment (including a conceptual description of relationship to the outcome, empirical analyses, and limitations of available sociodemographic data) should be submitted to demonstrate that adjustment incorporates relevant sociodemographic factors unless there are conceptual reasons or empirical evidence indicating that adjustment is unnecessary or inappropriate.

- In addition to identifying current and planned use of the performance measure, a discussion of the limitations and risks for misuse of the specified performance measure.

Rationale: NQF submission currently requires information on risk adjustment specifications, risk factor selection, and risk model assessment, and current and planned use of the performance measure. The developer’s decisions regarding sociodemographic factors should be transparent and open to review and evaluation.

Recommendation 5: When performance measures are used for accountability applications such as public reporting and pay-for-performance, then purchasers, policymakers and other users of performance measures should assess the potential impact on disadvantaged patient populations and the providers serving them to identify unintended consequences and to ensure alignment with program and policy goals. Additional actions such as creating peer groups for comparison purposes could be applied.

Rationale: Even if a performance measure is adjusted using sociodemographic factors, this does not ensure that program policies will protect safety net providers. Although NQF does not control how measures are implemented, it is important to signal that the impact of program polices on providers caring for disadvantaged populations, whom may have fewer resources to improve the care they provide, should be considered. The recent MedPAC recommendation regarding hospital readmissions is an example of creating peer groups for comparison as a way to lessen the impact of a performance penalty on safety-net hospitals.

Recommendation 6: NQF and/or others such as CMS, Office of the National Coordinator (ONC) for Health Information Technology, and the Agency for Healthcare Research and Quality (AHRQ) should develop strategies to identify a standard set of sociodemographic variables (patient and community-level) to be collected and made available for performance measurement and identifying disparities.

Rationale: Even when performance measures should be adjusted for sociodemographic factors, data limitations currently pose a substantial barrier. Although mandated data collection is beyond the scope of NQF, there is a need for a national effort to collect relevant sociodemographic information in a standardized way that allows for its valid use in adjustment models that will be applied across states and regions. Most sociodemographic variables that could conceivably be used in risk adjustment models are not currently collected in a standard way by doctors, hospitals, and other healthcare providers, and are not included in claims data bases that are often used to develop risk models. Data on sociodemographic factors also are important for providers when providing care and also when reviewing their performance for quality improvement.

Recommendation 7: NQF should consider expanding its role to include guidance on implementation of performance measures. Possibilities to explore include:

- guidance for each measure as part of the endorsement process;

- guidance for different accountability applications (e.g., use in pay-for-performance versus pay-for-improvement; innovative approaches to quality measurement explicitly designed to reduce disparities).

Rationale: How a measure is implemented involves multiple decisions that could affect the validity of conclusions (inferences) made about quality of care and potential unintended consequences. For example, cut points based on rankings of performance scores without confidence intervals could result in different classifications (conclusions) about quality without any significant difference in performance for providers above or below a cut point (e.g., confidence intervals for scores above and below a cut point may overlap). The structure of a pay-for-performance program could potentially worsen disparities if providers with more limited resources receive penalties and have fewer resources to provide care and improve. For example, including incentives for improvement rather than absolute performance may minimize concerns about risk adjustment and the potential for worsening disparities while maintaining an incentive for improvement.

Recommendation 8: NQF should make explicit the existing policy that endorsement of a performance measure is for a specific context as specified and tested for a specific patient population (e.g., diagnosis, age), data source (e.g., claims, chart abstraction), care setting (e.g., hospital, ambulatory care), and level of analysis (e.g., health plan, facility, individual clinician). Endorsement should not be expanded without review and usually additional testing.

Rationale: This is implicit in the current NQF criteria and process for endorsing a performance measure as specified and tested. However, it should be clearly stated that expansions to additional patient populations, data sources, settings, or levels of analyses are not endorsed and would require an ad hoc review to expand endorsement.

Perspectives on Adjusting for Sociodemographic Factors

A large body of evidence shows an association between a variety of sociodemographic variables (e.g., income, education, race/ethnicity, homelessness) and outcomes. [1-3] In general, sociodemographic "disadvantage" (e.g., low income, low education, homelessness) is associated with poorer patient outcomes (e.g., higher morbidity, mortality, or readmissions). That association has also been demonstrated with outcome performance measures for physicians, hospitals, and other healthcare providers.[6-12] In general, caring for sociodemographically "disadvantaged" populations is associated with poorer performance (based on current performance measures) on average, although there are some noteworthy exceptions to the general pattern.[13] Although adjustment for clinical and health status risk factors is common across a range of outcome performance measures, adjustment for sociodemographic factors is not.

The Expert Panel reviewed the concern about masking disparities through sociodemographic adjustment, and weighed them against the potential adverse consequences of worsening disparities through absence of adjustment. In addition, the Panel explored the role of risk adjustment (both using statistical models and through various forms of stratification) in making correct inferences about quality.

Concerns about Adjusting Performance Measures for Sociodemographic Factors

The following concerns were cited against adjusting for sociodemographic factors. ***A small minority of the Panel advocates maintaining a restriction on adjusting for sociodemographic factors based on these concerns.***

The first and most important concern supporting the position against adjustment for sociodemographic factors is that disadvantaged patient groups, on average, receive worse quality of care. In other words, differences in observed performance reflect actual differences in the processes of care for disadvantaged patients that are in turn reflected in lower outcome performance. In perhaps the most systematic review of quality of care by SES, Ash et al.[14] found small, but statistically significant differences in quality of care provided by income. Unexpectedly, Blacks and Hispanics received slightly better quality care than Whites. However, this study did not examine potential mechanisms for worse care for poorer patients.

There are several widely cited mechanisms through which providers might provide worse care processes for disadvantaged patients. First, it could reflect bias in care by providers in general based on the sociodemographic characteristics of the patients (e.g., poverty, race, language).[15, 16] Second, it could reflect reduced resources and funding in places where patients receive care. If disadvantaged patients cluster within poorly resourced facilities that provide worse care, then disadvantaged patients will inevitably, on average, receive worse care.[11, 17, 18] A third mechanism involves attempts by the clinician to tailor care to perceived constraints by the patient. Such decisions might be appropriate, i.e., when they are collaboratively made in partnership with the patient, or inappropriate, i.e., when the physician unilaterally decides what the patient wants and/or can afford.

While the causal pathways between sociodemographic factors and outcomes are different for these three mechanisms, the net result can be the same — where and when these conditions exist, disadvantaged patients receive worse care on average. There is some empirical evidence for each of these mechanisms; findings often differ depending on the performance measure and provider type. Notably, in the instance where disparities in care are largely driven by inadequate resources available to the provider serving disadvantaged patients, the primary redress is improvement in resources.

A second concern is that adjustment will make meaningful differences in outcomes “disappear” — that is, the adjustment will have a strong enough effect that meaningful differences in outcomes will not be detectable in adjusted performance scores. The concern is that differences in measured outcomes reflect to what degree providers implement interventions to mitigate the effects that sociodemographic factors have on those outcomes (e.g., instructions in multiple languages, interpreters, prescribing low-cost generic drugs, hospital discharge follow-up).

A third concern is that adjustment implies that worse outcomes are “expected” for certain patient groups such as those with low income, and therefore, there would be no expectation that providers try to mitigate the effect of such factors on outcomes. In other words, adjusting for sociodemographic differences will blunt provider motivation to provide optimal care for disadvantaged patients. Empirical evidence supporting or refuting this concern is lacking. There is also concern that adjustment implies or creates a double standard, with a lower standard for disadvantaged patients. This concern is related to “masking” in that if one doesn’t see differences related to sociodemographic factors because they have been “adjusted away”, one can’t or won’t do something about them, and the double standard will be "institutionalized". Some panel members expressed concern that it was not desirable to engrain different standards for the outcomes of disadvantaged patients.

Response to Concerns

The Panel recognized the rationale and empirical basis for these concerns, the desire for the best possible outcomes for disadvantaged patients, and the status of these concerns as representing current NQF policy. However, a vast majority of the Expert Panel (21-25 of the 26 members depending on the specific recommendation) thought that other considerations, also directly related to disparities in care and outcomes for disadvantaged populations, led to a different policy conclusion — one favoring sociodemographic adjustment in specific, defined circumstances. The members of that "super-majority" also felt that some specific concerns about adjustment (e.g., disparities being "adjusted away") were not necessarily warranted for some specific approaches to adjustment. These issues are addressed in detail in the following sections.

Unintended Consequences When Performance Measures are Not Adjusted for Sociodemographic Factors

An alternative explanation for observed associations between outcomes and sociodemographic factors is that, all else being equal, disadvantaged patients (just as clinically complex patients) have worse outcomes <u>through causal pathways that have nothing to do with actual quality of care received</u>; therefore, performance scores for providers with a disproportionate share of disadvantaged patients will appear worse on average, even when actual quality of care provided is the same as, or even better than, that of providers serving "advantaged" patients.

When and if that is the case, then there is a basis for concern about unintended consequences of <u>not</u> adjusting performance measures for sociodemographic factors. The first is continued use of a performance measure for which an accurate conclusion is undermined by failure to account for differences in patients' constraints. Just as quality measures for readmission aim to account for differences between patients in disease severity that affect repeat hospitalization, the Panel thought that factors related to social disadvantage (i.e., SES, language, health literacy, homelessness) that affect risk for readmission should also be accounted for. Failing to do so provides the public, including patients, with misleading measures of performance. A measure of true performance accounts for the level of challenge posed by the patient to achieve an outcome, whether clinical or sociodemographic. Without accounting for this difference, patients may make erroneous conclusions about relative differences in quality between providers.

In addition to hindering informed decisionmaking by patients, use of measures that fail to account for sociodemographic factors when indicated, could also harm patients through other mechanisms. As healthcare moves toward increasing use of financial rewards for better quality and financial penalties for worse quality, use of measures that result in incorrect conclusions about quality poses a substantial risk for penalizing healthcare organizations and providers who serve more disadvantaged populations.[19-23] Based on the evidence, most Panel members considered this a real and present risk that would only increase with the trend towards value-based payment and purchasing.

There is clear and expanding body of evidence to suggest that providers serving "low-sociodemographic" populations and communities are more likely to be identified as "poor performers" and either be less likely to receive financial rewards, or be more likely to face financial penalties, in pay-for-performance programs. Joynt and Jha,[24] for example, found that safety-net hospitals were more than twice as likely as other hospitals to have high penalties in the first year of the Medicare Hospital Readmission Reduction Program. In another example, Young, et al., found a strong association between socioeconomic characteristics of members of Medicare Part D drug plans and the performance ratings of those plans[25, 26]

This pattern of findings may have two different interpretations — one is that the providers serving "low-sociodemographic patients and communities" really are of poorer quality, on average, than others, and that the absence of reward and presence of penalty are fair in the sense that they are linked appropriately to real variations in quality. The other is that quality of care is really not consistently worse for providers serving disadvantaged patients, but the observed variation in performance is driven by sociodemographic variables through causal pathways that do not involve provider performance. Readmissions are difficult to avoid, for example, in patients who can't afford post-discharge medications, have no social support to help with recovery at home, have no way to get to follow-up doctor appointments, or are homeless. From this point of view, financial rewards and penalties linked to measures that are not adjusted for sociodemographic factors are not fair, and public quality reports may be misleading, in the sense that they are not closely linked to true underlying levels of quality of care.

In the context of public quality reporting and pay-for-performance, failing to account for the greater difficulty in achieving good outcomes in socially and economically disadvantaged populations could set up a series of adverse feedback loops that result in a "downward spiral" of access and quality for those populations. The net effect could worsen rather than ameliorate healthcare disparities.

How could this happen? Given the uncertain associations between true quality of care, sociodemographic "risk", and measured outcomes, the absence of some form of adjustment of performance measures using sociodemographic variables has at least three potential adverse consequences, each of which could have the eventual effect of undermining the quality of care for disadvantaged patients, thus exacerbating disparities in health and healthcare:

- In the context of public reporting of performance, providers will have a strong incentive to avoid serving disadvantaged populations, so as to avoid being labeled as a "bad performer." This could happen based on where physicians and other individual providers choose to work, where facilities are opened or closed, or expanded or contracted, and through more subtle ways of "cherry picking."
- In the context of pay-for-performance programs, substantial amounts of money will be shifted away from organizations serving disadvantaged populations and communities and to organizations serving more affluent, less vulnerable, populations and communities;
- Individual consumers, private and public payers, and others choosing among providers whose performance will be publicly reported will tend to avoid providers serving disadvantaged patients and communities,[27] based on performance scores that may not be a valid and accurate reflection of true underlying quality of care.

Taken together, these behavioral responses to performance measurement when measures are not adjusted for sociodemographic factors may have a significant unintended adverse effect on disparities, with all of them weakening the provider network in "vulnerable" communities and not only reducing access to care, but also reducing the resources available to maintain and improve quality of care among those providers remaining to serve these communities.

Most of the NQF Expert Panel was concerned that the negative impact on care to disadvantaged patients of the three phenomena listed above were on balance even more detrimental than the concerns about “masking disparities” or “setting a lower bar for performance”, so that the current position against sociodemographic adjustment should be reconsidered. In addition, the Panel thought concerns regarding the potential for masking disparities and creating dual systems of care could be addressed through explicit steps to identify and address disparities.

It is important to emphasize here that the concern expressed just above is for patients, not for providers. Individual providers, and even to some extent organizational providers, are generally free to choose where they practice, which patients or communities they serve, when they are available, and what set of services they offer. Providers who feel that their performance is fairly and accurately measured in “accountability programs” may indeed be motivated to improve when scores are not good and take actions to improve. There are examples of this happening. However, providers who feel that their performance is inaccurately, unfairly measured, or whose reimbursement is affected unfairly in pay-for-performance programs, may instead choose to move to “greener pastures”. In some instances, they may be forced to move if financial or other pressures are strong enough. When and if they do, it is the patients they serve who suffer. Even if they stay, funds taken away (or not given) in pay-for-performance programs reduce their ability to provide care and improve quality. Again, it is ultimately the patients who suffer.

Imagine a practice that serves patients from diverse cultures and language. This practice is likely to have a lower rate for receipt of cancer screening such as Pap smears, mammography, and colonoscopy due to language and/or cultural beliefs. Addressing this patient challenge requires additional resources in order to support language services, community health workers, and healthcare navigators. Penalizing practices such as this for their lower rates deprives them of the very means needed to address the needs of the patients served. Adjusting for these differences will not typically eliminate a desire on the part of the providers to improve care.

Risk Adjustment for Sociodemographic Factors

The Expert Panel also reviewed the basis for risk adjustment and its role in making correct inferences about quality of care, which is a primary goal of performance measurement. The purpose of risk adjustment is to control for patient factors affecting the outcome (or process) through pathways other than the care received so that differences in the performance scores more accurately reflect differences in quality of care. (See the basics of risk adjustment in Appendix C.) Given the body of evidence that outcomes are affected by sociodemographic factors, the Expert Panel examined the key question of whether sociodemographic factors should be handled differently than accepted practice for clinical and health status factors. They reviewed:

- Potential pathways for the effect of sociodemographic factors
- Guidelines for selecting risk factors for adjustment
- The effect of risk adjustment
- Alternatives to risk adjustment

Potential Pathways for the Effect of Sociodemographic Factors

The term *sociodemographic* will be used to include a variety of socioeconomic (e.g., income, education, occupation) and demographic factors (e.g., age, race, ethnicity, primary language) that are associated with disadvantage among affected populations. Low income, for example, is associated with inability to afford needed medications or lack of transportation to office visits or therapy sessions. Low literacy is associated with inability to understand or follow hospital discharge instructions or written health education materials.

Not all outcomes or processes are affected by sociodemographic factors, or they may be affected by some but not other sociodemographic factors. When the outcome is strongly under the control of the provider, e.g. central line infection or wrong limb amputated, there generally would be no conceptual or empirical basis for sociodemographic adjustment.

