PERSPECTIVES

Measuring Quality of Care in Patients With Multiple Clinical Conditions: Summary of a Conference Conducted by the Society of General Internal Medicine

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Performance measurement has been widely advocated as a means to improve health care delivery and, ultimately, clinical outcomes. However, the evidence supporting the value of using the same quality measures designed for patients with a single clinical condition in patients with multiple conditions is weak. If clinically complex patients, defined here as patients with multiple clinical conditions, present greater challenges to achieving quality goals, providers may shun them or ignore important, but unmeasured, clinical issues. This paper summarizes the proceedings of a conference addressing the challenge of measuring quality of care in the patient with multiple clinical conditions with the goal of informing the implementation of quality measurement systems and future research programs on this topic. The conference had three main areas of discussion. First, the potential problems caused by applying current quality standards to patients with multiple conditions were examined. Second, the advantages and disadvantages of three strategies to improve quality measurement in clinically complex patients were evaluated: excluding certain clinically complex patients from a given standard, relaxing the performance target, and assigning a greater weight to some measures based on the expected clinical benefit or difficulty of reaching the performance target. Third, the strengths and weaknesses of potential novel measures such change in functional status were considered. The group concurred that, because clinically complex patients present a threat to the implementation of quality measures, high priority must be assigned to a research agenda on this topic. This research should evaluate the impact of quality measurement on these patients and expand the range of quality measures relevant to the care of clinically complex patients.

KEY WORDS: performance measurement; quality measures; clinically complex patients.

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INTRODUCTION

Patients with multiple clinical conditions present a stumbling block to the implementation of quality measures and pay-for-performance programs.^{1–6} The care of patients with multiple clinical conditions has to balance the clinical benefits of achieving disease-based quality standards with addressing competing patient priorities that reflect their clinical illnesses.^{7–9} Methods to measure quality of care in patients with multiple clinical conditions have been poorly developed because of the “one size fits all” principle underlying current quality measurement approaches. Therefore, quality improvement initiatives, such as pay-for-performance, can place physicians in the unenviable position of being expected to deliver care that may burden patients with tests, procedures, and recommended behaviors, and that distract from attending to health care issues that may have greater impacts on overall health and well-being.

Addressing quality of care in patients with multiple clinical conditions is a high priority for the field of quality measurement because patients often have multiple comorbidities. In a study conducted 5 years ago, nearly half of all Medicare beneficiaries had at least three chronic medical conditions and one-fifth had five or more.¹⁰ Comorbidities have been associated with poor quality of life, physical disability, activity limitations, and high health care utilization.^{10–12} Despite the obvious importance of considering comorbidities when evaluating physician performance, approaches to accomplish this in patients with chronic diseases remain elusive.¹³

To focus greater attention on quality measurement in patients with multiple clinical conditions, a multidisciplinary conference of experts was convened to: (1) define key components of complexity associated with multiple clinical conditions and identify principles to guide the implementation of

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quality measures in this population, (2) suggest changes to address the management of multiple clinical conditions in existing measures, and (3) identify other novel or infrequently used quality measures with potential value for patients with multiple clinical conditions. This paper summarizes themes and areas of controversy among the conference participants. Our overall goal was to inform an action plan to address quality assessment for patients with multiple clinical conditions.

CONFERENCE ATTENDEES

The conference was held in Philadelphia, PA, in March 2006. Participants were selected to represent a breadth of relevant expertise and key stakeholders. The [Appendix](#) lists participants.

KEY THEMES

Characteristics of Patients with Multiple Clinical Conditions and Principles Underlying Modification of Quality Measures

The participants reviewed a preliminary list of clinical and nonclinical dimensions that contribute to patient complexity created by the organizers of the conference from a review of published literature.^{14–22} The group generally endorsed many factors as barriers to achieving quality goals, including patient comorbidities, competing patient priorities, and difficult treatment regimens leading to poor adherence. Whereas nonclinical patient factors, such as demographics and socioeconomic status, also likely represent barriers to achieving quality goals, they were not included in the conferences' definition of complexity and thus were not a focus of the conference.

