

Measuring Quality of Care With Explicit Process Criteria Before and After Implementation of the DRG-Based Prospective Payment System

Katherine L. Kahn, MD; William H. Rogers, PhD; Lisa V. Rubenstein, MD, MSPH; Marjorie J. Sherwood, MD; Ellen J. Reinisch, MS; Emmett B. Keeler, PhD; David Draper, PhD; Jacqueline Kosecoff, PhD; Robert H. Brook, MD, ScD

We developed explicit process criteria and scales for Medicare patients hospitalized with congestive heart failure, myocardial infarction, pneumonia, cerebrovascular accident, and hip fracture. We applied the process scales to a nationally representative sample of 14 012 patients hospitalized before and after the implementation of the diagnosis related group-based prospective payment system. For the four medical diseases, a better process of care resulted in lower mortality rates 30 days after admission. Patients in the upper quartile of process scores had a 30-day mortality rate 5% lower than that of patients in the lower quartile. The process of care improved after the introduction of the prospective payment system; eg, better nursing care after the introduction of the prospective payment system was associated with an expected decrease in 30-day mortality rates in pneumonia patients of 0.8 percentage points, and better physician cognitive performance was associated with an expected decrease in 30-day mortality rates of 0.4 percentage points. Overall, process improvements across all four medical conditions were associated with a 1 percentage point reduction in 30-day mortality rates after the introduction of the prospective payment system.

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PROCESSES of care—what we do to patients—have been considered an essential component of quality of care measurement for over 50 years.¹⁻⁶ Even if outcomes of care—what happens to patients—are the most meaningful measures of quality to the patient, we will be unable to develop clinical methods to improve outcomes unless we understand how processes and outcomes are related. Assessing quality of care by process also provides some measure-

ment advantages over studying outcomes, because not all patients who experience a poor process of care suffer a poor outcome.

The purpose of this article is twofold. First, we report on the development of a set of validated process criteria for elderly patients admitted to the hospital with one of five conditions. By validated we mean that process predicts outcome. Second, we apply the validated process criteria to patients treated before and after the implementation of the prospective payment system (PPS) to determine whether the PPS has been associated with changes in the processes of care.

METHODS

We based our analysis on the sample described in more detail elsewhere in this series.⁷

Developing Process Criteria

We used literature review and consultation with experts to develop a set of process measures for which better process was likely to make a difference in patient outcome. These measures were then presented to disease-specific panels consisting of five to 12 physicians, who were selected by our collaborators, the professional review organizations. Each panel reviewed the suggested criteria to decide whether they believed that data to assess these criteria were reliably recorded in the medical record and whether the criteria made clinical sense. Process criteria based on data whose recording was likely to vary by year, state, or hospital type were excluded. We developed disease-specific abstraction forms⁸⁻¹² to collect data on approximately 100 process criteria for each disease.

Scoring Process Criteria

In scoring process criteria, we first applied the criteria only to patients who were likely to benefit from their use. Using this kind of conditional logic, many criteria were applicable to all patients, some to just a few. For example, if a patient with congestive heart failure was considered to be severely ill, then the intensive care unit should be used. Second, we used clinical judgment to assign scores (points) to each process criterion based on how likely a patient was to benefit from it. For example, use of the intensive care unit for very sick patients was assigned seven points, whereas use of the intensive care unit for moderately sick patients was assigned three points. Third, the process

From the Health Program of the RAND Corp, Santa Monica, Calif (Drs Kahn, Rogers, Rubenstein, Sherwood, Keeler, Draper, and Brook and Ms Reinisch); the Departments of Medicine (Drs Kahn, Rubenstein, Kosecoff, and Brook) and Health Services (Drs Kosecoff and Brook), UCLA; and Value Health Sciences Inc, Santa Monica (Dr Kosecoff).

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Reprint requests to the RAND Corp, 1700 Main St, PO Box 2138, Santa Monica, CA 90406-2138 (Dr Kahn).

