

Patient Assessments and Quality of Care in Rural Hospitals

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Key Findings

- Hospitals in rural areas have significantly higher ratings on patients' assessments of care, as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey, than those located in urban areas. Within rural areas, hospitals in less densely populated rural areas (non-core) score significantly higher than those in more densely populated (micropolitan) areas.
- After controlling for hospital organizational characteristics, differences by rurality remain significant for all the HCAHPS measures except the patient recommendation of hospital measure.
- Hospital for-profit status and inpatient volume are significantly and negatively related to HCAHPS scores. Nursing and pharmacist staffing variables have smaller but significant positive relationships with several HCAHPS measures.
- The HCAHPS overall hospital rating and willingness to recommend scores are significantly related to process of care quality measures for heart failure and pneumonia and a hospital-wide process of care composite measure. However, the statistical relationships between these HCAHPS scores and the process measures are not as strong as the statistical relationships between the HCAHPS scores and certain hospital organizational characteristics such as size and for-profit ownership.
- Differences in the overall performance of smaller rural hospitals relative to larger urban hospitals on the HCAHPS measures and the process of care measures suggest that the two sets of measures are measuring different aspects of quality.

Background

The national focus on health care quality and patient safety has resulted in increased attention to patients' assessments of their experiences receiving health care. Patient-centered care is one of the Institute of Medicine's six aims for the health care system. The results of patient satisfaction surveys can be used in conjunction with other quality measures to evaluate the quality of hospital care and identify areas for quality improvement.

It has been suggested that patient perceptions of quality are important for two reasons: 1) they are inherently meaningful and should be a primary focus of attention within the health care system, and 2) they are powerful drivers of patient choice of health plans or providers, adherence to medical advice, patient complaints and grievances, the level and seriousness of malpractice claims, and actual health and functional status outcomes.¹

The HCAHPS survey was developed by the Agency for Healthcare Research and Quality (AHRQ) and the Centers for Medicare and Medicaid Services (CMS) to provide a uniform set of measures that complement other hospital survey tools designed to support quality improvement. CMS has three broad goals for the HCAHPS survey initiative: (1) provide comparable data on patients' perspectives of care that allows objective and meaningful comparisons among hospitals; (2) create incentives for hospitals to improve the quality of care; and (3) enhance public accountability in health care through public reporting.²

The HCAHPS survey items address communication with doctors, communication with nurses, responsiveness of hospital staff, cleanliness and quietness of hospital environment, pain management, communication about medicines, discharge information, an overall rating of the hospital, and a rating of willingness to recommend the hospital. The survey also includes demographic items.

Hospitals may use HCAHPS as a stand-alone survey or in combination with hospital-specific items to support internal patient satisfaction and quality-related activities. The survey is designed to be administered to adult patients, 18 years and older, who had an inpatient overnight stay in a short-term, acute care hospital for a non-psychiatric primary diagnosis. Hospitals can choose to conduct the survey in one of four modes: mail, telephone, mail with telephone follow-up, or interactive voice recognition; they may use a survey vendor that has been approved by CMS or collect their own data if they are qualified. For public reporting, CMS adjusts the HCAHPS results for mode effects, the hospital's response rate, and patient mix variables.³

Hospitals paid under the Medicare Prospective Payment System (PPS) were required to submit HCAHPS data starting with the 4th quarter of 2006, along with the other Hospital Compare quality measures, in order to receive their full annual payment update from Medicare. The HCAHPS data were first publicly reported on the CMS Hospital Compare website in March 2008. However, PPS hospitals were allowed to suppress their data from the website until March 2009. Critical Access Hospitals (CAHs)ⁱ may voluntarily submit HCAHPS data for public reporting.

Purpose of the Study and Approach

The purpose of this project is to (1) analyze the relationship between patients' perspectives of hospital quality of care and key hospital characteristics that may influence patients' experiences of hospital care, including rurality; and (2) assess whether patients' perspectives of hospital quality of care are related to quality measures focused on the provision of recommended care for medical conditions.

The data sources for the study include HCAHPS survey data; data on the Hospital Compare inpatient process of care measures for acute myocardial infarction (AMI), heart failure, and pneumonia; data on hospital characteristics from the American Hospital Association (AHA) Annual Survey; and data on Critical Access Hospitals from a database maintained by the Flex Monitoring Team.ⁱⁱ

This study uses ordered logistic regression models to examine the relationships between each of the HCAHPS measures and key hospital characteristics. Regression models are also used to examine the relationships between the two summary HCAHPS measures: the overall hospital rating and the patient recommendation of the hospital measure, and the composite inpatient process of care measures for AMI, heart failure, pneumonia, and an aggregate process of care composite score.