When present, the association of patient sociodemographic characteristics and outcomes is more complex than for clinical or health status factors. The mechanism(s) for the association between sociodemographic factors and health status and outcomes is often complex and might not always be clear.[8, 28]

Low SES and social disadvantage tend to be associated with greater morbidity, disease severity, and worse quality of life.[29, 30] This disease burden (and risk for disease) may not be fully captured by current clinical case-mix adjustment, which historically has relied on billing codes. For example, African Americans’ higher risk for preterm birth is not captured by conventional risk factors, much less standard billing codes.[31] In addition, differences in healthcare utilization among different groups may create systematic bias in estimation of morbidity using claims data.[32, 33]

A second way that patient sociodemographic factors can affect outcomes and performance measures is through fewer resources and more barriers to healthcare access and adherence. Examples include affordability of care, transportation, competing life demands and basic survival priorities, limited English proficiency, health literacy, poor social support, homelessness, cultural beliefs, and institutional mistrust among other barriers. These factors contribute to healthcare disparities.[34] Sociodemographic factors operate in the present but also may have a cumulative effect on health outcomes across the life course through a variety of mechanisms including early effects on sensitive periods during development and epigenetic effects.

Another potential and simultaneous mechanism may be the implicit biases or assumptions on the part of healthcare providers that influence their interactions with, and the care options given to, patients with different characteristics (e.g., race/ethnicity), thus increasing the likelihood of receiving substandard care.

The characteristics associated with being disadvantaged (e.g., low SES) are generally associated with less than optimal clinical outcomes. However, for resource use and cost outcomes, the relationship could vary. Depending on timing and the population included, cost and resource use could be less because of inability to access preventive and early diagnostic services. Additionally, if sociodemographic factors lead to less use of healthcare services, data on health status and clinical conditions prior to the start of care may not exist to the same degree. That is, if those with lower SES use the healthcare system relatively less (controlling for morbidity) then adjustment of prior diagnoses may underadjust.

Mitigation of Effect of Sociodemographic Factors

In instances more strongly affected by patient-related barriers such as medication adherence, the assumption that provider quality drives the differences in performance measure scores becomes weaker. Note, this does not mean that providers cannot take steps to improve adherence among disadvantaged patients. Rather, it means that in the absence of explicit mitigation strategies (that typically involve the investment of resources) providers serving poor patients will look worse on measures like medication adherence.[35] This does raise a related policy issue of where the responsibility (and cost) for mitigating the health effects of sociodemographic factors begins and ends — with healthcare providers, payers, communities, or with individuals. Community factors including local funding for care of the uninsured or underinsured influence provider resources available to devote to interventions needed to mitigate the effects of some sociodemographic factors such as providing translation services. Indeed much of the debate about the use of sociodemographic factors relates to setting appropriate expectations for investment in care for disadvantaged patients and concerns about what entity should be incentivized to do so.

There is some parallel here to clinical factors, where providers are expected to take steps to address higher clinical severity or complexity, even though those factors are used for risk adjustment in performance measures. However, while current case-mix payments to providers aim to account for patient morbidity and severity (and thus need for more costly care), few payment systems account for services to mitigate the effects of sociodemographic complexity of disadvantaged patients. Full discussion and resolution of the related issues of payment and responsibility for mitigating the effects was beyond the scope of the Expert Panel's charge, but the recommendations represent a widely-held view among Panel members that it is not generally within the power, budget, or defined roles of most healthcare providers to deal with all of the causal paths through which sociodemographic variables affect outcomes and related performance measures. This is particularly true for providers serving a very high proportion of disadvantaged patients who do not receive any enhanced funding to manage problems like inability to afford post-discharge medications, lack of heat in an apartment, absence of social support, lack of transportation, or homelessness.

Guidelines for Selecting Risk Factors

The Expert Panel reviewed the guidelines for selecting clinical or health status risk factors and their rationales. The Panel determined that the same guidelines may also be usefully applied to sociodemographic factors as indicated in Table 1. Risk factors do not need to meet every guideline and developing a risk model is an iterative process that at times requires weighing various trade-offs.

However, all risk factors should be based first on a conceptual relationship with the outcome or process being measured. The conceptual relationships are informed by prior research as well as experience. Not all outcomes or processes of care are affected by sociodemographic factors. For example, outcomes and processes that are directly under the control of healthcare providers, such as the outcome of central line infection occurring during a hospital stay, or the process of administering the correct medication at the correct time, would not need adjustment for sociodemographic factors. Further, not all sociodemographic factors may affect all outcomes. For example, improvement in ambulation has no conceptual relationship to race, but does to age. See a specific example of identifying a conceptual relationship in Table 2.

Table 1. Guidelines for Selecting Risk Factors for Outcome Performance Measures

Guideline	Rationale	Clinical/ Health Status Factors[c]	Sociodemographic Factors[d]
Clinical/conceptual relationship with the outcome of interest	Begin with conceptual model informed by research and experience	✓	✓
Empirical association with the outcome of interest	To confirm conceptual relationship	✓	✓
Variation in prevalence of the factor across the measured entities	If there is no variation in prevalence across providers being measured, it will not bias performance results	✓	✓
Not confounded with quality of care – risk factors should:	Trying to isolate effects of quality of care	✓	✓
• be present at the start of care and	Ensures not a result of care provided	✓	✓
• not represent the quality of care provided (e.g., treatments, interventions, expertise of staff)	Although these could explain variation in outcome, trying to isolate differences in performance due to differences in the care provided	✓	✓
Resistant to manipulation or gaming – generally, a diagnosis or assessment data (e.g., functional status score) is considered less susceptible to manipulation than a clinical procedure or treatment (e.g., physical therapy).	Ensures validity of performance score as representing quality of care (vs. for example, upcoding)	✓	✓
Accurate data that can be reliably and feasibly captured	Data limitations often represent a practical constraint to what factors are included in risk models	✓	✓
Contribution of unique variation in the outcome (i.e., not redundant or highly correlated with another	Prevent overfitting and unstable estimates, or coefficients that appear to be in the wrong	✓	✓

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[c] Examples of clinical and health status factors include comorbidity; severity of illness; patient-reported health status, etc.

[d] Examples of sociodemographic factors include income; education; English language proficiency, etc.

Guideline	Rationale	Clinical/ Health Status Factors[c]	Sociodemographic Factors[d]
risk factor)	direction; reduce data collection burden		
Potentially, improvement of the risk model (e.g., risk model metrics of discrimination – i.e., sensitivity/specificity, calibration) and sustained with cross-validation	Change in R-squared or C-statistic may not be significant, but calibration at different deciles of risk might improve May not appear to be a big change but could represent meaningful differences in terms of the outcome (e.g., lives, dollars) Order of entry into a model may influence this result	✓	✓
Potentially, face validity and acceptability	Some factors may not be indicated empirically, but could improve acceptability – need to weigh against negative impact on model, feasibility and burden of data collection	✓	✓

An example of identifying a conceptual basis for adjusting a performance measure for sociodemographic factors, like HbA1c control, but not adjusting for sociodemographic factors for a performance measure like central line infection is given in the table below.

Table 2. Identifying a Conceptual Basis for Adjusting for Sociodemographic Factors

Potential questions to identify conceptual/clinical relationship to the outcome	HbA1c Control	Central Line Infection
Significant passage of time between provider intervention and measured outcome?	Yes	No
Patient behavior or decisions possibly related to poor outcome?	Yes	No
Patient resources (e.g., money, social support) related to outcome regardless of quality of care provided?	Yes	No
Neighborhood or community factors possibly related to outcome, regardless of quality of care provided?	Yes	No
Patient contact with other healthcare providers between actions of “measured provider” and outcome?	Yes	No

If a conceptual relationship exists between sociodemographic factor and outcome, it should be tested empirically. The Panel did not specify, and does not recommend, any particular analytic approach with which to identify empirical associations between sociodemographic factors and outcomes, nor any specific cutoff or threshold value to use for declaring the presence of an association. As noted above, a body of evidence already exists on these relationships, and that body will clearly expand and be enriched in the future. In general, the same criteria used to identify empirical associations between clinical risk factors and outcomes would be used to identify associations between sociodemographic factors and outcomes or processes. Ideally, it would not be enough to simply demonstrate a statistically significant relationship between a sociodemographic factor and an outcome in a large data set of individuals; rather, it would be useful to identify the causal pathways involved in the relationship, the extent to which those pathways do or do not involve quality of care, the extent to which the factors vary in their frequency across different providers, and the extent to which the factors are best understood as characteristics of individuals, characteristics of families or households, or characteristics of neighborhoods or communities.

Given that the guidelines for selecting risk factors apply to sociodemographic factors, it leads to the question of why they should be handled differently and not be included in statistical models. This question will be addressed in the next section.

A reason for not including a sociodemographic factor in risk adjustment is that the effect of that sociodemographic factor is primarily mediated through the quality of care provided. That is, if the factor was a "marker" for biased care practices such as not discussing certain treatment options with patients based on SES, race, gender, or age, or not attempting to provide instruction to patients who do not speak English, then it is important to not adjust for that factor. The Panel was respectful of this view, but not convinced that the relationship between sociodemographic factors and actual quality of care received was so strong, universal, or pervasive as to support a blanket prohibition against adjustment for sociodemographic factors. Recommendation 1 states that an appropriate exception to sociodemographic adjustment would be conceptual reasons or empirical evidence indicating that adjustment is inappropriate because of a strong link between one or more sociodemographic factors and actual quality of care received in the context of the outcome or process measure in question. In that case, not adjusting for one or more factors would not preclude adjusting for other sociodemographic factors linked to the outcome, but not strongly associated with differences in quality of care.

Effect of Risk Adjustment

Risk adjustment refers to statistical methods to control or account for patient-related factors when computing performance measure scores, including multivariable models, indirect standardization, or direct standardization. The result of statistical treatment is an adjusted overall performance score that takes into account the presence of patient-related factors. Generally, providers serving higher-than-average-risk patients will have adjusted scores that look better than their raw scores; the reverse will be true for providers serving lower-than-average-risk patients.

An important goal of risk adjustment is to "level the playing field" when making conclusions about quality of care. That is, the performance scores should not simply be due to differences in the severity or complexity of the patients served. As noted above, the guidelines for selecting clinical and health status risk factors apply to sociodemographic factors. Therefore, without controlling for sociodemographic factors that have a conceptual and empirical relationship to the outcome or process and are not primarily mediated by quality of care, the inference from the performance score would be incorrect. Sociodemographic factors can contribute to the severity and complexity of the patient population served by these providers. Providers with a disproportionate share of disadvantaged patients will appear to provide lower quality care than they actually do, and vice-versa.

Empirical evidence that adjusted rates make meaningful differences disappear is not clear.[10, 36] In some examples of adjusted measures available to the Expert Panel, the effect of sociodemographic adjustment was to reduce the variation among providers seen in the scores adjusted only for clinical factors, but not to eliminate it entirely; there were also some changes in the relative ranking of providers, but not large shifts. The remaining variation in performance scores would presumably still serve as a basis for identifying high vs. low-performing providers. By controlling for sociodemographic factors as well as clinical/health status factors, true differences in quality of care can be identified. Truly low-performing providers serving disadvantaged patients could presumably still be identified in the adjusted data. However, when performance scores differ with and without sociodemographic adjustment, it is difficult to identify which is a better representation of quality without further exploration of other quality indicators.

The following illustration is based on one approach to adjustment — indirect standardization. (See another illustration for multivariable model in Appendix D.) With indirect standardization, an expected number of outcomes is determined by applying stratum-specific rates determined from all patients in the reference population to a provider's number of cases in each stratum — i.e., what is expected if the hypothetical average provider cared for the provider's specific mix of patients.[5] An observed-to-expected ratio is then used to compute a standardized or risk-adjusted rate. Multivariable statistical models are an extension of indirect standardization based on the same concepts.

The table that follows illustrates risk adjustment using indirect standardization. This illustration does not use actual data and is simplified with just two levels for a sociodemographic factor and numbers chosen for easy computation. For purposes of this illustration, one should assume that the sociodemographic factor meets the guidelines presented in Table 1 and the initial scores are already adjusted for clinical factors. We will call the measure "mortality rate", but it could represent any relatively rare adverse event.

- In this example, the national mix of patients is 80% average-high income and 20% low income. The national average experience for mortality is 2% for average-high income patients vs. 3% for low-income patients.
- Comparing the overall computed mortality rates that are only clinically adjusted (row labeled "All Patients", Provider A has the lowest rate, followed by providers B and C (2.2%, 2.6%, and 2.9% respectively). This is an example of the current situation for performance measures, in which clinical adjustment is done, but socioeconomic adjustment is not done.
- Provider A's sociodemographic mix is the same as the national mix. Its performance is also the same as the national average for both the average-high and low-income categories (2% and 3% respectively). In both case mix and performance, then, it is exactly average. Adjustment for income using this method (result in bottom row) does not change its rate (2.20%).
- Provider B has a less favorable sociodemographic mix, but its performance is exactly the same as the national average as well as that of Provider A for the two income categories (2% and 3% respectively). With its performance score only adjusted for clinical factors (2.6%), it appears to be "worse" than Provider A, but in fact it is not. In its rate adjusted for both clinical factors and

income, its performance score is identical to that of Provider B (2.2%). The super-majority of Panel members favoring sociodemographic adjustment believes that this is as it should be.

- Provider C has the same unfavorable sociodemographic mix of patients as Provider B, but its performance is worse for the low-income group (3.5% vs. 3%). Its income-adjusted rate is higher than Provider B's income-adjusted rate, reflecting its poorer performance for its low income patients.

Table 3. Illustration of Risk Adjustment Using Indirect Standardization

	All Patients in National Population		**Provider A**		**Provider B**		**Provider C**	
Sociodemographic Category	Pt mix N/Percent	**Clinically adjusted mortality** N/Percent	n	**Clinically adjusted mortality** n/Percent	n	**Clinically adjusted mortality** n/Percent	n	**Clinically adjusted mortality** n/Percent
All patients	1,000,000 100%	22,000 **2.20%**	1000	22 **2.20%**	1000	26 **2.60%**	1000	29 **2.90%**
Average to High Income	800,000 80%	16,000 2%	800	16 2%	400	8 2%	400	8 2%
Low-Income	200,000 20%	6,000 3%	200	6 3%	600	18 3%	600	21 3.5%
Expected deaths with adjustment for income category				22		26		26
Standard ratio = clinically adjusted/ expected				1.0		1.0		1.115
Income-adjusted rate				**2.20%**		**2.20%**		**2.45%**

There are three important points to emphasize about this example. First, adjustment for income in this particular method does not "adjust away" the differences in results achieved between Provider B and Provider C. Provider C still has a worse performance score than either A or B after adjustment. Second, income disparities are clearly visible in the middle cells of the table, and they are actually a key part of the middle steps of the indirect standardization calculations and the data would be available to identify disparities both across and within providers. Finally, all three providers have clear incentives to improve. In a "star system" of rankings, Providers A and B would be "three-star" providers because their performance is just average. If rewards are given for four- or five-star performance, they both need to improve. Provider C may be a three-star or two-star provider depending on how cut points are set, but it also has a clear incentive to improve. It may be the case that both Provider B and Provider C find that their best opportunity for overall improvement is to improve care for their low-income patients. Adjustment in this example does not remove incentives for improvement.

Neither the observed nor adjusted performance rates alone can provide any information on disparities. Without the specific information on performance for income subgroups, the overall performance rates neither identify nor mask disparities. The subgroup scores that are included in this method do reveal the disparities, though. This particular adjustment method meets the Panel's general principles of transparency, attention to disparities, and accuracy and fairness of performance reporting.

Risk adjustment is not perfect and the same limitations of risk adjusting for clinical factors applies to sociodemographic factors — that is, when patient mix affects outcomes and differs widely across providers, risk adjustment may not completely adjust for those differences.[5] For example, if the national mix of patients is 20% low-income, but a particular provider's patient mix consists of 90% low-income patients, a national adjustment model may not be able to completely account for such a large difference in case mix. Therefore, risk adjustment does not necessarily preclude using additional methods when comparing performance such as constructing peer groups for comparison as described below.

