Physician-Owned Surgical Hospitals Outperform Other Hospitals in Medicare Value-Based Purchasing Program

Adriana G Ramirez, MD, Margaret C Tracci, MD, JD, FACS, George J Stukenborg, PhD, Florence E Turrentine, PhD, RN, Benjamin D Kozower, MD, MPH, FACS, R Scott Jones, MD, FACS

BACKGROUND: The Hospital Value-Based Purchasing Program measures value of care provided by participating Medicare hospitals and creates financial incentives for quality improvement and fosters increased transparency. Limited information is available comparing hospital performance across health care business models.

STUDY DESIGN: The 2015 Hospital Value-Based Purchasing Program results were used to examine hospital performance by business model. General linear modeling assessed differences in mean total performance score, hospital case mix index, and differences after adjustment for differences in hospital case mix index.

RESULTS: Of 3,089 hospitals with total performance scores, categories of representative health care business models included 104 physician-owned surgical hospitals, 111 University HealthSystem Consortium, 14 *US News & World Report* Honor Roll hospitals, 33 Kaiser Permanente, and 124 Pioneer accountable care organization affiliated hospitals. Estimated mean total performance scores for physician-owned surgical hospitals (64.4; 95% CI, 61.83−66.38) and Kaiser Permanente (60.79; 95% CI, 56.56−65.03) were significantly higher compared with all remaining hospitals, and University HealthSystem Consortium members (36.8; 95% CI, 34.51−39.17) performed below the mean ($p < 0.0001$). Significant differences in mean hospital case mix index included physician-owned surgical hospitals (mean 2.32; $p < 0.0001$), *US News & World Report* honorees (mean 2.24; $p = 0.0140$), and University HealthSystem Consortium members (mean 1.99; $p < 0.0001$), and Kaiser Permanente hospitals had lower case mix value (mean 1.54; $p < 0.0001$). Re-estimation of total performance scores did not change the original results after adjustment for differences in hospital case mix index.

CONCLUSIONS: The Hospital Value-Based Purchasing Program revealed superior hospital performance associated with business model. Closer inspection of high-value hospitals can guide value improvement and policy-making decisions for all Medicare Value-Based Purchasing Program Hospitals. (J Am Coll Surg 2016;223:559−567. © 2016 by the American College of Surgeons. Published by Elsevier Inc. All rights reserved.)

Escalating costs, uncertain quality and efficiency, and desire for transparency in health care led to the Patient Protection and Affordable Care Act of 2010. Section 3001 of the Patient Protection and Affordable Care Act of 2010 established the Hospital Value-Based Purchasing Program (VBPP), further defined in Section 1886(o) of the Social

Disclosure Information: Nothing to disclose.

Support: Dr Ramirez was supported by the National Heart, Lung, and Blood Institute of the National Institutes of Health (T32HL007849). The funder had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; or decision to submit the manuscript for publication. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Abstract presented at the Association for Academic Surgery and the Society of University Surgeons 11th Annual Academic Surgical Congress, Jacksonville, FL, February 2016.

Received June 9, 2016; Revised July 18, 2016; Accepted July 19, 2016.

From the Departments of Surgery (Ramirez, Tracci, Turrentine, Kozower, Jones) and Public Health Sciences (Stukenborg, Kozower), University of Virginia, Charlottesville, VA.

Correspondence address: R Scott Jones, MD, FACS, Department of Surgery, University of Virginia School of Medicine, P.O. Box 800709, Charlottesville, VA 22908-0709. email: rsj@virginia.edu

http://dx.doi.org/10.1016/j.jamcollsurg.2016.07.014
ISSN 1072-7515/16

Abbreviations and Acronyms

ACO = accountable care organization
CMI = case mix index
CMS = Centers for Medicare and Medicaid Services
DHHS = Department of Health and Human Services
FY = fiscal year
POSH = physician-owned surgical hospitals
TPS = total performance score
UHC = University HealthSystem Consortium
USNWR = *US News and World Report* Honor Roll
VBPP = Value-Based Purchasing Program

Security Act.[1,2] The VBPP defines the value of health care provided by Medicare-participating acute care hospitals as patient outcomes per dollar expended and establishes a pay-for-performance program to promote quality improvement and efficiency. For fiscal year (FY) 2015, the Centers for Medicare and Medicaid (CMS) withheld 1.5% of base-operating diagnosis-related group annual payments to participating hospitals—approximately $1.4 billion—to create the hospital's VBPP financial framework and remain a budget-neutral mandate.[3]

Recent approaches to health care reform involve alignment of payment incentives to drive the efficient and appropriate adoption of technological advances, transition to patient-centered delivery models, and the incorporation of outcomes measures in care valuation.[4,5] Christensen and colleagues[5] outlined the innovative disruption necessary among health care business models, based on how patients access care. Careful examination of the application of definitions of value across health care business models can provide insight into how this alignment might impact acute care hospitals. We hypothesized that the methodology used by the CMS VBPP program to assign total performance score (TPS), developed as a proxy for value of care provided, would result in the stratification of participating hospitals based on business model.[6]

METHODS

Value-Based Purchasing Program methodology

The CMS publishes the outcomes of the FY2015 hospital VBPP on the CMS Hospital Compare website.[3] Publicly available data includes hospital name, address, unadjusted and adjusted process measures, unadjusted and adjusted outcomes measures, patient satisfaction, cost, and total performance scores. The CMS Hospital Compare website describes the quality indicators comprising 4 normalized, annually revised domains: processes, outcomes, patient satisfaction, and efficiency.[3,7-11] The baseline and performance time periods for the reported measures vary on domain as well as clinical indicator. The baseline period for FY2015 ranges from October 2010 to December 2011, and the performance period was from October 2012 to December 2013.

The definitions of each clinical indicator specify minimum requirements with regard to number of cases treated, surveys, claims, or episodes of care. The number of clinical indicators and weights are as follows: 12 clinical process of care measures (20%), 8 patient experience of care measures (30%), 5 outcomes measures (30%), and 1 efficiency measure (20%), for a 100 maximum TPS.[3] The efficiency domain is each hospital's risk-adjusted per-episode spending level compared with either baseline and performance periods of the same hospital, or the hospital's performance period to the baseline period across all Medicare hospitals. The TPS compares the hospital's performance relative to other Medicare hospitals, as well as its improvement over time. The TPS produces a value-based incentive payment adjustment factor for each eligible hospital,[3] which is then multiplied by the withheld amount of the estimated annual CMS payment[12] for redistribution to the corresponding Medicare-participating hospital.

Exclusions from the program include hospitals subject to payment reductions under the Hospital Inpatient Quality Reporting Program, hospitals excluded from the Inpatient Prospective Payment System, hospitals paid under Section 1814(b)(3) and exempted from the hospital VBPP by the Secretary of the Department of Health and Human Services (DHHS), hospitals cited by the DHHS Secretary for deficiencies during the applicable fiscal year, and hospitals not meeting the minimum number of cases, measures, or surveys, as determined by the DHHS Secretary.[13]

The Quality Net and Hospital Compare websites provide additional information about CMS methodology.[3,13] The CMS Hospital Compare representatives provided additional comments (personal email communication, October 2015).

Health care business models

Hospitals were grouped for comparison as readily identifiable types based on business model. General hospitals are characterized as "solution shops," employing multidisciplinary teams and the latest technology for characterization and treatment of complex diagnoses. Most general hospitals blend business models. Christensen suggests that lack of distinction of health care business model is a significant source of inefficiency.

"Value-adding process businesses" are specialty centers concentrating on delivery of defined services with standardized procedure lines. "Facilitated networks" serve a finite membership within a mostly singular insurance