Participants generally agreed that "multiple clinical conditions" means more than a simple count of comorbidities. Because diseases range from mild and relatively asymptomatic to debilitating,^{23,24} the severity of a condition, not just its presence, increases the risk of adverse clinical outcomes^{11,25,26} and the demands of delivering care.^{7,27} In addition, because clinical trials generally exclude patients with multiple clinical conditions,^{24,28} quality standards derived from trials may have a lower relevance to these patients. The group also acknowledged that attending to serious or unstable conditions that adversely affect quality of life or life expectancy may have a greater priority than meeting a quality measure that has less present and/or future benefit for these patients. Therefore, a simple count of comorbidities without any prioritization inadequately characterizes how clinical complexity affects physician care and performance.

Conference participants endorsed categorizing clinical conditions as concordant or discordant.^{21,29} Concordant conditions benefit from meeting the same quality standard and consequently increase the likelihood that it will be addressed. For example, coronary artery disease and diabetes both benefit from improved blood pressure control, so meeting a hypertension quality of care standard would be more likely in a patient with both conditions. Conversely, a discordant condition would not gain additional benefit from meeting a quality standard. For example, management of emphysema, breast cancer, or gastroesophageal reflux can be accomplished without attention to blood pressure control.²⁹ Physicians caring for patients

with discordant conditions may be less likely to meet performance standards because they are attending to diverse management issues. Participants also concurred that performance measures should account for mental health and cognitive conditions (e.g., depression and dementia) that can adversely affect providers' and patients' ability to care for other comorbidities.^{9,27}

Finally, the group could not agree on which previously developed clinical severity measures could be used to capture information about patient clinical conditions. Substantial additional research was thought to be required before multiple clinical conditions can be measured for quality measurement purposes.

Patients with Multiple Clinical Conditions and Existing Measures

Among the strategies to adapt existing quality measures that the participants discussed (Table 1), the most straightforward is to exclude certain patients with multiple clinical conditions from a given measure because it is difficult, costly, risky, or of limited value in the presence of other specific conditions.²⁶ The "exclusion" approach was regarded as offering the advantage of being able to use existing measures. However, a physician may strive less hard to deliver high-quality care to an excluded patient. Furthermore, if physicians have many patients who are excluded from quality measurement, their measured performance will reflect quality of care for only a small segment of their patients instead of offering a broader picture of their performance.

The group debated whether to adapt existing measures for use in patients with multiple clinical conditions by changing the performance goal. Such an approach could be guided by a "cost effectiveness" calculation that evaluates whether the patient's comorbidities reduced the effectiveness of a given measure and/or increased costs of care. Relaxing a quality measurement goal could free the physician to attend to more significant management issues. Those participants who advocated for this approach also cited the need to avoid penalizing physicians for taking care of more complicated patients. Some participants worried that patients might even *become* more complicated to manage after receiving inferior care; consequently, inferior care should not be rewarded by lowering the quality standard that is applied to them.

Another focus of discussion concerned accounting for the patient's baseline value when measuring a quality. For example, an improvement in hemoglobin A1c from 12 to 9% represents a greater clinical success and should be rewarded more than a change from 7.5 to 6.8%. Yet, it was acknowledged that obtaining longitudinal values for a quality measure within a specific timeframe may be infeasible without electronic medical record systems.

Two additional strategies for adapting current measures involve weighting schemes. The group discussed the option of differentially rewarding physicians for meeting quality care standards in areas of greater clinical benefit to a clinically complex patient. For example, more "credit" would be given for reducing cardiac risk by controlling blood pressure and lipid levels in a patient with diabetes than for performing routine diabetic foot exams. Another weighting system that was discussed would reward physicians for delivering quality care to patients who have multiple clinical conditions that are more

Table 1. Approaches to Adapting Existing Measures for use in Clinically Complex Patients