The study makes new contributions in two ways. First, the study examines differences in HCAHPS scores across hospital type and geographic location: (1) by rurality (hospitals located in metropolitan, micropolitan and non-core counties)ⁱⁱⁱ and (2) between Critical Access Hospitals, rural Prospective Payment System, and urban PPS hospitals, while controlling for hospital organizational characteristics. Second, unlike earlier studies that only assessed differences between the top category of responses and the other categories combined, this study uses the additional information included in the three-level HCAHPS response categories by employing ordered logistic regression models and calculating effect sizes for each significant explanatory variable.

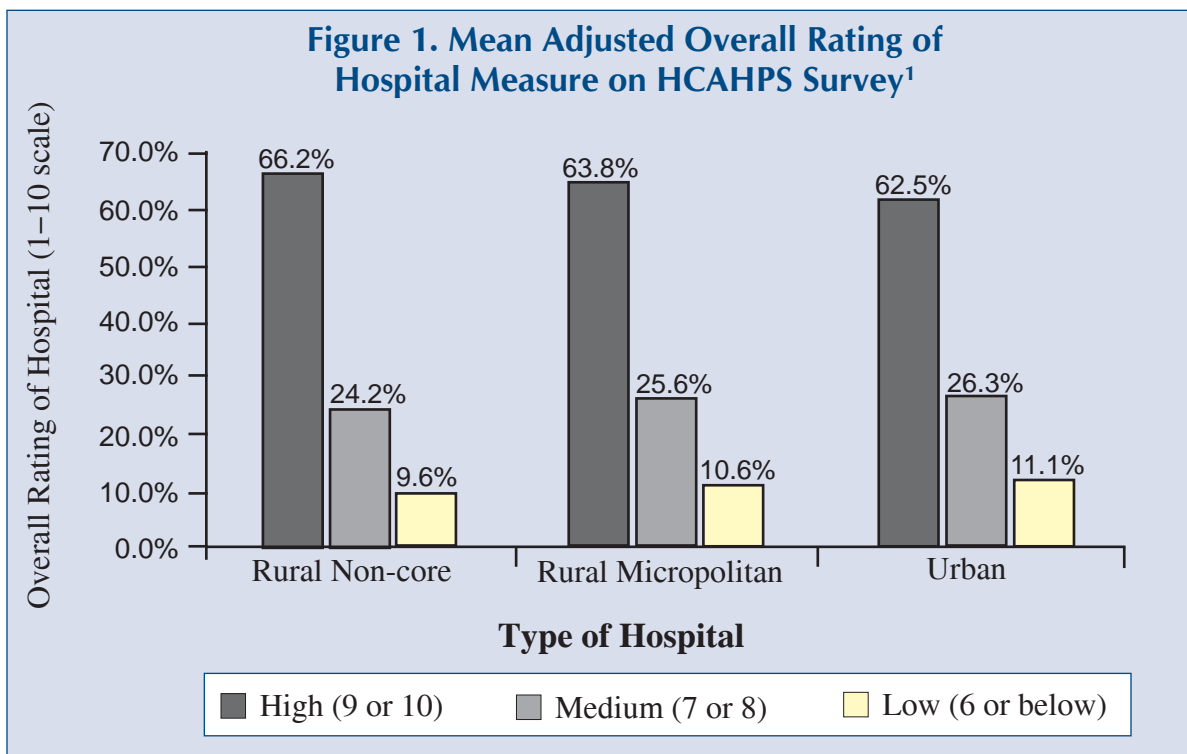
Results

Hospitals in rural areas have significantly higher ratings on HCAHPS measures than those located in urban areas. Within rural areas, hospitals in less densely populated rural areas (non-core) have significantly higher scores than those in more densely populated (micropolitan) areas. After controlling for hospital organizational factors, including hospital size and staffing, the differences by rurality remain significant for all the HCAHPS measures except the patient recommendation of hospital measure. Figure 1 shows the adjusted mean scores for the HCAHPS overall hospital rating measure for non-core, micropolitan, and urban hospitals.

ⁱA CAH is a small (25 beds or fewer) rural hospital with an annual average length of stay of less than 96 hours per acute care patient. It must be located at a distance from other hospitals or certified by the state as a necessary provider of health care services. CAHs receive cost-based Medicare reimbursement, while PPS hospitals are reimbursed under the Medicare DRG system.