Process Performance Measures

Some of the same issues regarding the relationship between sociodemographic factors and outcomes might also apply to processes, processes that are not primarily under the control of the healthcare provider and require some action by the patient (e.g., getting prescription filled). As with the outcome performance measures, adjusting process measures should be guided first and foremost by a causal theory. Many processes are primarily under the control of healthcare providers (e.g., administering the correct antibiotic to prevent surgical site infection) and adjustment for sociodemographic factors would not be appropriate because the relevant clinical guideline generally would make no exception for sociodemographic factors, and there is no plausible, acceptable causal path through which a sociodemographic factor would affect performance of the clinical process. Some processes, though, are not as strongly under the control of the provider (e.g., adherence with medications, receipt of screening colonoscopy) and adjustment for sociodemographic factors might be called for if the general criteria for selecting adjustment factors are met.

Alternatives to Risk Adjustment

Stratification refers to computing performance scores separately for different strata — i.e., each provider has multiple performance scores (one for each stratum) rather than one overall performance score. With this method, performance is reported and can be compared for subgroups of patients with similar levels of risk or sociodemographic characteristics. It offers two advantages. Stratification by sociodemographic factors allows identification of disparities in healthcare for certain subgroups of patients because scores are associated with the particular factor. In essence, stratification "unmasks" healthcare disparities by examining performance for groups who have been historically disadvantaged compared to groups who have not been disadvantaged.

An illustration of stratification appears in the table that follows. Note that stratification is essentially the first step in adjustment as illustrated above. Stratification is most likely to be useful when examining performance for groups where substantive differences in performance have been observed. It is particularly useful for providing finer grained information and most notably for assessing and addressing disparities.

The biggest barrier for using stratification alone for accountability applications is one of feasibility. Each provider's patient population is divided into the specified categories, thus reducing sample sizes available for analysis in each category. Sample size affects reliability and the ability to distinguish differences and make accurate inferences. If there is more than one relevant sociodemographic factor (e.g., race, ethnicity, income, language, etc.) then stratification becomes much more complex, increasing the number of categories and further reducing sample size in each "cell" of the resulting matrix of stratification factors and levels. Combining individual factors into composites may address this problem to some degree, but stratification by itself does not address the problem of needing a single performance score for each provider for a given measure in order to use in either public reporting or pay-for-performance.

Table 4. Illustration of Stratification

	National	**National**	**Provider A**	**Provider A**	**Provider B**	**Provider B**
Sociodemographic Stratum	Percent of patients	Observed rate	N/ percent	Observed rate	N/ percent	Observed rate
Low	30%	63%	500 50%	65%	20 20%	60%
Moderate	50%	72%	400 40%	70%	50 50%	65%
High	20%	85%	100 10%	83%	30 30%	67%

Table 4 shows a very simple example of stratification. A single sociodemographic variable (income, for example) is divided into three levels, and patients are assigned to one of the three levels. The size of the population at the national level may be in the hundreds of thousands or millions for each of the three strata, so performance rates are very reliable. Provider A has reasonably large sample sizes in each stratum, and performance scores close to the national average in each. Its performance, for each stratum, would probably be identified as average. There is no direct way, in this example, to make a judgment about Provider A's overall performance, although its higher proportion of patients in the "low" stratum would make its overall performance appear to be worse than average, as shown earlier in Table 3. Disparities in performance across the three strata are evident, and are essentially the same as the disparities found at the national level. Provider B has a much smaller sample in each stratum, and also lower performance scores in each. It actually has lower disparities across strata than Provider A, but its overall performance score (either unadjusted or adjusted) would be worse. (Note, though, that the stratified report does not actually provider an overall score.) However, the small sample sizes in each cell may make it difficult to identify the performance as significantly worse than either Provider B or the national average.

Peer groups for comparison refers to creating peer groups of providers caring for a similar mix of patients, within which to examine performance scores. It could facilitate comparisons of providers with similar resources, e.g., VA sites with VA sites, or federally qualified health centers with each other. Depending on how the peer groups are constructed, it also tends to match patient populations, e.g. proportion of uninsured patients or those covered through Medicaid. In this approach, performance scores for individual providers are neither adjusted nor stratified for sociodemographic factors (using the definition of stratification in this report). Constructing peer groups for comparison occurs after performance scores are computed. This approach avoids the issue of reducing sample sizes seen with stratification. Recently, MedPAC recommended using this approach with the readmission reduction program.[37] Peer groups can help ensure that use of a performance measure to apply rewards or penalties is consistent with program and policy goals. For example, if providers caring for a disproportionate share of disadvantaged patients will be disproportionately penalized using unadjusted performance scores, that may not be a desirable result. Applying the penalty on the basis of performance within groups of “peer providers” rather than on the basis of performance relative to the entire universe of providers is one way to avoid a disproportionate share of penalties to safety-net providers. Adjustment of a performance score for sociodemographic factors would not always or automatically exclude the possibility of using peer groups for comparison, given the limitations of risk adjustment and availability of data to adjust for sociodemographic factors.

Table 5 presents a simple example of use of peer groups to establish different reference points for different providers, which then could be used to apply financial rewards or penalties or to identify providers as relatively good or bad within that peer group. In this example, providers (e.g., hospitals) are grouped into “quintiles” based on the percent of their patients at or below 138% of the federal poverty level. Hospitals in quintile 1 have relatively few such patients; hospitals in quintile 5 have many. The performance measure here is something for which “more is better” — percent of acute stroke patients arriving at the ER within two hours of symptom onset, for example. There are clear disparities in this measure at the national level in this example.

Providers A and B are both assigned to a quintile based on their specific percent of patients at or below 138% of federal poverty level. Provider A is in the middle quintile and Provider B is in the fifth quintile. Provider A’s performance is a bit worse than the quintile average (62 vs., 65%), so it might be identified as a “below average” performer for its quintile. Provider B’s performance is a bit better than average for its quintile (59 vs. 55%), so it might be identified as an “above average” performer for its quintile, even though its performance is worse than A’s in absolute terms.

The Panel had generally favorable views of this approach as a method to more fairly apply financial rewards and penalties. The method does not, though, identify disparities in care within providers, nor does it indicate whether Provider A or B is better than the other, either for specific subgroups of patients or overall. It is possible, depending on the exact distribution of patients across strata for the two providers, that Provider B actually had better scores in all five strata than Provider A, and would be identified as a better provider overall in an adjustment approach like that illustrated in Table 3.

Table 5. Illustration of Peer Groups for Comparison

Quintile based on percentage of low income patients	Number of Providers	Quintile cut point of percentage of patients at or below 138% of poverty	Avg. clinically adjusted rate for providers in quintile	Provider A Clinically adjusted rate	Provider B Clinically adjusted rate
National	3000		Avg. unadjusted rate 70%		
1st Quintile	600	10%	75%		
2nd Quintile	600	20%	70%		
3rd Quintile	600	30%	65%	62%	
4th Quintile	600	40%	60%		
5th Quintile	600	55%	55%		59%

The three general approaches described here — statistical adjustment, stratification, and peer groups for comparison — are not mutually exclusive. They could be used in combination or a given performance measure conceivably could be used in all three ways, with the specific analytic approach chosen for a specific analytic or program purpose. In an analysis focusing on the presence of sociodemographic disparities in care, for example, stratification would be the natural first-choice approach, as it provides the clearest and simplest information about performance in relation to a particular sociodemographic factor. For some program purposes, like application of a hospital readmission penalty, a peer-grouping approach might be simplest and most desirable. Each has different strengths and limitations. The Panel concluded that different approaches serve different purposes. A strong majority of Panel members did not think, though, that either stratification or creating peer groups would be adequate for all "accountability" measurement purposes. When single performance scores are interpreted as indications of underlying quality of care, the large majority of the Panel thought that statistical adjustment for relevant sociodemographic factors would be necessary to support valid inferences about quality and that stratification was needed to assess and address disparities. While there was support among Panel members for peer group comparisons, the Panel also recognized that this approach was currently available, but not widely used.

Information Submitted for Review and Evaluation for Potential Endorsement

The Expert Panel recognized that developing adjustment strategies for performance measures is an iterative process involving a conceptual basis and empirical analyses resulting in multiple decisions to arrive at a final model. There is likely to be more than one appropriate way to accomplish adjustment. Therefore, NQF should not be prescriptive regarding methods for adjustment. However, steering committees and stakeholders need to have sufficient information to evaluate performance measures for endorsement. When a measure is submitted to NQF for potential endorsement for use in accountability applications, it is important that the developer's rationale regarding adjustment for sociodemographic factors be transparent and open to review and evaluation.

In addition to the adjustment methods and rationale, the developer should discuss the potential risk of misuse of the measure. NQF already requires information on current and planned use of measures. The developer has detailed knowledge about the limitations of the performance measure that could impact its use in accountability applications.

The Expert Panel identified the following as important aspects for reviewers to evaluate whether adjustment is appropriate.

- Conceptual description (informed by literature and content experts) of the causal pathway between sociodemographic factors, clinical factors , quality of care, and outcome

- Sociodemographic variables that were available and analyzed, including different levels of variables and approaches. For example:
    - Patient-level factors
        - Patient-reported (e.g., income, education, language)
        - Proxy (e.g., based on patient address, use census tract data to assign to a category of income, education, etc.)
    - Aggregate-level factors (e.g., percentage of provider's patients below poverty level, percentage of patients who do not speak English)
    - Community-level factors (e.g., crime rate, percent vacant housing, smoking rate, level of uninsurance — see discussion of community-level factors below);

- Analyses and interpretation resulting in decision to include or not
    - Prevalence of the factor across measured entities
    - Empirical association with the outcome
    - Contribution of unique variation in the outcome
    - Effect on the performance score for the measured entity (including effect on ranking) with and without adjustment for sociodemographic factors

- Current and planned use of the measure and a discussion of risks for misuse of the specified performance measure

Specific Sociodemographic Factors to Consider for Adjustment

Adjustment of the performance score generally involves patient-level data for the risk factors — i.e., an individual patient's diagnosis, lab value, income, education, etc. Although the Expert Panel agreed that performance measures should be adjusted for sociodemographic factors when appropriate, it also recognized the data challenges that constrain adjustment. Data about patient sociodemographic factors other than age and sex often are not collected, or not standardized sufficiently for use in performance measurement.[38] Therefore, data availability is a critical consideration. Besides overcoming prior assumptions, data constraints may be the biggest barrier to adjustment for sociodemographic factors and will require further initiatives to define standards and to implement data collection.

When sociodemographic data are not collected for each patient, other methods may be used to assign a value for each patient based on census data for the patient's home address. Just as whether sociodemographic variables are used in adjustment should be based on conceptual relationships, use of proxies for patient sociodemographic data should also have a conceptual basis. For example, area-based data could be assigned as a crude proxy for individual income on the one hand, or as Krieger[39] suggests, could characterize the patient's environment on the other. That is, if one uses census data on income for a given patient's neighborhood, one can either be saying "I think you're probably poor because you live in this neighborhood" or "You live in a neighborhood with mainly poor people in it".

The Expert Panel identified potential sociodemographic factors that might be useful for adjustment and discussed some of the pros and cons when considering for adjustment. However, the Panel did not recommend specific variables to be used — that will depend on applying the guidelines for selecting risk factors for a particular performance measure, as well as data availability.

Socioeconomic Status (SES)

SES arguably represents a fundamental determinant of health,[40] and access to and use of healthcare.[41] SES represents a multidimensional construct that has been traditionally measured based on income, education, and occupation though much greater attention has been given to the first two dimensions.[42]

Income

Income is a key dimension of SES. It affects healthcare access and affordability. These effects have been extensively documented.[34, 43-45] Optimally, household income should be collected directly from patients. This is currently done in selected instances, (e.g. to assess eligibility for charity care, subsidies for subsides for health insurance on the exchanges), but it is not widely collected in healthcare. A key barrier is resistance to asking all patients about their income, potentially resistance from both patients and providers.[46] A second barrier is that it is difficult to measure because household income can come from multiple sources for each person within a household.[47] A full assessment requires multiple questions.

When individual income is lacking, proxies based on residence may be used.[39, 48] Area-level data may be used to either impute characteristics of individuals or to characterize the areas in which people live, and there is a rich literature on pros and cons of either usage. Area-based measures of income can be based on patient addresses geocoded to the Census Tract, Block Group or Block. ZIP codes can be linked to census data; however, ZIP codes are limited because of greater socioeconomic heterogeneity within the area.[39] Smaller, less heterogeneous areas may yield more valid results when used as a proxy for individual income. The Geocoding Project showed that findings regarding the association of SES with mortality and with cancer incidence were most consistent when addresses were geocoded at the Census Tract than at the ZIP Code or Census Block Group. Recent developments improve matching addresses to areas and minimize failures to successfully geocode addresses.[49-51]

Medicaid eligibility or dual eligibility for Medicaid and Medicare is often used as an indicator of low income. Although there is significant heterogeneity in Medicaid eligibility, benefits, and payments between states, it is a verified indicator of low income and the information is widely available. Expanded eligibility for Medicaid through the Affordable Care Act (ACA) represents a verified measure of household poverty, i.e. <138% federal poverty. Currently, 25 states in addition to the District of Columbia have opted for expansion. This expansion will presumably grow over time providing for a standard measure of poverty across states with similar eligibility. However, some low income people will not be eligible for Medicaid with the ACA expansion due to immigration status or other reasons.

Education

Education represents another dimension of SES. It is powerfully related to health, health behavior, and healthcare.[34, 52, 53]Like other measures of SES, it clusters by healthcare organization and provider.[54, 55]

Nearly two decades ago, the National Committee on Vital and Health Statistics proposed that education (i.e. years of schooling) is a core health data element and be standardized in healthcare and healthcare information fields.[56] Despite this recommendation, education is not widely collected in healthcare outside of patient experience of care surveys, e.g. CAHPS and inconsistently collected by clinical personnel within the social history of the medical record. In contrast to household income, education may be easier to collect from patients with fewer refusals.[46] Currently, Meaningful Use Stage 3 standards require collection of patient race, ethnicity, and language data and state that electronic health record vendors should encourage and incentivize new types of data collection, but do not specifically mention patient educational level. Regulations and promotional efforts have fostered collection of race, ethnicity and language among hospitals[57] and health plans.[58] Similar approaches could be used to promote collection of individual patient educational attainment within structured data fields (that can be exported). Until these data become available area-based measures (discussed in more detail below) may be used as crude proxies.[59, 60] Standardized collection of patient (or parental education) in healthcare would obviate use of imputed measures of patient education. This represents an important priority related to improve measurement of SES in healthcare.

Occupation/Employment

Occupational level represents the third dimension of SES. Existing methods for classification of occupations have limitations.[61] Moreover, relatively little is known about its effect on outcomes independent of other measures of SES and sociodemographic-related factors. Obtaining standardized occupation data from patients generally does not lend itself to single questions.[62] Employment status is more easily assessed and potentially relevant given its relationship to health insurance, health behavior, and mortality, and represents an additional potential adjustor.[63-66]

Community-Level SES Variables

As used in this report, “community” refers to the community where the patient resides, not the community where the provider resides. While area-based measures will potentially misclassify some individuals when used to impute individual-level characteristics, due to socioeconomic heterogeneity within the area being measured,[67] they offer the potential for capturing contextual effects beyond individual measures.[68-70] Community-level variables include the geographic distance to pharmacies, public transportation, food outlets, neighbors and social support infrastructure, and parks. In rural communities, this includes the geographic distance to healthcare providers. Other examples include rates of crime or percentage of blue collar or professionals residing in the area.[71, 72] Because multiple measures of social disadvantage by Census area are available, some researchers have used composite measures based on factor analysis.[48, 73] However, a single measure (percent poverty) may perform as well as composite measures.[39]

These variables could be used at the individual level to characterize the environment in which the patient lives or as a community-level factor in a hierarchical modeling approach. Area-based measures of SES have been used to characterize SES in health plans and quantify socioeconomic disparities in quality.[59, 74, 75] The specific variables selected and how they are used should be based on the conceptual model.

