Analysis IN BRIEF

AAMC
Tomorrow's Doctors, Tomorrow's Cures®

Volume 16, Number 1
January 2016

Association of American Medical Colleges

Hospital Characteristics and Performance on Medicare's Pay-for-Performance Programs Among Major Teaching Hospitals

The Patient Protection and Affordable Care Act (PPACA) established three Medicare hospital quality performance programs designed to improve clinical outcomes, patient experience, and efficiency. Each of these uniquely structured programs ties Medicare payment for health care services to hospital quality:

- Hospital Value-Based Purchasing Program (HVBP) is a program with two-sided incentive payments—both penalties and bonuses—based on performance on a variety of quality measures.
- Hospital Readmissions Reduction Program (HRRP) is a program with incremental penalties for excess readmissions for selected conditions.
- Hospital-Acquired Condition Reduction Program (HACRP) mandates that 25 percent of all hospitals are penalized 1 percent of their diagnosis-related group (DRG) payments[1] (including policy add-on payments) for relatively poor performance on patient safety and infection measures.

Fiscal year (FY) 2015 was the first year all three programs were operational, with up to 5.5 percent of a hospital's total base payment at risk (approximately $6.1 billion). The 302 major teaching hospitals discussed in this study are disproportionately affected by these programs: 60 percent are currently penalized under the HVBP, 50 percent under the HACRP, and 90 percent under the HRRP.

Recent studies have raised concerns about program fairness. One study shows that major teaching hospitals, large hospitals, and hospitals that serve a larger share of low-income patients are more likely to receive penalties in Medicare's pay-for-performance programs.[2] This situation is most pronounced in the HACRP, where penalized major teaching hospitals tend to have more quality accreditations, offer advanced services, and have better performance on other process and clinical outcome measures.[3] Some studies have linked the asymmetric effect in these programs to lack of adjustment for socioeconomic status (SES) and demographic factors[4] and raised concerns of unintended consequences for access to quality care for low-SES Medicare populations.[5]

Although the disproportionate impact on major teaching hospitals has been documented, no previous study has examined differences within the cohort of major teaching hospitals. This *Analysis in Brief* reviews whether there are differences in the characteristics of major teaching hospitals that financially perform better on the three programs compared with those that have larger penalties. We address whether the relationship between hospital characteristics (such as share of low-SES patients) is attributable to major teaching hospital status only or whether the correlation exists even within major teaching hospitals. These differences will be discussed in light of previous studies, and we will conclude with whether the relationship with key variables (e.g., share of low-SES patients) still holds after controlling for hospital teaching status. The results will inform the discussion of unintended consequences of Medicare's quality programs and help in the understanding of how these programs affect hospitals.

Table 1. Descriptive Comparison of Major Teaching Hospitals, by Highest Bonuses and Highest Penalties

	Major Teaching Hospitals with Highest Bonuses	Major Teaching Hospitals with Highest Penalties
Number of Hospitals	61	61
Average Percent Impact Score	0.03%	–2.14%
Average Total Payments for Performance Programs (excluding add-on payments)	$11,131	–$1,862,422
Average HVBP Adjustment	0.16%	–0.26%
Average HRRP Adjustment	–0.14%	–1.00%
Percent of Hospitals with a HACRP Penalty	0.00%	88.5%

Methods

We categorized each hospital eligible for the programs based on its teaching status. "Major" teaching status is defined as hospitals having a ratio of the number of interns and residents to the number of beds, or the intern/resident-to-bed (IRB) ratio, greater than or equal to 0.25. "Other" teaching status is defined as having an IRB ratio greater than 0 but less than 0.25. All other hospitals are classified as nonteaching. We use the IRB rates published in the Medicare FY 2015 Inpatient Prospective Payment System (IPPS) Final Rule Impact File Correction Notice. First, we compared major teaching

1. This feature of the HACRP appears to be an unintended result of the legislative drafting process. The inclusion of add-on policy payments results in additional penalties (about 45 percent more, according to AAMC analysis of the FY 2015 final rule) to teaching hospitals and penalizes other hospitals that care for a high share of low-income patients and provide stand-by services.
2. Kahn CN, Ault T, Potetz L, Walke T, Chambers JH, Burch S. 2015. Assessing Medicare's hospital pay-for-performance programs and whether they are achieving their goals. Health Affairs 34(8):1281-1288.
3. Rajaram R, Chung JW, Kinnier CV, Barnard C, Mohanty S, Pavey ES, McHugh MC, Bilimoria KY. 2015. Hospital characteristics associated with penalties in the Centers for Medicare & Medicaid Services Hospital-Acquired Condition Reduction Program. JAMA 314(4):375-383.
4. Barnett ML, Hsu J, McWilliams JM. 2015. Patient characteristics and differences in hospital readmission rates. JAMA Internal Medicine 175(11):1803-1812.
5. Gu Q, Koenig L, Faerberg J, Steinberg CR, Vaz C, Wheatley MP. 2014. The Medicare Hospital Readmissions Reduction Program: potential unintended consequences for hospitals serving vulnerable populations. Health Services Research 49(3):818-837.