	Advantages	Disadvantages
Build in "exceptions" to existing standards. Example: exclude patients with life expectancy of less than 10 years	No changes in actual measure required	Complex patients excluded Providers may not try to achieve high quality care in clinically complex patients Excludes so many patients that measured quality does not represent a provider's practice May lower standards for clinically complex patients who might benefit from aggressive care
Change targets. Example: target HgA1c of 8% in a 70-year-old patient with 3 or more other conditions and take ≥ 6 medications; otherwise 7%	Rewards providers differentially for achieving a goal based on the patient's profile	May lower standards for clinically complex patients who might benefit from aggressive care
Measures weighted based on expected clinical benefit	Allows providers to focus on addressing quality measures that are more relevant to a particular patient For any given measure, uses uniform standards for all patients eligible for that measure	Requires development of a weighting system Weighting system must be sensitive to individual characteristics Requires development of a weighting system
Measures weighted based on how difficult it is to reach the target and how close to the target a patient gets	Rewards providers for providing excellent care to clinically complex patients Reward system acknowledges that providing excellent care to a clinically complex patient may be more difficult Minimizes incentive to avoid clinically complex patients	Weighting system must be sensitive to individual characteristics May lower standards for clinically complex patients who might benefit more from aggressive care

challenging to manage. Most participants endorsed offering financial incentives for caring for such patients.

Patients with Multiple Clinical Conditions and Novel Measures

The final conference objective was to identify existing but infrequently used quality measures that are relevant to patients with multiple clinical conditions, as well as novel measures. According to a framework proposed by conference organizers, potential measures were grouped into three categories: generic, patient experience, and structural (Table 2). Generic measures reflect general physical, mental, or social well-being. Generic measures offer the advantage of being relevant to most patients with multiple clinical conditions and can examine both process and clinical outcomes, such as addressing pain (process) or changes in functional status (clinical outcome). Yet, some participants argued that these measures are relatively insensitive to the physician's quality of care because they are affected by too many factors beyond the control of the physician or even the health care system.

A second group of proposed quality measures reflect the patient's experience of care. Because patients with multiple clinical conditions usually see multiple providers and have to negotiate an often byzantine health care system,³⁰ patient satisfaction with care coordination would be particularly appropriate to evaluate. Several participants endorsed a performance measure that would assess whether the physician addressed the patient's main complaints. Whereas such patient experience measures may capture important information about quality of care, patient survey or interview data are more cumbersome to collect and analyze than administrative data. Although many measures of the patient's experience with care have been developed³⁰ and validated,³¹⁻³³ it was also acknowledged that they were not originally developed to serve as quality measures for clinically complex patients. Moreover, although patient satisfaction measures may be useful for this purpose, it was noted that they are often limited by ceiling effects because most patients are satisfied with their care.

A third set of potential measures evaluate structural or systems factors that promote better patient outcomes. These measures may assess whether clinical reminders, drug interaction alert systems, and other medical decision-making tools are available to assist physicians when caring for patients with many competing issues.³⁴

AREAS OF CONTROVERSY

As noted, the group thought that achieving quality standards in patients with multiple clinical conditions is more difficult than similar standards in patients who are not as clinically complex to manage. However, many were concerned that modifying standards based upon the presence of multiple clinical conditions would further promote a two-tiered system where lower quality care might be considered acceptable for

Table 2. Proposed Measures of Quality in Clinically Complex Patients not now Routinely Used

Measure	Example
Generic measures	Functional status Pain Weight Sleep
Interpersonal measures/patient experience	Collaboration or coordination of care Competing demands prioritized Symptom assessment Shared decision-making Quality of life addressed Preference assessment
Structural measures	Patient registry Chart with problem list and medication list Integrated plan Prompts (guidelines, drug-drug interactions, disease-drug interactions) Consultant tracking Integrated disease management

patients with multiple clinical conditions. An alternative option to modifying standards would be to give “extra credit” to providers who care for complicated patients.

Another area of controversy concerned using process vs clinical outcome measures. Some participants felt that much more research is needed to examine the link between performance on process measures and outcomes of care for patients with multiple clinical conditions. Some conference participants felt that clinical outcome measures offer more meaningful endpoints and should be used whenever possible. Others argued that clinical outcome measures are affected by too many factors that can be difficult for the physician to influence. They also worried that it is difficult to account adequately for differences in clinical outcomes that might be attributable to patient comorbidities and competing clinical needs.