Sociodemographic Factors Related to SES

Language

Limited English proficiency (including communicating through American Sign Language) contributes to suboptimal healthcare, inadequate informed decisionmaking, poor self-management, and healthcare disparities.[76-82] These barriers persist despite language assistance regulations[83] and the recognition of language differences as barriers to quality and safety by the Joint Commission.[84] An Institute of Medicine (IOM) report recommended standardized data collection for language in addition to race and ethnicity.[85] Subsequently, progress has been made by hospitals and health plans in the collection of these data using a combination of direct and indirect methods.[86-88] Given the additional resources required for professional language assistance services (e.g., interpretation, translation),[89] consideration should be given to adjusting for limited English proficiency.

Insurance

The uninsured are disproportionately minorities, poor, with low education and higher rates of limited English proficiency.[90] Health insurance is strongly associated with healthcare use, improved preventive and chronic care management, and reduced mortality for children and adults.[34, 91-94] The presence or absence of insurance may be useful for adjusting quality performance measures. An important related measure is under-insurance.[95, 96, 97] Out-of-pocket payments not covered by health insurance affect patients' healthcare decisions, particularly among poorer patients.[96] Optimally, data for measures analogous to insurance quality purchased on health exchanges, (i.e. bronze, silver, gold, and platinum) would be collected to assess patient under-insurance.

Race and Ethnicity

Race and ethnicity are not proxies for SES. Rather their effects are confounded by SES.[98] That is, income, education, and related factors including language and insurance represent key contributors to racial and ethnic disparities in healthcare.[34, 43] Potential mediators of the effect of race on outcomes include source of care,[9, 99] discrimination,[100] and potential differences in biology (including those that are environmentally- or stress-induced). These potential biological effects include high rates of preterm birth among African Americans[101] and differences in levels of glycated hemoglobin.[102-104] In other instances such as hypertension control, there is conflicting evidence as to whether factors such as discrimination, fear of side effects, and adherence fully account for disparities in blood pressure control or not.[105, 106] For these reasons, careful thought, consideration, and a clear rationale should be provided when adjusting performance measures for race and/ethnicity. At the same time, reporting of data stratified by race and ethnicity (including use of NQF disparity-sensitive measures) should be encouraged to assess and address disparities in healthcare. Collection of race and ethnicity data is improving, but gaps remain hindering use of these data.[107, 108]

Homelessness

Homelessness is associated with poor healthcare access, and high levels of unmet healthcare needs, poor health, and hospital re-admission.[109-112] However, patients are frequently not asked about their housing status even during hospitalization.[113] Housing and Urban Development uses standardized definitions for homelessness.[114]

Additional Sociodemographic Factors

These factors were relegated to further consideration for future data collection efforts based largely on feasibility grounds.

Marital status

Marital status is strongly associated with income. It is not only related to health behaviors, but health and mortality, particularly following disruption through divorce or death.[115-120] It is easily and often collected along with other demographic factors in the process of hospital admission or clinic registration.

Literacy and health literacy

Literacy (ability to effectively read and write), numeracy (ability to understand and use numbers in daily life),[121] and health literacy (capacity to obtain, process, and understand basic information and services needed to make appropriate decisions regarding health)[122] are associated with educational attainment.[123] Both general literacy (and numeracy) and the related construct of health literacy are strongly associated with healthcare use and outcomes.[124-126] Brief screening tools show promise for health literacy.[127]

Potential Mediators of Sociodemographic Factors

There are a number of potential mediators between sociodemographic factors and outcomes. Examples include social support (and its converse, isolation and loneliness),[128, 129] and “patient activation”.[130] A range of behavioral factors including smoking, alcohol use, physical activity, and diet[131] may be mediators of effects of some sociodemographic factors, but are more likely to be included in clinical risk adjustment models, along with self-reported health status.[132]

As previously noted, selection of risk factors should first be guided by the conceptual relationships, but before any analyses of relationships with outcomes can be conducted, the data must be available. There may be several options for operationalizing a concept and the Expert Panel identified some of the pros and cons of various variables to consider when selecting variables for sociodemographic adjustment in Table 6.

Table 6. Sociodemographic Factors

Factors/concepts (specific variables)	**PROs**	**CONs**	**Caveats**
Factors that should be considered, depending on: data availability and the specific outcome or process			
Income	• Allows for use of various ranges	• Hard to collect privately (e.g., in clinician office) • Not easily collected with a single question • May not be an acceptable question to all patients • Meaning is not geographically consistent due to difference in costs of living	
Income in relation to federal poverty level	• Definition is standard • Being used under ACA • Researchers are used to using it	• Doesn't include receipt of other benefits (e.g., food stamps)	
Household income	• May be more meaningful than individual income	• Requires assessment of household size	
Medicaid status as proxy	• Relatively easy to collect in claims data	• Eligibility not consistent across states	• Potentially becomes more useful as more States expand Medicaid to 138% FPL
Social Security Supplemental Income (SSI)		• Correlated with Medicaid status, but not consistently across states	• In many states, receipt of SSI automatically makes eligible for Medicaid
Education	• Perceived to be valid (i.e., less misreporting than for income) • Definitions fairly consistent across various subgroups (e.g., answers from immigrants comparable to those from others) • Fairly stable across time, at least after a certain age	• Not widely collected by providers • If collected (e.g., in EHR text fields) may not be easily retrievable	
Homelessness	• Strongly associated with health outcomes • Measures something	• Multiple other definitions • Data often not collected • Status can change	• Prevalence tends to cluster among safety net

Factors/concepts (specific variables)	**PROs**	**CONs**	**Caveats**
	"beyond" income • Current HUD definition		providers
Housing instability	• May be better indicator than homelessness which can change	• More difficult to define than homelessness	
English proficiency	• Standard definition exists • Tied to need for translation services/other resource needs and therefore should be collected • Increasingly being collected (required by "Meaningful Use" and some states)		
Insurance status	• Readily available • Some indication of access and resources	• Wide variability in insurance coverage • Data for under-insurance not widely collected	
Medicaid status	• Readily available • Some indication of limited income and resources	• Not consistent across states	
No insurance	• Readily available • Standard meaning		• Difficult to capture information about these patients (particularly if using claims data)
Neighborhood-level data used as proxy for individual data or as contextual variable	• Many variables available from Census data • Income • Education • Immigration status • Language • Unemployment • Home ownership • Single parents • Others	• Census data do not include all potentially important variables • Residential heterogeneity will affect whether it is a good proxy for data about individuals. • Heterogeneity may differ based on levels of socioeconomic segregation and potentially population density. • Requires geocoding for Census Tract and smaller areas.	
Contextual - Proportion vacant housing	• Seen as indicator for other related issues such as poverty, crime, lack of resources		
Contextual- Crime	• May be an indicator for other related issues such as		

Factors/concepts (specific variables)	PROs	CONs	Caveats
rate	poverty, lack of resources		
Other factors that could be considered			
Factors/concepts (specific variables)	**PROs**	**CONs**	**Caveats**
Social support	• Some brief items have been used in previous research • Captures something that other variables do not	• Multidimensional construct that typically requires multiple questions • Lack of agreement about how to measure • Not consistently measured	
Living alone	• Available in OASIS data for home health	• Directionality may not be consistent. In some situations such as frailty or impairment, it could be a risk factor. In other situations, it might be an indicator of ability to live alone due to good health and function.	• People who are healthy but living alone still may struggle with post-surgical recovery
Marital status	• Often collected		
Occupation	• May capture other concepts (e.g., environmental exposures)	• Multiple definitions • Potentially large data collection burden due to the complexity of the concept • Marginal value (i.e., over and above that contributed through use of other variables) may be limited • Unclear how to handle certain population subgroups (e.g., retirees, students, homemakers)	
Employment status	• Often collected	• Employment status does not reflect income or availability of insurance • Simple yes/no does not reflect desire/happiness with situation (e.g., retirees may be happy to be unemployed) • Subject to change requiring	

Factors/concepts (specific variables)	PROs	CONs	Caveats
		continuous updating	
Literacy	• This concept may also be able to capture health literacy	• No standardized definitions • May be easy to game	If the correlation with education were high, then education could be used.
Health literacy	• Potentially more relevant to healthcare • Three-item and single-item validated questions exist	• Not consistently collected/ available	
Local/state funding for safety net providers (e.g., tax base)	• Affect resources available to safety net providers beyond insurance	• Data not easily collected/ available	• Risk for unintended consequences (setting a lower standard for poorly supported institutions might send the wrong messages to tax payers)
Race/ ethnicity	• Correlated with SES and may be more available than other variables	• May be more correlated with bias	• Should not generally be used as proxy for SES

Use of Performance Measures in Accountability Applications

NQF-endorsed performance measures are expected to be used in accountability applications such as public reporting and pay-for-performance. The NQF criteria focus on endorsing measures that demonstrate reliability and validity and adequate risk adjustment so that correct conclusions about the quality of care can be made by patients and others. NQF does not set different reliability and validity standards for different accountability applications. As already noted, concerns have been expressed about the policy response to performance results. For example, if providers serving disadvantaged populations have poorer outcome performance and incur financial penalties, it could worsen disparities in health and healthcare by reducing resources available to care for their patients. Therefore, it is imperative that various accountability applications be assessed for the potential impact on providers caring for disadvantaged populations to identify unintended consequences and to ensure alignment with program and policy goals.

Even if a performance measure is adjusted for sociodemographic factors, it does not rule out the potential need for also creating peer groups in various accountability applications. Even when risk adjustment includes relevant factors, it may not fully account for differences in risk when patient mix affects outcomes and differs widely across providers.

When a measure is submitted to NQF for endorsement, information on current and planned use should be submitted. Currently, NQF criteria and endorsement do not include requirements for or evaluation of procedures for implementation and reporting of the computed performance measure score (e.g., reporting with or without confidence intervals or sample sizes; methods for determining rankings or ratings, statistically significant differences, or incentives and penalties). How a measure is implemented involves multiple decisions that could affect the validity of conclusions (inferences) made about quality of care and potential unintended consequences. For example, cut points based on rankings of performance scores without confidence intervals could result in different classifications (conclusions) about quality without any significant difference in performance for providers above or below a cut point (e.g., confidence intervals for scores above and below a cut point may overlap).

The Expert Panel recommended that NQF should consider expanding its role to include guidance on implementation of performance measures. Possibilities to explore include:

- guidance for each measure as part of the endorsement process;
- standards for different accountability applications (e.g., use in pay-for-performance versus pay-for-improvement; innovative approaches to quality measurement explicitly designed to reduce disparities).

Some Panel members expressed concern about endorsed measures being used inappropriately, and the Expert Panel recommended that NQF should make explicit the existing policy that endorsement of a performance measure is for a specific context as specified and tested for a specific patient population (e.g., diagnosis, age), data source (e.g., claims, chart abstraction), care setting (e.g., hospital, ambulatory care), and level of analysis (e.g., health plan, facility, individual clinician). This is implicit in the current NQF criteria and process for endorsing a measure as specified and tested, but the Panel expressed concerns about inappropriate application of modifications to endorsed measures.

Use of Performance Measures to Identify and Reduce Disparities

Recommendation 1 distinguishes two different purposes of measurement: 1) accountability (e.g., public reporting, pay-for-performance) and 2) identifying disparities. The second part of the recommendation states:

“For purposes of identifying and reducing disparities, performance measures should be stratified on the basis of relevant sociodemographic factors when used in analysis by individual providers, policy makers, researchers, and the public working to reduce disparities.”

As discussed in the section on the effect of risk adjustment, a single performance score (whether adjusted or not adjusted for sociodemographic factors) neither identifies nor masks disparities — that requires the additional information about the characteristics of the patients served. In other words, the current system of performance measurement (with the notable exception of NQF-endorsed disparity sensitive measures[133]) does not allow disparities to be identified so that they can be eliminated. Doing so requires analysis of performance measures that are stratified. Hence, the Panel made this recommendation. This approach also helps address concerns about masking performance for disadvantaged groups.

A variety of analytic approaches could potentially be useful for identifying disparities. Performance on a measure could be analyzed by key sociodemographic variables at different levels of analysis such as clinician, facility, or population. As noted above, indirect standardization is based on identifying various categories that could be examined by population and provider. Multivariable statistical model analysis can provide information about the strength of association of specific factors and how much additional variation in an outcome is accounted for by the variable. However, the Expert Panel recommended stratification as defined in this report to identify disparities and opportunities to reduce disparities.

The Expert Panel did not identify how best to operationalize the use of stratified performance data to identify and reduce disparities. Stratum-specific rates for each provider could prove useful to providers, policymakers, researchers, and the public. However, mechanisms for making detailed data available do not widely exist. As mentioned earlier in the document, the Expert Panel is interested in comments on how to move toward meaningful use of data and shared accountability for identifying and reducing disparities.

Healthcare providers need to know whether their performance differed between groups based on sociodemographic factors within their own population. Providers also might want to know how their performance with similar groups compared to that of other providers. Such data also could prove critical in designing and implementing policies, strategies, and/or programs to improve healthcare equity. Policymakers could use such stratified data to inform funding allocation decisions; e.g., payment rates based on the sociodemographic characteristics of the population. Stratified data could also inform funding for targeted programs including navigation, community health workers, improved access to language services and other programs designed to mitigate disparities.

The Expert Panel discussed the benefits of transparency with stratified results, but did not resolve how best to present the additional detail in addition to sociodemographic-adjusted scores. Some individuals might find stratified data useful to identify which providers would be best for patients similar to themselves (e.g., income, language, race, ethnicity). Potentially, CMS or other producers of performance reporting could make such stratified data available when feasible and relevant (e.g., through hyperlinks). However some key issues to be resolved include:

- potential confusion if data are reported more than one way
- issues of reliability when cell sizes become quite small
- how to make drill-down data useful given the potential for multiple factors, or restrict to the factors demonstrated to have the greatest influence

This is clearly an area where more work needs to done. Given the direct relevance of stratified performance data to improved healthcare equity, this is an area where payers such as CMS, states, and health plans could take the lead (as some have done).

Related Policy Issues

During its deliberations the Expert Panel identified two related policy concerns — adequate payment to reflect higher intensity of services to disadvantaged populations and responsibility for mitigating the effects of sociodemographic factors. These extended beyond the scope of this project but have substantial policy implications.

As noted in the discussion of the pathways of effects, disadvantaged populations may have needs that require greater resources. Current payment systems better align resources with clinical/medical needs of patients than services to mitigate the effects of sociodemographic factors. This failure to align payment with supportive patient services creates a mismatch between provider capacity and the needs of the patient population, thereby a potential for worse performance. There are some examples of attempts to adjustment payments for services provided to address higher resources related to sociodemographic factors. Some examples of this type of payment adjustment are 1) hospital payment adjustment disproportionate share (DSH) of certain low income patients (see overview of Medicare hospital payment); and 2) inclusion of Medicaid status in case-mix adjustment for Medicare Advantage plans (see overview of Medicare Advantage payment).

It was beyond the scope of this project to address the adequacy of payment adjustments related to sociodemographic factors. Nonetheless, improved alignment between provider payments and the needs of the patient population served by that provider could potentially partly mitigate the need for adjusting performance scores for sociodemographic factors. This approach could potentially produce a more level "playing field" than any measurement adjustment while at the same time provide resources needed to care for disadvantaged populations, potentially reducing healthcare disparities. Improved data collection for sociodemographic factors is not only critical to implementing the recommended risk adjustments by this committee, but could facilitate payments adjusted to patient need should such approaches be adopted by policymakers and payers.