ⁱⁱThe Flex Monitoring Team is a partnership of the Rural Health Research Centers at the Universities of Minnesota, North Carolina-Chapel Hill, and Southern Maine. a cooperative agreement award from the Federal Office of Rural Health Policy, the Team monitors the Medicare Rural Hospital Flexibility Grant Program, including tracking the number and characteristics of CAHs. See <http://www.flexmonitoring.org> for additional information.

ⁱⁱⁱThe Office of Management and Budget defines metropolitan areas as central counties with one or more urbanized areas and outlying counties that are economically tied to the core counties as measured by work commuting. Nonmetropolitan counties are those outside the boundaries of metropolitan areas and are subdivided into two types: micropolitan areas, centered on urban clusters of 10,000 or more persons, and all remaining "noncore" counties. US Department of Agriculture. Economic Research Service. Measuring Rurality: What is Rural? <http://www.ers.usda.gov/Briefing/Rurality/WhatIsRural/>



¹Adjusted for the number of hospitals in the service area; number of inpatient days; total nursing FTEs per adjusted patient day; RN percentage of total nursing staff FTEs; accreditation; and ownership (for-profit vs. not-for-profit and public).

Among the hospital organizational factors, for-profit status and hospital inpatient volume tend to have the largest effects on HCAHPS scores. For-profit status has a significant negative relationship with all HCAHPS measures except one (whether the patient room’s was quiet at night). Hospital inpatient volume has a significant negative effect on all HCAHPS measures. The negative relationship between for-profit ownership and the HCAHPS measures is consistent with previous research, which found a negative relationship between for-profit status and the overall hospital rating.⁴ However, the size of the effect is surprisingly large relative to other hospital organizational characteristics.

There are smaller, significant positive relationships between nursing and pharmacist staffing and several HCAHPS measures. The registered nurse (RN) FTE per adjusted patient day variable has a significant positive impact on the nurse communication, receiving help as soon as needed, pain control, and medication explanation measures. The total nursing FTE (including RNs, Licensed Practical Nurses (LPNs) and Nursing Assistants) per adjusted patient day variable has a significant positive effect on the discharge information, overall rating, and recommendation measures. The RN percentage of total nursing staff FTEs variable has a significant positive effect on the discharge information, overall rating, and recommendation measures. In alternative models for the pain control and medication explanation measures that do not include RN staffing (because of the high correlation between RN and pharmacist staffing), the pharmacist FTEs per adjusted patient day variable has significant positive effects.

Other organizational characteristic variables have a small effect on some HCAHPS measures. Teaching hospital status has a small positive effect on the physician communication measure, while using hospitalists has a small but significant negative effect. The number of hospitals in the service area has a small positive effect on the overall rating and recommendation measures.

The heart failure and pneumonia process of care composite measures are significantly related to the HCAHPS overall rating and recommendation scores, but the AMI composite measure is not. The impact of the aggregate process of care composite score, which combines the AMI, heart failure, and pneumonia process of care composite scores, is larger and more significant than the individual composite measures. However, the statistical relationships between the HCAHPS scores and these process measures are not as strong as the statistical relationships between the HCAHPS scores and some of the hospital organizational variables in the previous models (e.g., size and for-profit ownership).

Policy Implications

The overall better performance of smaller, rural hospitals on the HCAHPS measures contrasts with their generally lower overall performance on the process of care measures, especially the AMI and heart failure measures, relative to larger urban hospitals. These differences in performance suggest that the process of care measures and the HCAHPS measures are measuring different aspects of quality.

Future Research

Future research should examine changes in the number of hospitals reporting HCAHPS data, particularly CAHs, which are currently publicly reporting on a voluntary basis without the financial incentive PPS hospitals have for reporting. Given the differences in characteristics of reporting and non-reporting hospitals, it will be important to analyze whether HCAHPS scores change over time and how those changes are related to hospital characteristics. It will also be important to identify which hospitals are successfully improving their HCAHPS scores and how they are doing it, so that other hospitals may learn from them.

References

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Additional Information

The information in this policy brief is based on Upper Midwest Rural Health Research Center Final Report #10 by Michelle Casey, MS, and Gestur Davidson, PhD, University of Minnesota. For more information, contact: Michelle Casey, (612) 623-8316, mcasey@umn.edu

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