RECOMMENDATIONS FOR QUALITY MEASUREMENT IN PATIENTS WITH MULTIPLE CLINICAL CONDITIONS AND FUTURE RESEARCH

The first principle reflects conference participants’ generally held view that it is more difficult to manage and reach quality-of-care goals when treating patients with multiple clinical conditions. However, the group acknowledged that little is known about exactly how measured performance differs using currently available quality measures in this group of patients with multiple clinical conditions. Thus, investigation should be conducted on currently implemented quality measures.

Second, measuring quality should integrate an assessment of the patient’s clinical comorbidities. Whereas numerous comorbidity measures are currently available, research is needed to establish which, if any, can best capture clinical complexity in ambulatory or inpatient settings.

Third, existing measures need to be adapted to be more clinically relevant to patients with multiple conditions. Options to accomplish this include excluding some patients, relaxing standards, and giving greater “credit” to physicians managing patients with more challenging clinical conditions. Another promising approach could employ a weighting system that would evaluate quality preferentially in areas that matter the most.

Fourth, participants regarded some measures, such as patient experience of care and measures reflecting coordination of care, as particularly relevant to evaluating quality of care in patients with multiple clinical conditions. Additional research aimed at younger patients with multiple clinical conditions was endorsed because most studies have been conducted in the elderly population.

Finally, concerns were voiced about unintended consequences, such as physicians avoiding patients with multiple clinical conditions or ignoring more important patient concerns because they are not the subject of a quality measure. To date, there is limited empirical evidence supporting these concerns,³⁵ and there should be a focus of monitoring the repercussions of quality measurement systems.

LIMITATIONS

The recommendations from this conference should be viewed in light of several limitations. We defined clinically complex patients based on the presence of multiple clinical conditions.

Further work is needed to address how nonclinical factors, such as socioeconomic status, interact with multiple conditions to contribute to differences in achieving quality-of-care goals. Additionally, limited empirical evidence is available to support the recommendations from the conference, and the conference did not use a formal consensus process to arrive at these recommendations. However, with the increasing use of performance measures in patients with multiple clinical conditions, we feel it is important to start the debate with concrete recommendations.

FURTHER INNOVATIONS

By calling attention to the unique aspects of caring for and measuring quality in patients with multiple clinical conditions, this conference represents a step toward increasing the clinical relevance of performance measures. Examples of further directions for improving performance measurement among patients with multiple clinical conditions include:

- Weighting or stratifying performance measures based on an assessment of concurrent clinical comorbidities or complaints. For example, in a patient with mildly or moderately elevated hypertension and debilitating pain from arthritis, this would allow the provider to focus first on pain management rather than optimizing blood pressure.
- Developing additional clinical outcome measures (for example, pain control). Whereas outcomes are difficult to adequately risk-adjust, the standard for a quality measure could be modified such that it will address patients at the greatest risk for a poor outcome but not penalize physicians for taking on patients at high risk for a poor outcome. The goal of such a measure would be to maintain minimal acceptable standards, rather than to optimize clinical outcomes. This approach was taken in the initial diabetes set of measures, which began using a hemoglobin A1c level of 9.5%, rather than 7 or 8%, to minimize the impact of case-mix on the ability of providers to meet performance goals.
- Aggregate individual measures into groups of measures. By shifting the focus from individual measures to aggregated measures, no single measure is used to define quality, and patients with their physicians can set priorities without penalty. For example, diabetes quality would be measured by the aggregate of LDL cholesterol, blood pressure, and hemoglobin A1c level. This would prevent performance on any single measure from defining a provider’s performance profile.
- Distinguish concordant from discordant comorbidities in performance measures and increase the reward for achieving performance standards in patients with discordant comorbidities, for which it may be harder to achieve performance standards.

Performance measurement is a means to improve health care delivery and, ultimately, clinical outcomes. We must address the unique challenges of measuring performance in patients with multiple clinical conditions or potentially face important unintended negative consequences.

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APPENDIX

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Catherine Maclean	VAGLA, RAND, UCLA
Ernie Moy	Agency for Healthcare Research and Quality
Sharon-Lise Normand	Harvard University
Patrick O'Connor	Health Partners Research Foundation
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