A related issue is identifying who is responsible for mitigating the effects of sociodemographic factors on health and healthcare and paying for those efforts. Where does healthcare responsibility end and community responsibility begin? Should the costs of language translation be covered by the community e.g., multipayer consortium or borne by each provider, perhaps through enhanced payments? There are notable examples of extraordinary efforts by healthcare providers to address sociodemographic factors such as funding hospice beds for terminally ill homeless patients or providing translators for a large number of languages. These types of efforts required resources above and beyond typical healthcare reimbursement.

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Appendix A: Expert Panel and NQF Staff

Expert Panel Roster

Kevin Fiscella, MD, MPH (Co-Chair)
Professor, Family Medicine, Public Health Sciences, Community Health and Oncology
University of Rochester Medical Center
Rochester, NY

David Nerenz, PhD (Co-Chair)
Director, Center for Health Policy & Health Services Research
Director of Outcomes Research for the Neuroscience Institute
Vice-Chair for Research of the Department of Neurosurgery at Henry Ford Hospital
Henry Ford Health System
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Jean Accius, PhD, PMP
Director, Health and Long-Term Services and Supports
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Washington, DC

Alyce Adams, MPP, PhD
Research Scientist II
Chief of Health Care Delivery and Policy, Division of Research
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Oakland, CA

Mary Barger, PhD, MPH, CNM, FACNM
Associate Professor of Nursing, University of California San Diego
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Family Physician
Director of Quality Measurement
Yale New Haven Health System Center for Outcomes Research and Evaluation (CORE)
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Monica Bharel, MD, MPH
Chief Medical Officer
Boston Health Care for the Homeless Program
Boston, MA

Mary Beth Callahan, ACSW/LCSW
Senior Social Worker
Dallas Transplant Institute
Dallas, TX

Lawrence Casalino, MD, PhD
Livingston Farrand Professor of Public Health
Chief, Division of Outcomes and Effectiveness Research
New York, NY

Alyna Chien, MD, MS
Assistant Professor
Boston Children's Hospital
Boston, MA

Marshall Chin, MD, MPH
Richard Parrillo Family Professor of Healthcare Ethics in the Department of Medicine,
University of Chicago
Director of the RWJF Finding Answers: Disparities Research for Change National Program Office
Chicago, IL

Mark Cohen, PhD
Statistical Manager, Continuous Quality Improvement, Division of Research and Optimal Patient Care
American College of Surgeons
Adjunct Associate Professor of Surgery, Feinberg School of Medicine, Northwestern University
Chicago, IL

Norbert Goldfield, MD
Medical Director, 3M HIS Clinical and Economics Research**,** 3M
Staff Physician, Brightwood Community Health Center
Wallingford, CT

Nancy Garrett, PhD
Chief Analytics Officer
Hennepin County Medical Center
Minneapolis, MN

Atul Grover, MD, PhD, FCCP
Chief Public Policy Officer
Association of American Medical Colleges
Washington, DC

David Hopkins, PhD
Senior Advisor**,** Pacific Business Group on Health
Adjunct Associate, Center for Primary Care and Outcomes Research and Center for Health Policy,
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San Francisco, CA

Dionne Jimenez, MPP
Research & Policy Coordinator
Service Employees International Union
Los Angeles, CA

Steven Lipstein, MHA
President and CEO
BJC HealthCare
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Assistant Professor, Division of Health Care Policy and Research, School of Medicine
University of Colorado, Anschutz Medical Campus
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Tia Goss Sawhney, DrPH, FSA, MAAA
Director of Data, Analytics, and Research
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Nancy Sugg, MD, MPH
Medical Director
Pioneer Square Clinic & Downtown Homeless Programs, Harborview Medical Center
Associate Professor of Medicine, Division of General Internal Medicine at the University of Washington
Seattle, WA

Rachel Werner, MD, PhD
Associate Professor of Medicine
University of Pennsylvania
Philadelphia, PA

Expert Panel Member Biographies

Kevin Fiscella, MD, MPH (Co-Chair)

Professor, Family Medicine, Public Health Sciences, Community Health and Cancer Center, University of Rochester Medical Center

Kevin Fiscella, MD, MPH, is a tenured Professor of Family Medicine, Public Health Sciences, and Community Health, and Oncology at the University Rochester School Medicine. His scholarly work has focused on both conceptual models and empirical research related to health care disparities. His current work addresses practical strategies to mitigate disparities in health care quality. He has served on numerous national committees related to health and health care disparities. He has published more than 180 papers in peer-reviewed journals and has received major research grants from numerous federal agencies and private foundations.

David Nerenz, PhD (Co-Chair)

Director, Center for Health Policy & Health Services Research, Henry Ford Health System

David R. Nerenz, PhD, is Director of the Center for Health Policy and Health Services Research at Henry Ford Health System in Detroit. He is also Director of Outcomes Research for the Neuroscience Institute, and Vice-Chair for Research of the Department of Neurosurgery at Henry Ford Hospital. He was appointed in May of 2012 as a Commissioner on the Medicare Payment Advisory Commission (MedPAC). He recently served as the Chair of the Institute of Medicine Committee on Leading Health Indicators for Healthy People 2020 and Chair of the IOM Subcommittee on Standardized Collection of Race/Ethnicity Data for Healthcare Quality Improvement.

Jean Accius, PhD, PMP

Director, Health and Long-Term Services and Supports, AARP

Jean Accius, PhD, is an expert in health and long-term care policy. His background includes translating research into policy and practice. Currently, Jean is the Director of Health and Long-term Services and Supports (LTSS) at AARP. In this capacity, he leads the policy development process on health and LTSS related issues that guides AARP's legislative, regulatory and litigation activities. He also provides strategic advice and counsel to senior AARP leadership and other departments to ensure policy integration and consistency across the association.

Alyce Adams, MPP, PhD

Research Scientist II and Chief of Health Care Delivery and Policy, Division of Research, Kaiser Permanente

Alyce S. Adams, MPP, PhD, is Research Scientist II and Chief of Health Care Delivery and Policy at the Kaiser Permanente Division of Research in Oakland, California. Her research explores disparities in chronic disease treatment outcomes using longitudinal data methods. Dr. Adams' current studies include a cluster randomized clinical trial to improve diabetic peripheral neuropathy treatment outcomes funded by the Patient Centered Outcomes Research Institute and an evaluation of the impact of Medicare Part D among dual Medicaid and Medicare enrollees funded by the National Institute on Aging. She has a PhD in Health Policy from Harvard University.

Mary Barger, PhD, MPH, CNM, FACNM

Associate Professor of Nursing, University of California San Diego, and American College of Nurse Midwives

Mary Barger PhD, MPH, CNM, FACNM, is a perinatal epidemiologist and has practiced clinical nurse-midwifery for over 25 years. She has taught in a school of public health, a medical school, and two schools of nursing. The focus of her research has been on maternal morbidity and mortality with a focus on cesareans and using administratively collected data, such as hospital discharge data and birth data, to examine processes and outcomes of care. One of her recent studies combined survey data with GIS information to further understand the racial disparities in cesarean rates in California

Susannah M. Bernheim, MD, MHS

Director, Quality Measurement, Yale New Haven Health System Center for Outcomes Research and Evaluation (CORE)

Susannah M. Bernheim, MD, MHS, is a Family Physician, Health Services Researcher and the Director of Quality Measurement at Yale-New Haven Hospital’s Center for Outcomes Research and Evaluation (CORE). She has extensive experience leading teams in measure development, maintenance, NQF endorsement, and implementation. Her research focuses on the intersection of healthcare quality, outcomes and socioeconomic status. She received her MD at the University of California San Francisco, and her Master of Health Sciences at Yale University. Following a research fellowship and prior to joining CORE she served as Deputy Director of Performance Management for the Yale New Haven Health System.

Monica Bharel, MD, MPH

Chief Medical Officer, Boston Health Care for the Homeless Program

Monica Bharel, MD, is the Chief Medical Officer for the largest nonprofit health care organization for homeless individuals in the country. Under her leadership, the organization achieved Level 3 NCQA PCMH recognition and a 3-fold improvement in women's health quality indicators. She was appointed by Governor Patrick to serve on the Behavioral Health Integration Task Force under the Massachusetts payment reform initiative. She has spoken locally and nationally about the needs of vulnerable and homeless individuals. She is currently focused on ensuring that state and national health care reform efforts enhance the care for homeless individuals, without inadvertently widening health care disparities.

Mary Beth Callahan, ACSW/LCSW

Senior Social Worker, Dallas Transplant Institute

Mary Beth Callahan has worked in nephrology social work since 1984. She is currently Senior Social Worker at Dallas Transplant Institute (DTI) and has had the privilege to work with ESRD patients on hemodialysis, peritoneal dialysis and transplant. She has served on numerous advisory boards and professional committees. She served as CNSW Chair from 1996-1998 and is co-developer of the CNSW's Outcomes Training Program. Her focus with transplant recipients is to help them prepare to return to work whenever possible and/or to live life to the fullest. One of her ongoing efforts is to encourage other staff members to keep rehabilitation in the forefront of their minds. She hosts Job Club monthly at DTI. Job Club developed from joint research grants from the Society for Transplant Social Workers and the Council of Nephrology Social Workers and provides patients with information on Social Security Work Incentives and connects patients with vocational rehabilitation resources and hope.

Lawrence Casalino, MD, PhD
Livingston Farrand Professor of Public Health; Chief, Division of Outcomes and Effectiveness Research, Weill Cornell Medical College
Lawrence Casalino, MD, PhD, has written some of the seminal articles on unintended consequences of quality measurement and on SES disparities and quality measurement. He has also served on relevant national committees. He has quite a lot of knowledge about the organization of medical practice and hospital care and about the responses of providers to incentives. This knowledge comes from quantitative and qualitative research as well as from the 20 years that he spent as a family physician in full-time practice, during which time he also served as a hospital medical staff president and vice president of a large independent practice association.

Alyna Chien, MD, MS
Assistant Professor, Boston Children's Hospital
Alyna Chien, MD, is a physician health services researcher at Harvard Medical School and Boston Children's Hospital. She is the leading pediatric expert on the use of performance incentives in healthcare and has extensive experience using established risk adjustment methods. Currently, she is examining whether geocoded socioeconomic information can improve pediatric risk adjustment algorithms so that healthcare payments can better reflect pediatric patient complexity. She has used similar geocoding techniques to examine the degree to which socioeconomic factors have affected the ability of very large physician organizations to respond to performance incentives. Her work is funded by AHRQ, NICHD, and RWJF.

Marshall Chin, MD, MPH
Richard Parrillo Family Professor of Healthcare Ethics in the Department of Medicine, University of Chicago
Marshall H. Chin, MD, MPH, FACP, Richard Parrillo Family Professor of Healthcare Ethics in the Department of Medicine at the University of Chicago, is a general internist with extensive experience improving the care of vulnerable patients with chronic disease. Dr. Chin is Director of the RWJF Finding Answers: Disparities Research for Change National Program Office. He was a member of the IOM Committee on Future Directions for the National Healthcare Quality and Disparities Reports. He serves on the NQF MAP Coordinating Committee and was a member of the NQF Healthcare Disparities and Cultural Competency Consensus Standards Steering Committee.

Mark Cohen, PhD
Statistical Manager, Continuous Quality Improvement, Division of Research and Optimal Patient Care, American College of Surgeons
Mark Cohen, PhD, is the Statistical Manager, Continuous Quality Improvement, Division of Research and Optimal Patient Care, American College of Surgeons, and Adjunct Associate Professor of Surgery, Feinberg School of Medicine, Northwestern University. Since 2008, he has managed statistical efforts related to the ACS National Surgical Quality Improvement Program (NSQIP), ACS Universal Surgical Risk Calculator, ACS Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP), and the ACS NSQIP Pediatric program. He has 125 publications and his current research focuses on optimizing risk-adjustment and reporting methodologies used in these programs. Before joining the ACS, Dr. Cohen was Statistician and, later, Technical Director at the Naval Institute for Dental and Biomedical Research.

Norbert Goldfield, MD
Medical Director, 3M HIS Clinical and Economics Research, 3M
Dr. Goldfield works as a medical director of 3MHIS, developing classification tools linking payment to quality. This work is used throughout the United States and overseas, with public and private payers. Dr. Goldfield is a board certified internist practicing at a community health center. He edits the peer reviewed Journal of Ambulatory Care Management and has published extensively. He is on a number of boards including Health Care for All. He is also the founder and executive director of Healing Across the Divides (www.healingdivides.org), an organization seeking to improve the health of Israelis and Palestinians.

Nancy Garrett, PhD
Chief Analytics Officer, Hennepin County Medical Center
Nancy Garrett, PhD, is currently Chief Analytics Officer at Hennepin County Medical Center, where she is developing methods to measure the impact of socioeconomic status on cost and quality measures for HCMC's diverse safety net population. She has an extensive background in applied health services research, and authored a chapter on provider profiling in a managed care textbook. Nancy is on NQF's Cost and Resource Use Steering Committee where she raised issues about adjusting for socioeconomic status that helped lead to the convening of this expert panel. Nancy has a Ph.D. in Demography from the University of Illinois.

Atul Grover, MD, PhD, FCCP
Chief Public Policy Officer, Association of American Medical Colleges
Atul Grover, MD, PhD, is the Chief Public Policy Officer for the Association of American Medical Colleges (AAMC). In this role, he manages the AAMC's health, educational, and scientific policies. Dr. Grover joined the AAMC in its Center for Workforce Studies, where he managed research activity and directed externally funded workforce studies. Prior to the AAMC, Dr. Grover was a senior consultant in health care finance and applied economics for The Lewin Group, Inc and also served with the Health Resources and Service Administration. Dr. Grover is a clinical faculty member at the George Washington School of Medicine.

David Hopkins, PhD
Senior Advisor, Pacific Business Group on Health
David S. P. Hopkins, PhD, is Senior Advisor at the Pacific Business Group on Health. Hopkins is also affiliated with the Center for Health Policy and the Clinical Excellence Research Center at Stanford University Medical School. He earned his A.B. in Biology from Harvard, and his M.S. in Statistics and Ph.D. in Operations Research from Stanford. Hopkins chaired the California Cooperative Healthcare Reporting Initiative (CCHRI) Executive Committee from 1996-2012 and is the former Chair of the Integrated Healthcare Association Pay-for-Performance Technical Efficiency Committee. He served two terms on NQF's Consensus Standards Approval Committee and currently chairs the NQF Purchaser Council.

Dionne Jimenez, MPP
Research & Policy Coordinator, Service Employees International Union
Dionne Jimenez is a research and policy coordinator for the Service Employees International Union, which represents 2.2 million workers advocating to improve their lives and the services they provide. She performs public policy analysis and develops public policy positions for SEIU on health care

financing, workforce, quality of care & life, and other key issues related to the health care sector. Previous professional experience includes serving as staff and legislative assistant to Congressman George Miller (D-CA). Dionne is a proud first-generation college graduate. She has a Master of Public Policy degree from the University of California, Los Angeles, School of Public Affairs, and a BA in Political Science from the University of California, Berkeley.

Steven Lipstein, MHA

President and CEO, BJC Healthcare

Steven Lipstein has led BJC Healthcare since 1999. He is highly engaged in ensuring that people everywhere receive high-quality, safe care. BJC is the largest provider of uncompensated care in Missouri. From 2008 to 2010, Mr. Lipstein co-chaired the oversight committee for Missouri Medicaid. Prior to joining BJC, Mr. Lipstein held executive roles at the University of Chicago and The Johns Hopkins Health System. He is vice chair of the Board of Governors for the Patient-Centered Outcomes Research Institute. He graduated from Emory University, has an MHA from Duke University, and completed an administrative fellowship at Massachusetts General Hospital.

