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## ***Hospital Performance Measures and Quality of Care***

Editor's note: Increasingly, quality improvement initiatives emphasize public reporting of hospital performance measures, to encourage providers to improve, to help consumers pick providers, and to determine provider payments. Although these measures are based on compliance with well-established processes of care, it is unknown whether quality measured in this way is correlated with, or predictive of, clinical outcomes. This Issue Brief summarizes studies that examine and quantify the relationship between frequently used measures of hospital performance and hospital mortality.

### ***Most hospitals now report process measures as a requirement for full Medicare payments***

Since 2004, nearly all acute care hospitals have participated in the Hospital Quality Alliance (HQA), a public-private partnership that encourages collection and reporting of data on quality of care. The Centers for Medicare and Medicaid Services (CMS) now links participation in the program to yearly Medicare payment increases, providing a financial incentive for hospitals to report their data.

- Participating hospitals report data on the HQA “starter set” of 10 process measures regarding three clinical conditions: heart attack, heart failure, and pneumonia. Recently, data on other clinical conditions and patient satisfaction have been added to list. These data are available through the CMS website, Hospital Compare ([www.hospitalcompare.hhs.gov/](http://www.hospitalcompare.hhs.gov/))
- One way that hospital performance measures might lead to improvements in health care quality is if patients and referring physicians use them to choose higher-quality hospitals. However, it is not clear than hospitals that have better performance measures on certain conditions also have better outcomes. It is also not known whether the difference in performance measures among hospitals warrants the distance patients might need to travel, and whether those hospitals could handle the volume of patients who might choose them.

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- Another way that performance measures could lead to improved quality is if providers use them to improve their practices and adhere more closely to standards of care. Clinical studies underlying the measures suggest that improving the process of care will improve outcomes; however, it is unknown to what extent the measures are actually correlated with better outcomes across hospitals

**Study investigates the relationship between hospital performance measures and mortality rates**

- Werner and Bradlow sought to determine whether a hospital’s performance on the original HQA quality measures could predict hospital mortality rates for Medicare patients admitted with heart attack, heart failure, or pneumonia.
- The study included 3,657 hospitals nationwide that are listed on the CMS website. The researchers used reported data from January through December 2004, and compared hospitals’ performance with each hospital’s mortality rates, adjusted for demographic and other risk factors.
  - For patients admitted with relevant diagnoses, Medicare claims data were used to calculate risk-adjusted hospital mortality rates at discharge, 30 days, and one year after admission.
  - The performance measures included five recommended treatments for heart attack, two for heart failure, and three for pneumonia (see table below). The investigators also calculated composite scores for each condition.

**Hospital Quality Alliance Performance Measures (starter set)**

**Heart Attack**

aspirin given on arrival  
aspirin prescribed at discharge  
ACE inhibitor drugs given if indicated  
beta blocker drugs on arrival  
beta blocker prescribed at discharge

**Heart Failure**

heart function assessed  
ACE inhibitor drugs given if indicated

**Pneumonia**

prompt timing of antibiotics after arrival  
blood oxygen measured  
pneumonia vaccination status assessed

**Hospital performance measures predict small differences in mortality rates**

- The investigators compared hospitals at the 25th percentile for performance measures with those at the 75th percentile, and found only small differences in mortality rates between the top- and bottom-rated hospitals.
- Across all performance measures for heart attack, the difference between the top- and bottom-rated hospitals was 0.5% for inpatient mortality, 0.6% for 30-day mortality, and 1.2% for 1-year mortality. The difference in 30-day mortality rates for top-rated hospitals for all heart attack measures vs. bottom-rated hospitals for all measures was 1.1%.
  - Across all performance measures for heart failure, the difference between the top- and bottom-rated hospitals was even smaller, ranging from 0.1% for inpatient mortality to 0.02% for 1-year mortality. There were no significant differences in mortality rates for top-rated hospitals for both heart failures measures vs. those that were bottom-rated for both measures.

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- For the pneumonia measures, the difference between the top- and bottom-rated hospitals ranged from 0.1% for 30-day mortality to 0.5% for inpatient mortality. The differences in 30-day mortality rates for top-rated hospitals for all pneumonia measures vs. those that were bottom-rated for all measures was 0.3%.
  - Even if patients were willing to choose a hospital based on its performance, only about half of Medicare beneficiaries live within 30 miles of a high-performing hospital. Distances were longer in the Midwest, South, and West compared with the Northeast.

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***Although differences in mortality rates are small, they are greater than what might be expected from the effects of measured care alone***

Hospital performance measures can be associated with better outcomes for two reasons: first, because the care being measured directly leads to better outcomes, and second, because the measures are markers of other elements of quality that remain hidden. Werner, Bradlow, and Asch analyzed their findings to determine whether the 1-year mortality rates they observed were more or less than what would be predicted from clinical studies of the measured care alone.

- Differences in observed mortality rates for heart attack and pneumonia across U.S. hospitals were larger than what would be expected if these differences were due only to the direct effects. The difference for heart failure was not statistically significant.
- For example, the observed mortality differences for most heart attack measures were three times larger than what would be expected from the clinical studies supporting these measures. This finding suggests that process measures not only reflect measured care, but also reflect other hospital qualities that improve outcomes. The distinction is important because it is unclear whether improving measured care directly will affect these other elements and ultimately improve health care quality.

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## ***POLICY IMPLICATIONS***

The results suggest that the “starter set” of HQA performance measures are not tightly linked to patient outcomes, which limits their usefulness in identifying high-quality hospitals and in improving patient care.

- These findings should not undermine current efforts to improve quality through hospital performance measurement and reporting. Rather, they should focus attention on the need for different types of measures (structure, process, and outcome) as well as a more complete set of process measures. CMS is moving in this direction, having expanded hospital reporting requirements to 21 measures, and more planned for 2008 and 2009. In July 2007, CMS also started reporting mortality rates for heart attack and heart failure.
- While the process measures that are publicly available on Hospital Compare may only predict small differences in mortality rates, consumers may still judge the revealed differences in risk as important. They may also value the data for other reasons, such as the reassurance it provides regarding the quality of medical care.

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## POLICY IMPLICATIONS

### Continued

- CMS is conducting demonstration projects using “pay-for-performance” incentives, in which hospitals are paid a bonus for being in the top 10-20% on performance measures. Additionally, Congress has directed CMS to develop such a program for paying all hospitals by 2009. The uncertainty of how improvements in performance measures will affect patient outcomes raises concerns about the effectiveness of pay-for-performance in improving health care quality.

*This Issue Brief is based on the following articles: R.M. Werner, E.T. Bradlow, D.A. Asch. Does hospital performance on process measures directly measure high quality care or is it a marker of unmeasured care? Health Services Research 2008 (published online Dec. 20, 2007, doi:10.1111/j.1475-6773.2007.00817.x); R. M. Werner, E. T. Bradlow. Relationship between Medicare's Hospital Compare performance measures and mortality rates. Journal of the American Medical Association, December 13, 2006, vol. 296, pp. 2694-2702; R. M. Werner, D.A. Asch. The unintended consequences of publicly reporting quality information. Journal of the American Medical Association, March 9, 2005, vol. 293, pp. 1239-1244.*

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## Issue Brief



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