Table 2. Differences in Major Teaching Hospitals, by Highest Bonuses and Highest Penalties

	Major Teaching Hospitals with Highest Bonuses (n = 61)	Major Teaching Hospitals with Highest Penalties (n = 61)	*t* Statistic	Chi-Square Statistic	*P* Value of Test Statistic
Size					
Average Number of Beds	360	456	1.86*		0.066
Average Number of Medicare Cases	5,177	6,155	1.14		0.258
Intensity					
Average Case Mix	1.77	1.75	0.45		0.655
Average IRB Ratio	0.451	0.530	2.17**		0.032
Percent with a Level 1 Trauma Center	21%	25%		54.77	0.667
Patient Mix and SES Factors					
Average UCP Payment	$5,001,560	$10,064,301	3.49***		<0.001
Average Disproportionate Share Percent	32.8%	44.2%	3.36**		0.001

* Statistical significance at the 10% level. ** Statistical significance at the 5% level. *** Statistical significance at the 1% level.

hospitals performing well in the programs with major teaching hospitals receiving the largest penalties across several hospital characteristics. To measure performance in the quality programs, we used Medicare FY 2015 IPPS Final Rule Impact File Correction Notice performance programs data. We calculated a percent impact score for each major teaching hospital by summing the payment adjustments (penalties or losses) and normalizing the amount by the hospital's base operating rate. We then categorized each of the 302 major teaching hospitals into quintiles based on its percent impact score. Hospitals in the top performing quintile (hospitals with the highest bonuses) were compared with those in the lowest performing quintile (hospitals with the highest penalties).

The two major teaching hospital categories were compared across a series of measures: (1) size (measured by the number of beds in the hospital and the number of Medicare inpatient cases), (2) case mix intensity (measured by Medicare's case mix index, which evaluates the intensity of services at a hospital among Medicare patients), and (3) teaching intensity (measured by using the IRB ratio). We also used data to identify whether a hospital had a Level 1 trauma center. Finally, SES was measured by using the add-on amount Medicare pays to the hospital based on the hospital's estimated uncompensated care. This amount is the share of the uncompensated care pool (UCP) as defined by regulation. We used this variable, as well as the disproportionate share percentage, to measure care provided to low-income patients. We present descriptive statistics for the hospitals with the largest penalties and with the largest bonuses. Last, we present differences between cohorts and their statistical significance, determined by *t* tests and chi-square tests.

Results

Major teaching hospitals have widely varied performance across all three programs (Table 1). Those hospitals with the highest penalties were penalized 2.14 percent of their DRG payments, on average, with penalties distributed across all three programs, while those with the highest bonuses saw modest gains at 0.03 percent average bonus payments.

Significant differences exist between hospitals with the highest bonuses and those with the highest penalties (Table 2). The most significant difference was with the SES variable. For uncompensated care payments, hospitals in the bottom quartile received average payments that were double those of hospitals in the top quartile. Major teaching hospitals with the largest penalties also served 44.2 percent of disproportionate-share patients compared with 32.8 percent of these patients for major teaching hospitals with the largest bonuses, which was statistically significantly at the 1 percent level. There was a modest difference in teaching intensity: major teaching hospitals with the largest penalties had a higher teaching intensity (an IRB ratio of 0.53) compared with major teaching hospitals with the largest bonuses, which had an average 0.45 IRB ratio. Hospitals with the highest penalties tended to be slightly larger, but this was statistically significant at only the 10 percent level. There were no statistically significant differences in case mix or for those hospitals with a Level 1 trauma center.

Discussion

This analysis provides evidence that even within the group of major teaching hospitals, there are several significant differences between hospitals that had better performance and hospitals that had poor performance in the Medicare hospital quality programs. From these, two themes emerge. First, a portion of major teaching hospitals have consistent penalties across all three programs. Second, hospitals with the highest penalties have a higher percentage of low-income patients compared with the top performers. The performance consistency across programs is partly attributable to the overlap in measures between HVBP and HACRP and the fact that the HVBP efficiency scores (for the Medicare Spending per Beneficiary measure, which is worth 20 percent of the HVBP total score in FY 2015) can be affected by higher readmission rates.

Consistent with current literature, this analysis shows a relationship between treating more complex and low-SES patients and increasing odds of receiving penalties in Medicare's pay-for-performance programs, even after controlling for teaching status. A higher IRB ratio has long been used as a proxy for greater complexity and intensity of patient care associated with severity of illness. These results raise questions and concerns about the fairness of the program design and whether patient population characteristics are sufficiently adjusted for in quality measuring. More research is needed to understand the effect of SES in Medicare's pay-for-performance programs, which appears across major teaching hospital groups with similar bed size and service intensity. Throughout the nation, major teaching hospitals are the last resort for the most complex and disadvantaged patients. Imposing unfair penalties on these institutions may result in unintended access-of-care concerns for this vulnerable population.

Authors

Mary P. Wheatley, MS, Director, Physician Payment and Quality Programs, AAMC (through August 2015)

Matthew Baker, MS, Research Analyst II, mbaker@aamc.org

Susan Xu, MPA, MS, Lead Research Analyst, sxu@aamc.org

Scott Wetzel, MPP, Senior Specialist, Quality Reporting, swetzel@aamc.org

Association of American Medical Colleges
655 K St., NW, Suite 100
Washington, D.C. 20001-2399
analysis@aamc.org
www.aamc.org/data/aib

6. U.S. House Ways and Means Committee Report No. 98-25, March 4, 1983; U.S. Senate Finance Committee Report No. 698-23, March 11, 1983.