Eugene Nuccio, PhD

Assistant Professor, University of Colorado, Anschutz Medical Campus

Eugene Nuccio, PhD, Assistant Professor, holds a doctorate in Education Psychology and has extensive experience with statistical analysis, measurement, and risk adjustment of outcomes for Medicare home care recipients. Since 2004 he has led the development of the last three sets of 40+ prediction models used to risk adjust home health outcomes nationally. He initiated innovations in how to represent OASIS data as well as methodological changes to develop complex multivariate models. Under the direction of MedPAC, Dr. Nuccio linked CMS claims, OASIS, and other data sources to produce experimental quality measures and prediction models. His contributions to the scientific literature on risk adjustment include presentations at AcademyHealth.

Sean O'Brien, PhD

Assistant Professor, Biostatistics and Bioinformatics, Duke University Medical Center

Sean O’Brien, PhD, is an Assistant Professor in the Department of Biostatistics and Bioinformatics at Duke University Medical Center. Since 2005, he has served as statistical director of the Society of Thoracic Surgeons (STS) Data Warehouse and Analysis Center and as co-investigator of several grants and contracts using large registries to study comparative effectiveness and health care quality. Dr. O’Brien also works on the development and evaluation of quantitative methods for healthcare provider performance assessment. His research interests include risk adjustment methodology, composite measures, and Bayesian modeling.

Pam Owens, PhD

Senior Research Scientist, AHRQ

Pamela Owens, PhD, is a senior research scientist at the Agency for Healthcare Research and Quality (AHRQ). Dr. Owens is the Scientific Director of the AHRQ Quality IndicatorsTM (QIs) and co-leads Healthcare Cost and Utilization Project (HCUP) outpatient data development. Dr. Owens' research experience includes the quality and access to care for various populations, conditions and settings, including children, low income, mental health, asthma, readmissions, ambulatory surgery, emergency department and inpatient settings. Her work has appeared in journals such as the JAMA, Medical Care, Health Services Research, Annals of Internal Medicine, Pediatrics, Academic Emergency Medicine, Psychiatric Services, and Journal of Preventive Medicine. Dr. Owens received a Ph.D. in epidemiology and health policy from Yale University and completed a post-doctoral fellowship at Johns Hopkins. She also has six years of clinical experience as an occupational therapist.

Ninez Ponce, MPP, PhD
Professor, Department of Health Policy and Management - UCLA Fielding School of Public Health
Ninez Ponce, MPP, PhD, is a professor in the Department of Health Policy and Management at the UCLA Fielding School of Public Health. In 14 years at UCLA, she has taught courses on health insurance, health economics, health policy, and research methods, with a research focus on racial/ethnic disparities in cancer prevention and control. She also conducted program evaluation, research, and public policy for a W.K. Kellogg Foundation national initiative to improve health care for the underserved. She has served on expert advisory groups for the Institute of Medicine, the Office of the Patient Advocate, and the UCLA Department of Health Services.

Thu Quach, PhD, MPH
Research Director, Asian Health Services
Thu Quach, PhD, MPH, is an epidemiologist and primary research interest has focused on the influence of environmental and sociocultural factors on immigrant population health. As a research scientist at the Cancer Prevention Institute of California, a non-profit research organization, she leads research studies focusing on the booming nail salon workforce, comprised mainly of Vietnamese immigrants. In 2011, after years of research collaboration, she was recruited by Asian Health Services to become the inaugural research director at this community health center (CHC) serving low-income Asian Americans patients. She spearheads efforts across several CHCs to incorporate social determinants of health factors in risk adjustment.

Tia Goss Sawhney, DrPH, FSA, MAAA
Director of Data, Analytics, and Research, Illinois Department of Healthcare and Family Services
Tia Goss Sawhney, DrPH, FSA, MAAA, is the Director of Data, Research, and Analytics with the Illinois Medicaid plan. She is the author of the 2010 paper “Health Insurance Risk Adjustment: The Income Effect”. The paper is included in her 2012 dissertation “Controlling Indirect Selection under Healthcare Reform” available at *www.soa.org/files/sections/health-dissertation-**sawhney**.pdf.* She is Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries and active in each organization.

Nancy Sugg, MD, MPH
Medical Director Pioneer Square Clinic & Downtown Homeless Programs, Harborview Medical Center
Nancy Sugg, MD, MPH, is Associate Professor of Medicine in the Division of General Internal Medicine at the University of Washington and Medical Director of Harborview Medical Center’s Pioneer Square Clinic and Downtown Homeless Programs. She is the Chair of the Care Management Committee at Harborview Medical Center, focusing on decreasing inpatient lengths of stay and readmissions and improving transitions of care. She works closely with Seattle-King County Public Health’s Healthcare for the Homeless Network developing integrated medical services for homeless and outcomes measures for clinics caring for underserved populations. Dr. Sugg directs research projects and mentors future primary care providers and policy makers for underserved populations.

Rachel Werner, MD, PhD

Associate Professor of Medicine, University of Pennsylvania

Rachel Werner, MD, PhD, is an Associate Professor of Medicine at the University of Pennsylvania. She received her medical degree from the University of Pennsylvania School of Medicine, where she also did her residency in Internal Medicine. While completing a clinical fellowship in general internal medicine, she also received a Ph.D. in health economics from the Wharton School at the University of Pennsylvania. Dr. Werner's research seeks to understand the effect of healthcare policies and delivery systems on quality of care. In particular, she has examined the role of provider payment and financial incentives on provider behavior, the organization of healthcare, racial disparities, and overall healthcare quality. Her work has empirically investigated numerous unintended consequences to quality improvement incentives and was among the first to recognize that public reporting of quality information may worsen racial disparities. She is currently principal investigator of an R01 from the Agency of Healthcare Research and Quality (examining how pay-for-performance in hospitals changed the value of healthcare) and an R01 from the National Institute of Aging (examining the effect of Medicaid pay-for-performance for nursing homes on delivery of nursing home care). She also directs one of five national centers to evaluate the effectiveness of the medical home by the Veterans Health Administration. She has received numerous awards including the Dissertation Award and the Alice Hersh New Investigator Award from Academy Health and the Presidential Early Career Award for Scientists and Engineers. Her research has been published in high-impact peer-reviewed journals, including *JAMA*, *Journal of Health Economics, Health Services Research,* and *Health Affairs*. In addition to her research, Dr. Werner is a practicing primary care internist at the Philadelphia VA Medical Center and regularly attends the hospital's internal medicine service. She supervises healthcare provided by Hospital of the University of Penn.

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Appendix B: Glossary

Accountability Applications – Use of performance results about identifiable, accountable entities to make judgments and decisions as a consequence of performance, such as reward, recognition, punishment, payment, or selection (e.g., public reporting, accreditation, licensure, professional certification, health information technology incentives, performance-based payment, network inclusion/exclusion).[134]

Confounding–An epidemiological term that refers to a spurious relationship between an exposure and an outcome due a third factor. In the case of risk adjustment, it refers to association of a third factor with the outcome being measured.

Health Disparity – Healthy People 2020 defines a health disparity as "a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group; religion; socioeconomic status; gender; age; mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion."

Healthcare Disparity – Differences in health care quality, access, and outcomes adversely affecting members of racial and ethnic minority groups and socially disadvantaged populations. [135]

Outcome – the result of providing healthcare. The term outcome will be used to broadly include the following types of outcomes relevant to performance measurement:

- Quality outcomes include:
  - Health outcome is the health status of a patient (or change in health status) resulting from healthcare—desirable or adverse.
  - In some situations, resource use may be considered a proxy for a health state (e.g., hospitalization may represent deterioration in health status).
  - Intermediate clinical outcome is a change in physiologic state that leads to a longer-term health outcome (e.g., hemoglobin, blood pressure).
  - Patient-reported outcome is any report of the status of a patient's health condition that comes directly from the patient, without interpretation of the patient's response by a clinician or anyone else. The domains of PROs include health-related quality of life/functional status, symptom/symptom burden, experience with care (including engagement, activation), and health-related behaviors.[136]
- Economic outcomes include the cost and resource use associated with providing healthcare services. (Although efficiency is considered one aspect of quality, cost and resource use alone without consideration of quality is not considered a quality performance measure.)

Peer groups for comparison – Creation of peer groups of providers caring for a similar mix of patients, within which to examine performance scores.

Performance measure – Numeric quantification of healthcare quality for a designated accountable entity such as hospital, health plan, nursing home, clinician, etc. (NQF measure testing report)

Risk Adjustment – Statistical methods to control or account for patient-related factors when computing performance measure scores, including multivariable models, indirect standardization, or direct standardization. These methods can be used to produce a ratio of observed to expected and/or a risk-adjusted rate.

Social Determinants of Health – Healthy People 2020 defines social determinants of health as conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. Conditions (e.g., social, economic, and physical) in these various environments and settings (e.g., school, church, workplace, and neighborhood) have been referred to as "place." In addition to the more material attributes of "place," the patterns of social engagement and sense of security and well-being are also affected by where people live. Resources that enhance quality of life can have a significant influence on population health outcomes. Examples of these resources include safe and affordable housing, access to education, public safety, availability of healthy foods, local emergency/health services, and environments free of life-threatening toxins.

Social disadvantage – Braveman et al define social disadvantage as "Unfavorable social, economic, or political conditions that some groups of people systematically experience based on their relative position in social hierarchies. [137] Social disadvantage indicates restricted ability to participate fully in society and enjoy the benefits of progress. Social disadvantage is reflected, for example, by low levels of wealth, income, education, or occupational rank, or by less representation at high levels of political office.

Sociodemographic – Broad term referring to a variety of socioeconomic (e.g., income, education, occupation) and demographic factors (age, race, ethnicity, primary language).

Socioeconomic Status – Broadly conceptualized as one's relative position within society. Socioeconomic status has traditionally been defined and measured by education, income, and occupation.[28]

Stratification – Computing performance scores separately for different risk strata – i.e., each provider has multiple performance scores (one for each stratum) rather than one overall performance score.

Appendix C: Outcome Performance Measures and Risk Adjustment – the Basics

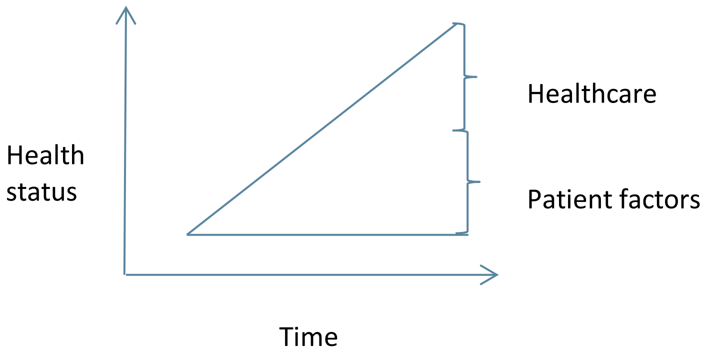
Outcome performance measures aggregate the data on individual patient outcomes for an accountable entity (e.g., hospital, clinician, nursing home). Outcomes generally are a function of several inputs including patient factors, treatment effectiveness, quality of care, and random events. This can be represented as an equation:

> **Outcomes = *f*** (intrinsic patient factors, treatment effectiveness, quality of care, random chance) [5, p. 5]

This equation is a simplified description because outcomes also may be a function of complex interaction among these factors.

Outcomes often represent a change in some health status indicator (e.g., function, pain) over time; that change can be due to both healthcare and patient factors as represented in Figure 1. Some outcomes, such as hospital readmission, are considered a proxy for a change in health status.

Figure 1. Outcome as a Change over Time



Risk Factors

Iezzoni [5, p. 31] identified the major categories for the potential patient factors that may influence outcomes to include the following. This is not a comprehensive list and concepts may overlap. Additionally, not all factors may affect every outcome.

- Genetics (e.g., predisposition to conditions or health-related behaviors)
- Demographic characteristics (e.g., age, sex, race, ethnicity, primary language)
- Clinical factors (diagnoses, conditions and severity; physiologic stability; physical, mental, cognitive function)
- Psychosocial factors, socioeconomic, and environmental factors (e.g., family, education, occupation, economic resources, health insurance, neighborhood)
- Health-related behaviors and activities (tobacco, diet, physical activity)
- Quality of life, attitudes, and perceptions (health-related quality of life and overall health status; preferences; cultural, religious beliefs and behavior)

The final selection of risk factors involves an iterative process using the guidelines identified in Table 1 including:

- Clinical/conceptual relationship with the outcome of interest
- Empirical association with the outcome of interest
- Variation in prevalence of the factor across the measured entities
- Present at the start of care
- Does not represent the care provided (e.g., treatments, expertise of staff)
- Resistant to manipulation or gaming
- Accurate data that can be reliably and feasibly captured
- Contribution of unique variation in the outcome (not redundant)
- Potentially, improvement in risk model metrics of discrimination and/or calibration
- Potentially, face validity and acceptability

Risk Adjustment in Outcome Performance Measurement

The ultimate goal of performance measurement is to facilitate improvement in healthcare and health. Measurement is used to identify differences in quality of healthcare and identify opportunities for improvement. Unlike many process performance measures, which are focused on care practices that should be delivered to all patients in a specified target population, the goal for outcome performance may not be 100% (or 0%). Due to the limits of science, not all patients will achieve the outcome (e.g., survive), and the “right” rate may not be known. Consequently, it is through comparison across providers that opportunities for improvement are identified. Providers with superior risk-adjusted outcomes set the goal for what is possible to achieve. In order for performance results to be meaningful and valid for identifying differences in performance across providers, outcome performance measures must be adjusted for different levels of risk in the patients served.

Outcome performance measurement is intended to identify the effect of care on the outcome of interest in order to make a conclusion about quality and direct efforts for quality improvement. As indicated in the equation and Figure 1, the relationship between healthcare and the outcome may be confounded by various patient factors. That is, patient factors (e.g., severity or complexity) are also correlated with the outcome and provide an alternative explanation for the outcome. Confounding factors need to be controlled or adjusted for in order to make conclusions about the quality of care based on performance on the outcome measure.

Risk Adjustment refers to statistical methods to control or account for patient-related factors when computing performance measure scores, including multivariable models, indirect standardization, or direct standardization. These methods can be used to produce a ratio of observed to expected and/or a risk-adjusted rate. Risk adjustment refers to the operations performed during the calculation of the performance score. Methods include:

- Comparison of observed to expected outcomes for an accountable entity
    - Indirect standardization where the expected number of outcomes are determined by applying stratum-specific rates determined from all patients to the number of cases in each stratum for each provider – i.e., what is expected if the hypothetical average provider cared for the specific mix of patients
    - Extension of indirect standardization to multivariable statistical models [5]

- Direct standardization where provider-specific rates are calculated in each stratum and applied to the standard population case mix, producing an estimate of what would be expected if the provider were to treat the standard case mix. [5] This approach is not commonly used to profile performance.

Risk Model Evaluation

Statistical risk models are often evaluated on model discrimination (extent to which the model predicts higher probabilities of the outcome for patients who experienced the outcome than for those who did not) and calibration (the match between predicted and actual outcome rates within subgroups of the data such as risk deciles). It is important to recognize when assessing risk models used for outcome performance measures, the metrics of model discrimination such as C-statistic or R-squared are not necessarily expected to achieve comparable values as models that include and are intended to explain the contribution of all variables that influence the outcome. In risk models, the independent variables are purposely limited to patient risk factors; variables related to care processes or structures are not included so that differences in risk-adjusted outcome rates can be attributed to differences in the care provided, i.e., differences in quality.

Approaches to Statistical Modeling

Statistical modeling to estimate the provider score on the outcome involves choosing from among a variety of options including:

- Random effects with shrinkage estimators vs. fixed effects
- Shrinking toward the overall average or some other benchmark (e.g., average of “like” providers
- Hierarchical models
- Bayesian analysis

The various methods may have different trade-offs and policy implications. For example, fixed effects models identify more outliers, some of which will be false positives; whereas, random effects models identify fewer outliers, some of which will be false negatives.[138]

Appendix D: Illustration of Effect of Adjustment with Multivariable Statistical Model

Four hypothetical scenarios that could occur with risk adjustment that includes sociodemographic factors are presented below. The scenarios include adjustment with and without sociodemographic factors and then, after risk adjustment, display the results using a decile stratification that may help focus the discussion.

In each case, two different prediction models are created: one with only clinical patient case mix and one with both clinical and sociodemographic factors. In all scenarios, the hospitals are “safety-net” providers serving patients with high sociodemographic risks and are being measured on their rehospitalization rate. In Scenario #1 after risk adjustment for only clinical case mix, the two hospitals (#1 and #2) appear to be quite similar, both based on their risk adjusted values and decile placement after risk adjustment on the stratification scale. However, in Scenario #2 when performance is risk adjusted for both clinical and sociodemographic patient case mix, there is a difference in risk adjusted values and decile placement on the stratification scale.

Scenario #2 suggests a true disparity in the quality of healthcare provided by these two hospitals that is masked when only one (clinical case mix) type of prediction variable is used. After controlling for both clinical case mix and relevant socio-demographic variables there are empirical differences in the effectiveness of healthcare delivery between these two providers.

Scenarios #3 and #4 offer the reverse situation. When Hospital #3 and #4 performances are risk adjusted using only the patient clinical case mix variables (Scenario #3), there is an apparent difference based on risk-adjusted and post-risk adjustment stratification. However, when socio-demographic variables are introduced in the prediction model used to risk adjust these hospitals’ performance, the apparent difference disappears (Scenario #4). Scenario #4 suggests that when you consider <u>both</u> patient clinical case mix and relevant socio-demographic variables in the prediction equation used to risk adjust the observed outcomes of these hospitals their performance is not meaningfully different.

Are there other scenarios? Certainly, Risk-adjusting observed performance using prediction models with either only patient clinical case mix or a combination of clinical case mix and sociodemographic variables could lead to identical results. My point is that using only patient clinical case mix variables in your prediction model that you use to risk adjust provider observed performance may be inadequate in identifying real differences in (Scenario #2) in or falsely identifying (Scenario #4) disparity of healthcare delivery to the most vulnerable and underserved healthcare populations that could be revealed when relevant socio-demographic variables are added to the prediction models used to risk-adjust healthcare outcomes.

Risk Adjustment and Post-Risk Adjustment Stratification Scenarios

Scenario #1: Rehospitalization Rate Risk Adjusted (RA) for <u>Patient Clinical Characteristics only</u> (i.e., patient case mix)

National Average (Predicted)	24.0
State Average (RA)	32.0
Low SES Hospital #1 RA value	35.0
Low SES Hospital #2 RA value	35.5

Post-risk adjusted Stratification based on one socio-demographic variable

	Upper	Lower
Decile 1	0.0	4.9
Decile 2	5.0	9.9

Decile 3	10.0	14.9	
Decile 4	15.0	19.9	
Decile 5	20.0	22.5	
Decile 6	22.6	24.9	
Decile 7	25.0	28.9	
Decile 8	29.0	32.9	
Decile 9	33.0	39.9	Both hospitals here
Decile 10	40.0	78.0	

Unit RA rate=Unit Obs+(Natl Pred-Unit Predicted)

Conclusions: 1)State is worse than national;
2)Hospitals are worse than state;
3)No difference between hospitals;
4)There is no disparity in healthcare delivered by the two hospitals serving low SES.

Scenario #2: Rehospitalization Rate Risk Adjusted (RA) for patient case mix and socio-demographics

National Average (Predicted)	24.1
State Average (RA)	31.2
Low SES Hospital #1 RA value	31.5
Low SES Hospital #2 RA value	36.8

Post-risk adjusted Stratification based on one socio-demographic variable

	Upper	Lower	
Decile 1	0.0	4.9	
Decile 2	5.0	9.9	
Decile 3	10.0	14.9	
Decile 4	15.0	19.9	
Decile 5	20.0	22.5	
Decile 6	22.6	24.9	
Decile 7	25.0	28.9	
Decile 8	29.0	32.9	Hospital #1 here
Decile 9	33.0	39.9	Hospital #2 here
Decile 10	40.0	78.0	

Conclusions: 1)State is worse than national;
2)Hospital #2 worse than state;
3)Hospital #1 better than Hospital #2;
4)There is a disparity in healthcare delivered by the two hospitals serving low SES.

Scenario #3: Rehospitalization Rate Risk Adjusted (RA) for Patient Clinical Characteristics only (i.e., patient case mix)

National Average (Predicted)	24.0
State Average (RA)	32.0
Low SES Hospital #3 RA value	32.3
Low SES Hospital #4 RA value	35.5

Post-risk adjusted Stratification based on one socio-demographic variable

	Upper	Lower	
Decile 1	0.0	4.9	
Decile 2	5.0	9.9	
Decile 3	10.0	14.9	
Decile 4	15.0	19.9	
Decile 5	20.0	22.5	
Decile 6	22.6	24.9	
Decile 7	25.0	28.9	
Decile 8	29.0	32.9	Hospital #3 here
Decile 9	33.0	39.9	Hospital #4 here
Decile 10	40.0	78.0	

RA rate=Unit Obs+(Natl Pred-Unit Predicted)

Conclusions: 1)State is worse than national;
2)Hospital #4 worse than state;
3)Hospital #3 better than Hospital #4;
4)There is a disparity in healthcare delivered by the two hospitals serving low SES.

Scenario #4: Rehospitalization Rate Risk Adjusted (RA) for patient case mix and socio-demographics

National Average (Predicted)	24.1
State Average (RA)	31.2
Low SES Hospital #3 RA value	36.3
Low SES Hospital #4 RA value	36.8

Conclusions: 1)State is worse than national;
2)Hospitals are worse than state;
3)No difference between hospitals;
4)There is no disparity in healthcare delivered by the two hospitals serving low SES.

Post-risk adjusted Stratification based on one socio-demographic variable

	Upper	Lower	
Decile 1	0.0	4.9	
Decile 2	5.0	9.9	
Decile 3	10.0	14.9	
Decile 4	15.0	19.9	
Decile 5	20.0	22.5	
Decile 6	22.6	24.9	
Decile 7	25.0	28.9	
Decile 8	29.0	32.9	
Decile 9	33.0	39.9	Both hospitals here
Decile 10	40.0	78.0	

Tab 11

Multistakeholder Input on a National Priority: Improving Population Health by Working with Communities—Population Health Framework

Project Description

Under the guidance of a multistakeholder committee the National Quality Forum (NQF) will develop an evidence-based Community Action Guide that can be used by communities to improve population health. The guide will offer practical guidance on how communities can work with public health and clinical care systems to improve population health and will include shared definitions to ensure better coordination and alignment across these systems.

Project Goals and Scope

Base year (project year one): The base year of this project will include the development of an environmental scan of up to 40 federal, state, and local frameworks including tools, data and measures that are used to improve population health. This work will serve as the foundation of the draft evidence-based Community Action Guide that can be used to assess, plan for, and undertake interventions to address behavioral, social, and environmental determinants of health in communities nationwide.

- Deliverable: First draft of the Community Action Guide

Option year one (project year two): NQF will obtain feedback on the draft framework from up to ten (10) Feedback Communities (FBCs) that desire or are already working to improve population health and are willing to adopt the guide for population health improvements. They will provide input on its usefulness, reliability, barriers with implementation, solutions and other valuable feedback.

- Deliverable: Evolved draft of the Community Action Guide (includes analysis of FBCs' experiences with implementation)

Option year two (project year three): With input from the FBCs and the Committee, NQF will finalize the Community Action Guide. (FBCs and the Committee will work collaboratively to address the concerns raised during option year 1.)

- Deliverable: Final Community Action Guide

Role of the Committee and Advisory Group

In consultation with HHS and through an open and transparent process NQF will convene a multistakeholder group of no more than 25 members with diverse expertise in the areas of population and community health, public health, healthcare, home- and community-based services, social services, purchasers, payers, employers, consumers and consumer advocates, and others who influence population health.

In the base year (project year one), the committee will,

- provide input on the analysis of state, local, and federal frameworks included in the environmental scan; and
- develop the first draft of the Committee Action Guide for implementation in option year one.

In option year one (project year two), the committee will,

- identify and recruit FBCs.

In option year two (project year three), the committee will,

- evaluate and respond to FBCs' input to ensure the guide addresses their needs; and
- champion the Final Community Action Guide.

NQF appointed a small Advisory Group of eight (8) members to guide all stages of the work. This group is a representative subset of the larger multistakeholder committee. The Advisory Group will assist with initial scoping of the environmental scan and identify frameworks in the base year; assist with developing the initial criteria for selecting Feedback Communities in option year one; and provide ongoing guidance on the evolving Community Action Guide development.

Multistakeholder Input on a National Priority: Improving Population Health by Working with Communities—Population Health Framework

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Co-Chairs

Kaye Bender, PhD, RN, FAAN, is the President and CEO of the Public Health Accreditation Board, a position she held part-time since January 2009 and currently holds full-time since June 2009. She has over 26 years of experience in public health working at both the state and local levels within the Mississippi Department of Health. Her last position there was as Deputy State Health Officer. Dr. Bender also served as Dean of the School of Nursing and Associate Vice Chancellor for Nursing at the University of Mississippi Medical Center in Jackson. She continues to teach two courses in health systems management and population health as a part-time Professor in the School of Nursing and the School of Health Related Professions at the University of Mississippi Medical Center. Dr. Bender served on the Institute of Medicine study committees for "The Future of the Public's Health in the 21st Century" and "Who Will Keep the Public Healthy." She currently serves as Chair of the APHA Education Board and served as Chair of the Public Health Leadership Society.

Bruce Siegel, MD, MPH, has an extensive background in healthcare management, policy, and public health. Dr. Siegel is President and CEO of America's Essential Hospitals (formerly the National Association of Public Hospitals and Health Systems). Before joining America's Essential Hospitals, he served as Director of the Center for Health Care Quality and Professor of Health Policy at The George Washington University School of Public Health and Health Services. He also previously served as President and CEO of two of the largest healthcare systems in the United States and Commissioner of Health for the State of New Jersey. Dr. Siegel is a leader on quality and equity conducting projects for the Robert Wood Johnson Foundation, the Commonwealth Fund, the California Endowment, and the Agency for Healthcare Research and Quality.

Members

Catherine M. Baase, MD, is the Global Director of Health Services for The Dow Chemical Company, with direct responsibility for leadership and management of all Occupational Health, Epidemiology, and Health Promotion programs and staff around the world. In addition to these roles, Dr. Baase drives the Dow Health Strategy for employees, retirees, and their families. She is also involved with health policy and issues management. Previously, Dr. Baase served as Director of Health Care Strategic Planning with direct responsibility for Dow's US health benefit plans. She chairs the Executive Council of the Michigan Health Information Alliance (MIHIA), a multi-stakeholder collaborative dedicated to improving the health of people in central Michigan through the innovative use of information. MIHIA is a Chartered Value Exchange (CVE) as appointed by the Agency for Healthcare Research and Quality (AHRQ). She serves as an officer and is on the Board of Directors for the Partnership for Prevention, an organization dedicated to advancing policies and practices that make disease prevention a national priority.

Georges C. Benjamin, MD, FACP, FACEP, is well-known in the world of public health as a leader, practitioner and administrator. Dr. Benjamin has been the Executive Director of the American Public Health Association, the nation's oldest and largest organization of public health professionals, since December 2002. He came to that post from his position as Secretary of the Maryland Department of Health and Mental Hygiene. Dr. Benjamin started his medical career in 1981 in Tacoma, WA, as Chief of the Acute Illness Clinic at the Madigan Army Medical Center. A few years later, he moved to Washington, DC, where he served as Chief of Emergency Medicine at the Walter Reed Army Medical Center. After leaving the Army, he chaired the Department of Community Health and Ambulatory Care at the District of Columbia General Hospital. He was promoted to Acting Commissioner for Public Health for the District of Columbia and later directed one of the busiest ambulance services in the nation.

Christina Bethell, PhD, MBA, MPH, is a Professor in the Department of Pediatrics at Oregon Health & Science University and the founding Director of both the Child and Adolescent Health Measurement Initiative (CAHMI) and the National Maternal and Child Health Data Resource Center. Her work to collaboratively design and validate measures of child and family health and healthcare quality has led to over 45 measures endorsed by the National Quality Forum and a range of standardized metrics used in national, state, and local surveys of families. She specializes in patient and family engagement in quality measurement and improvement.

Kevin L. Bowman, MD, MBA, MPH, is a Medical Director at WellPoint in the Center for Quality Measurement and Improvement (CQMI). He is responsible for improving quality of care while reducing costs for WellPoint patients. He manages, designs, and implements programs to improve patient care, reduce costs, and enhance quality performance measures. He represents WellPoint to external organizations and serves on external committees. Dr. Bowman is trained in both clinical medicine and public health, and is board certified in preventive medicine. Additionally, he served as a consultant at the National Committee for Quality Assurance where he advised and participated in various performance measurement projects.

Debra L. Burns, MA, has more than 20 years of experience leading public health policy, planning, and partnership development efforts. She currently directs the Office of Performance Improvement at the Minnesota Department of Health, where she is also responsible for performance management, quality improvement, community health assessment and planning, community engagement, accreditation, public health practice-based research, integrating evidence-based principles and actions into public health practice, and leading the state and local partnership. She served as Director of the Office of Public Health Practice at the Minnesota Department of Health from 2002 to 2010 and Manager of the Health Systems Development Section prior to that appointment.

JoAnne M. Foody, MD, FACC, FAHA, is the Medical Director of the Cardiovascular Wellness Service and Pollin Cardiovascular Wellness Program at Brigham and Women's/Faulkner Hospital. She is an Associate Professor of Medicine at Harvard Medical School and Editor in Chief of the American College of Cardiology's CardioSmart website. Dr. Foody has active national and international roles in cardiac disease prevention and rehabilitation with a particular focus on women and heart disease. Her research has focused on identifying and fostering greater use of clinical strategies that prevent adverse cardiovascular events in people with and without coronary artery disease. Dr. Foody is a Fellow of the American College of Cardiology and the American Heart Association.

Beverly Franklin-Thompson, PharmD, MBA, joined GlaxoSmithKline’s Care Management Solutions Department in June of 2012, after 15 years in the managed care industry, most recently as Pharmacy Director for BlueCross BlueShield Tennessee where she successfully led integrated health management strategies to optimize quality related health outcomes. Having witnessed firsthand the opportunities for community health to benefit from cross collaboration during her work with Patient Centered Medical Homes and replicating the

“Asheville Project” in other municipalities, Dr. Franklin-Thompson understands the need for innovation and sharing of successes as we work within our communities to develop practical solutions to improve population health.

Reneé Frazier, MHSA, FACHE, is an experienced leader in the healthcare management arena with expertise in hospital operations, managed care, volunteer and community service, health promotion, strategic planning, and organizational excellence. She is known for her advocacy towards greater transparency of healthcare quality indicators and patient experience report cards. She is a strong leader in the Memphis Shelby County community addressing issues of health policy, environmental barriers, health equity and community engagement which will lead our region to better population health. She currently serves on local and national committees which address quality improvement, health equity, public reporting, and consumer engagement.

Rahul Gupta, MD, MPH, FACP, is Health Officer and Executive Director at Kanawha-Charleston and Putnam Health Departments. He currently holds clinical faculty positions at West Virginia University School of Medicine and University of Charleston's School of Pharmacy. He also serves as medical consulting staff at Charleston Area Medical Center and volunteers clinical services at Health Right. Dr. Gupta is a nationally accomplished public health expert with extensive background in population health leadership and health policy advocacy. With more than 20 years of medical practice, population health and academic experience, Dr. Gupta serves on governing boards of several non-profit organizations including National Association of County and City Health Officials (NACCHO).

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NATIONAL QUALITY FORUM

Project Brief

Tab 11

Multistakeholder Input on a National Priority: Improving Population Health by Working with Communities—Population Health Framework

Project Description

Under the guidance of a multistakeholder committee the National Quality Forum (NQF) will develop an evidence-based Community Action Guide that can be used by communities to improve population health. The guide will offer practical guidance on how communities can work with public health and clinical care systems to improve population health and will include shared definitions to ensure better coordination and alignment across these systems.

Project Goals and Scope

Base year (project year one): The base year of this project will include the development of an environmental scan of up to 40 federal, state, and local frameworks including tools, data and measures that are used to improve population health. This work will serve as the foundation of the draft evidence-based Community Action Guide that can be used to assess, plan for, and undertake interventions to address behavioral, social, and environmental determinants of health in communities nationwide.

- Deliverable: First draft of the Community Action Guide

Option year one (project year two): NQF will obtain feedback on the draft framework from up to ten (10) Feedback Communities (FBCs) that desire or are already working to improve population health and are willing to adopt the guide for population health improvements. They will provide input on its usefulness, reliability, barriers with implementation, solutions and other valuable feedback.

- Deliverable: Evolved draft of the Community Action Guide (includes analysis of FBCs' experiences with implementation)

Option year two (project year three): With input from the FBCs and the Committee, NQF will finalize the Community Action Guide. (FBCs and the Committee will work collaboratively to address the concerns raised during option year 1.)

- Deliverable: Final Community Action Guide

Role of the Committee and Advisory Group

In consultation with HHS and through an open and transparent process NQF will convene a multistakeholder group of no more than 25 members with diverse expertise in the areas of population and community health, public health, healthcare, home- and community-based services, social services, purchasers, payers, employers, consumers and consumer advocates, and others who influence population health.

In the base year (project year one), the committee will,

- provide input on the analysis of state, local, and federal frameworks included in the environmental scan; and
- develop the first draft of the Committee Action Guide for implementation in option year one.

In option year one (project year two), the committee will,

- identify and recruit FBCs.

In option year two (project year three), the committee will,

- evaluate and respond to FBCs' input to ensure the guide addresses their needs; and
- champion the Final Community Action Guide.

NQF appointed a small Advisory Group of eight (8) members to guide all stages of the work. This group is a representative subset of the larger multistakeholder committee. The Advisory Group will assist with initial scoping of the environmental scan and identify frameworks in the base year; assist with developing the initial criteria for selecting Feedback Communities in option year one; and provide ongoing guidance on the evolving Community Action Guide development.

Multistakeholder Input on a National Priority: Improving Population Health by Working with Communities—Population Health Framework

Committee Roster

Co-Chairs

Kaye Bender, PhD, RN, FAAN*
Public Health Accreditation Board, Alexandria, VA

Bruce Siegel, MD, MPH*
America's Essential Hospitals, Washington, DC

Members

Catherine M. Baase, MD*
Dow Chemical Company, Midland, MI

Georges C. Benjamin, MD, FACP, FACEP
American Public Health Association, Washington, DC

Christina Bethell, PhD, MBA, MPH
Child and Adolescent Health Measurement Initiative, Portland, OR

Kevin L. Bowman, MD, MBA, MPH
WellPoint, Inc., Baltimore, MD

Debra L. Burns, MA
Minnesota Department of Health, St. Paul, MN

JoAnne M. Foody, MD, FACC, FAHA
Harvard University and Brigham and Women's/Faulkner Hospital, Boston, MA

Beverly Franklin-Thompson, PharmD, MBA
GlaxoSmithKline, Piney Flats, TN

Reneé Frazier, MHSA, FACHE
Healthy Memphis Common Table, Memphis, TN

Rahul Gupta, MD, MPH, FACP
Kanawha-Charleston and Putnam Health Departments, Charleston, WV

Shelley B. Hirshberg, MA
P2 Collaborative of Western New York, Williamsville, NY

** - Advisory Member*

Charles J. Homer, MD, MPH
National Initiative for Children's Healthcare Quality, Boston, MA

Paul E. Jarris, MD, MBA*
Association of State and Territorial Health Officials, Arlington, VA

Keith C. Kosel, PhD, MHSA, MBA
VHA Inc., Irving, TX

Jeffrey Levi, PhD
Trust for America's Health, Washington, DC

Doris Lotz, MD, MPH
New Hampshire Department of Health and Human Services, Concord, NH

J. Lloyd Michener, MD*
Duke University Medical Center, Durham, NC

Doriane C. Miller, MD
Center for Community Health and Vitality of the University of Chicago Medical Center, Chicago, IL

David B. Nash, MD, MBA*
Thomas Jefferson University, Philadelphia, PA

David Stevens, MD*
National Association of Community Health Centers, Bethesda, MD

Matthew Stiefel, MS, MPA
Kaiser Permanente, Oakland, CA

Steven M. Teutsch, MD, MPH
Los Angeles County Department of Public Health, Los Angeles, CA

Julie Trocchio, RN, MS
Catholic Health Association of the United States, Washington, DC

Government Task Lead

Nancy Wilson, MD, MPH*
Agency for Healthcare Research and Quality (AHRQ), Washington, DC

** - Advisory Member*

Committee Biographies

Co-Chairs

Kaye Bender, PhD, RN, FAAN, is the President and CEO of the Public Health Accreditation Board, a position she held part-time since January 2009 and currently holds full-time since June 2009. She has over 26 years of experience in public health working at both the state and local levels within the Mississippi Department of Health. Her last position there was as Deputy State Health Officer. Dr. Bender also served as Dean of the School of Nursing and Associate Vice Chancellor for Nursing at the University of Mississippi Medical Center in Jackson. She continues to teach two courses in health systems management and population health as a part-time Professor in the School of Nursing and the School of Health Related Professions at the University of Mississippi Medical Center. Dr. Bender served on the Institute of Medicine study committees for "The Future of the Public's Health in the 21st Century" and "Who Will Keep the Public Healthy." She currently serves as Chair of the APHA Education Board and served as Chair of the Public Health Leadership Society.

Bruce Siegel, MD, MPH, has an extensive background in healthcare management, policy, and public health. Dr. Siegel is President and CEO of America's Essential Hospitals (formerly the National Association of Public Hospitals and Health Systems). Before joining America's Essential Hospitals, he served as Director of the Center for Health Care Quality and Professor of Health Policy at The George Washington University School of Public Health and Health Services. He also previously served as President and CEO of two of the largest healthcare systems in the United States and Commissioner of Health for the State of New Jersey. Dr. Siegel is a leader on quality and equity conducting projects for the Robert Wood Johnson Foundation, the Commonwealth Fund, the California Endowment, and the Agency for Healthcare Research and Quality.

Members

Catherine M. Baase, MD, is the Global Director of Health Services for The Dow Chemical Company, with direct responsibility for leadership and management of all Occupational Health, Epidemiology, and Health Promotion programs and staff around the world. In addition to these roles, Dr. Baase drives the Dow Health Strategy for employees, retirees, and their families. She is also involved with health policy and issues management. Previously, Dr. Baase served as Director of Health Care Strategic Planning with direct responsibility for Dow's US health benefit plans. She chairs the Executive Council of the Michigan Health Information Alliance (MIHIA), a multi-stakeholder collaborative dedicated to improving the health of people in central Michigan through the innovative use of information. MIHIA is a Chartered Value Exchange (CVE) as appointed by the Agency for Healthcare Research and Quality (AHRQ). She serves as an officer and is on the Board of Directors for the Partnership for Prevention, an organization dedicated to advancing policies and practices that make disease prevention a national priority.

Georges C. Benjamin, MD, FACP, FACEP, is well-known in the world of public health as a leader, practitioner and administrator. Dr. Benjamin has been the Executive Director of the American Public Health Association, the nation's oldest and largest organization of public health professionals, since December 2002. He came to that post from his position as Secretary of the Maryland Department of Health and Mental Hygiene. Dr. Benjamin started his medical career in 1981 in Tacoma, WA, as Chief of the Acute Illness Clinic at the Madigan Army Medical Center. A few years later, he moved to Washington, DC, where he served as Chief of Emergency Medicine at the Walter Reed Army Medical Center. After leaving the Army, he chaired the Department of Community Health and Ambulatory Care at the District of Columbia General Hospital. He was promoted to Acting Commissioner for Public Health for the District of Columbia and later directed one of the busiest ambulance services in the nation.

Christina Bethell, PhD, MBA, MPH, is a Professor in the Department of Pediatrics at Oregon Health & Science University and the founding Director of both the Child and Adolescent Health Measurement Initiative (CAHMI) and the National Maternal and Child Health Data Resource Center. Her work to collaboratively design and validate measures of child and family health and healthcare quality has led to over 45 measures endorsed by the National Quality Forum and a range of standardized metrics used in national, state, and local surveys of families. She specializes in patient and family engagement in quality measurement and improvement.

Kevin L. Bowman, MD, MBA, MPH, is a Medical Director at WellPoint in the Center for Quality Measurement and Improvement (CQMI). He is responsible for improving quality of care while reducing costs for WellPoint patients. He manages, designs, and implements programs to improve patient care, reduce costs, and enhance quality performance measures. He represents WellPoint to external organizations and serves on external committees. Dr. Bowman is trained in both clinical medicine and public health, and is board certified in preventive medicine. Additionally, he served as a consultant at the National Committee for Quality Assurance where he advised and participated in various performance measurement projects.

Debra L. Burns, MA, has more than 20 years of experience leading public health policy, planning, and partnership development efforts. She currently directs the Office of Performance Improvement at the Minnesota Department of Health, where she is also responsible for performance management, quality improvement, community health assessment and planning, community engagement, accreditation, public health practice-based research, integrating evidence-based principles and actions into public health practice, and leading the state and local partnership. She served as Director of the Office of Public Health Practice at the Minnesota Department of Health from 2002 to 2010 and Manager of the Health Systems Development Section prior to that appointment.

JoAnne M. Foody, MD, FACC, FAHA, is the Medical Director of the Cardiovascular Wellness Service and Pollin Cardiovascular Wellness Program at Brigham and Women's/Faulkner Hospital. She is an Associate Professor of Medicine at Harvard Medical School and Editor in Chief of the American College of Cardiology's CardioSmart website. Dr. Foody has active national and international roles in cardiac disease prevention and rehabilitation with a particular focus on women and heart disease. Her research has focused on identifying and fostering greater use of clinical strategies that prevent adverse cardiovascular events in people with and without coronary artery disease. Dr. Foody is a Fellow of the American College of Cardiology and the American Heart Association.

Beverly Franklin-Thompson, PharmD, MBA, joined GlaxoSmithKline's Care Management Solutions Department in June of 2012, after 15 years in the managed care industry, most recently as Pharmacy Director for BlueCross BlueShield Tennessee where she successfully led integrated health management strategies to optimize quality related health outcomes. Having witnessed firsthand the opportunities for community health to benefit from cross collaboration during her work with Patient Centered Medical Homes and replicating the

"Asheville Project" in other municipalities, Dr. Franklin-Thompson understands the need for innovation and sharing of successes as we work within our communities to develop practical solutions to improve population health.

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NATIONAL QUALITY FORUM

TO**:** NQF Board of Directors

FR: Neal Comstock, Vice President, Member Relations
Michelle Robinson, Senior Director, Member Relations

DA: March 18, 2014

RE: Member Relations Update

As of March 14, 2014, NQF has a total of 418 members. To date:

- Fourteen (14) new members have been approved;
- Five (5) members have been cancelled (including one merged organization) since December 2014

2014 Year-to-Date NQF Membership Overview

Member Councils	YTD Total Members
Consumer Council	33
Health Professionals Council	99
Public/Community Health Agencies Council	24
Purchaser Council	19
Health Plan Council	17
Provider Organization Council	112
Quality, Measurement, Research and Improvement Council (QMRI)	76
Supplier & Industry Council	38
Subtotal	**418**

NQF Membership Growth Annual Overview

	Start of Year	New Members	Cancelled	Year End Totals
2014	409	14	5	418 (+2.2% YTD)
2013	429	28	45	409* (net -4.7%)
2012	435	33	39	429 (net -1.37%)
2011	421	53	39	435 (net 3.3%)
2010	383	54	17	420 (net +9.7%)
2009	359	62	38	383 (net+6.7%)
2008	350	45	54	359 (net +2.6%)

**reduction reflects three merged organizations*

2014 New Members Year-to-Date

Organization	**Council**
AbbVie	Supplier and Industry
Academic Pediatric Association	Health Professional
American Association of Naturopathic Physicians	Health Professional
The Buying Value Project	Purchaser
Center for Health Information and Analysis	QMRI
EPIC	Supplier and Industry
Houston Methodist	Provider
National Association of ACOs	Provider
National Association of State Mental Health Program Directors Research Institute (NRI)	QMRI
National Osteoporosis Foundation	Consumer
Novo Nordisk, Inc.	Supplier and Industry
Parkinson's Action Network	Consumer
Primary Care Information Project	Public/Community Health Agency
Society for Cardiovascular Angiography and Interventions	Health Professional

2014 Cancelled Members

Academic Consortium for Complementary and Alternative Health Care
Association for the Advancement of Medical Instrumentation Foundation
Childbirth Connection+
Hoag Hospital
Western Health Advantage

+merged with National Partnership for Women and Families

Cancelled members tend to cite budget/economic, ROI and limited staff resources as primary reasons for cancelling.

Tab 12

2014 NQF Board Meeting Schedule

Board Dinner	Board Meeting
July 22	July 23
November 4	November 5

TERM LIMITS FOR NQF BOARD MEMBERS

Name of Board Member	Start of Original Term	Start of Current Term	End of Current Term	Category	Eligible for Additional Term?
Becker, Lawrence	2007	2011	2014	C/P	No
Chase, James	2013	2013	2016	Other	Yes
Cochran, Jack	2012	2012	2015	Other	Yes
Corry, Maureen	2009	2009	2015	C/P	No
Cronin, Carol	2013	2013	2016	C/P	Yes
Cuello, Leonardo	2011	2011	2014	C/P	Yes
Darling, Helen	2007	2011	2014	C/P	No
Dubow, Joyce	2012	2012	2015	C/P	Yes
Fowler, Elizabeth	2013	2013	2016	Other	Yes
Galvin, Robert	2009	2009	2015	C/P	No
Ginsburg, Marjorie	2013	2013	2016	C/P	Yes
Hoven, Ardis Dee	2010	2013	2016	Other	No
Ignagni, Karen	2013	2013	2016	Other	Yes
Kemper, Donald	2011	2011	2014	Other	Yes
Kramer, William	2012	2012	2015	C/P	Yes
Miller, Harold	2009	2009	2015	C/P	No
Mitchell, Dolores	2010	2013	2016	C/P	No
Mitchell, Elizabeth	2012	2012	2015	C/P	Yes
Naylor, Mary	2009	2009	2015	Other	No
Ness, Debra	2007	2011	2014	C/P	No
Overhage, Marc	2009	2009	2015	Other	No
Probst, Louise	2013	2013	2015*	C/P	Yes
Roper, William	2007	2011	2014	Other	No
Shahian, David	2013	2013	2016	Other	Yes
Siegel, Bruce	2012	2012	2015	Other	Yes
Tooker, John	2007	2011	2014	Other	No
Umbdenstock, Rich	2007	2011	2014	Other	No

C/P = Consumer Purchaser

* Louise Probst is completing JudyAnn Bigby’s term, which would have ended in 2015.

EX-OFFICIO VOTING	
CDC Frieden, Thomas R. * (Briss, Peter)	Federal Representative
AHRQ Kronick, Richard* (Wilson, Nancy)	Federal Representative
CMS Tavenner, Marilyn* (Conway, Patrick)	Federal Representative
HRSA Wakefield, Mary * (Parham Hopson, Deborah)	Federal Representative
EX-OFFICIO NON-VOTING	
Opelka, Frank**	CSAC Chair
Tang, Paul **	HITAC Chair

***No term limits for Federal Representatives.**

****Term coincides with term as Chair for CSAC or HITAC.**