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Medicare's New Hospital Value-Based Purchasing Program Is Likely To Have Only A Small Impact On Hospital Payments

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ABSTRACT Medicare's new hospital pay-for-performance program for all acute care hospitals will begin in October 2012. It will be the largest Medicare quality improvement initiative for hospitals to date. Using 2009 data on hospital performance, we calculated hospital performance scores and projected payments under the new program for all eligible hospitals. Despite differences across hospitals in terms of performance, expected changes in payments were small, even for hospitals with the best and worst performance scores. Almost two-thirds of hospitals would experience changes of just a fraction of 1 percent. Although the program will in effect redistribute resources among hospitals, our data suggest that the redistribution is not likely to cause major problems because the amount being redistributed is also small. These results raise questions about whether the new pay-for-performance program will substantially alter the quality of hospital care, and they highlight the challenges of designing effective quality improvement incentives.

The Affordable Care Act mandates that the Centers for Medicare and Medicaid Services (CMS) initiate a Medicare-funded pay-for-performance program for hospitals, which is now scheduled to begin in October 2012. The final details about this new program, called the Hospital Inpatient Value-Based Purchasing Program, were announced in April 2011.¹ It is unknown how this program will change Medicare payments to hospitals.

The effects of past experiments with pay-for-performance on hospital quality, including the Premier Hospital Quality Incentive Demonstration sponsored by CMS, have been mixed. Early reports of the demonstration project were promising.² However, follow-up research has found no improvements in patient outcomes as a result of the program,³ and improvements in process-based performance appear to have been transitory.⁴

That demonstration project and most other

past experiments with pay-for-performance have paid hospitals relatively small bonuses, and bonus size appears to be an important factor in the success of pay-for-performance.⁴ CMS's new hospital pay-for-performance program—which will be the largest such program in the country, covering all acute care hospitals—will have a pool of \$850 million for payment incentives in the first year.

Despite the size of the program's bonus pool, the program's likely effect on payment changes for the more than 3,000 participating hospitals is so far unclear. The program has the potential to redistribute hospital funding away from hospitals that perform poorly and toward those that perform well. But whether it will actually do so depends on whether it generates meaningful payment differentials based on performance. Furthermore, some hospitals, administrators, and policy makers have expressed concern over the program's potential to redistribute payments away from geographic regions and hospitals that

may already face resource limitations, while rewarding hospitals that would have performed well in the absence of pay-for-performance.^{5,6}

The objective of this article is to examine projected differences in performance scores and hospital payments under the new pay-for-performance program, specifically examining regional differences in hospital performance, expected changes in Medicare payments, and hospital characteristics associated with changes in expected payments.

Study Data And Methods

HOSPITAL PERFORMANCE SCORES Data about performance on the measures that CMS plans to use for pay-for-performance were obtained from the federal Hospital Compare database.⁷ These data are available for more than 97 percent of US acute care hospitals.

Following the final rule on Medicare's new pay-for-performance program,¹ we calculated performance in 2009—the most recent year for which performance data were available—at all US hospitals that will be included in the program. We calculated hospital performance in the two domains contained in the CMS payment algorithm.

The first domain is process-based quality, which includes twelve process measures—such as the percentage of cases of myocardial infarction treated by a hospital within guideline-endorsed time frames, and the percentage of patients who received recommended antibiotics before undergoing surgery. The second domain is the patient-reported experience of care, which includes eight measures from the Hospital Consumer Assessment of Healthcare Providers and Systems survey—such as how well doctors and nurses communicated with patients, and whether pain was controlled.

A full list of the performance measures defined by the CMS rule and included in this analysis is available in the online Appendix.⁸ Following the CMS final rule,¹ we used these twenty individual measures to calculate each hospital's achievement score and improvement score.

According to the final rule, the achievement score is based on whether a hospital's performance surpasses the CMS-defined achievement threshold, which is the median performance of hospitals two years prior to the measurement year—in our case, in 2007. The improvement score is based on CMS's definition of a hospital's improvement on a measure compared to its own baseline performance two years previously. Achievement and improvement scores on these twenty measures each range from 0 to 10 and increase linearly as hospital performance rises

above the achievement threshold or the hospital's baseline performance.

These individual performance scores are combined into two domain-specific summary scores: the summary process and patient-reported experience scores. To calculate these scores, either the achievement or the improvement score is used, whichever is higher. Then, for process measures, a summary score is calculated by summing each hospital's scores on the twelve process measures, dividing the total by that hospital's total possible score, and multiplying the result by 100—which results in a score ranging from 0 to 100.

For patient-reported experience measures, each hospital's scores on the eight patient-reported experience measures are combined by summing the individual scores and adding a consistency score—a score ranging from 0 to 20 points that expresses how consistently a hospital's patient-reported experience scores exceed the achievement threshold. Thus, the patient-reported experience summary score also ranges from 0 to 100.

The two domain-specific summary scores are averaged into a final total score ranging from 0 to 100, with the process summary score accounting for 70 percent of the total and the patient-reported experience summary score 30 percent.

Again following CMS's final rule, we included all acute care hospitals in the United States but excluded hospitals that reported fewer than four process measures or had fewer than 100 patient-reported experience survey responses. In addition, we included a hospital's process measures only if at least ten cases were available for that measure.

For descriptive purposes, we report here the total scores, which are used to calculate hospital bonuses; the process and patient-reported experience summary scores that are weighted to make up the total score; and the achievement- and improvement-based scores (whichever is higher for each of the twenty performance scores) that are combined to get the total score.

HOSPITAL BONUSES We also calculated each hospital's projected change in Medicare payment according to the CMS final rule. The pay-for-performance program will initially be funded through a 1 percent reduction in base operating payments for diagnosis-related groups, which are the payments based on the diagnosis for which a patient was hospitalized. The 1 percent will be redistributed to hospitals on a per discharge basis based on their total performance score, using a linear exchange function.¹

We estimated the size of each hospital's financial bonus using the 100 percent Medicare Provider Analysis and Review (MedPAR) file, which

contains all Part A Medicare claims from 2009 onward for the diagnosis-related group base payments to each hospital. We assumed a bonus pool of \$850 million. We then calculated the change in each hospital's total Medicare revenue as the difference between what the hospital would have received with and without the pay-for-performance program. We also calculated the percentage change in revenue.

OTHER HOSPITAL CHARACTERISTICS Data on hospital and patient characteristics came from several sources. Hospital characteristics—including teaching status—were from the American Hospital Association 2008 annual survey. Teaching status of hospitals was characterized as “major” for members of the Council of Teaching Hospitals, “minor” for those that were not members but that had a residency program certified by the Accreditation Council for Graduate Medical Education, and “none” for the remaining hospitals. Hospitals were also characterized according to nurse staffing, using registered nurse and licensed practical nurse hours per patient day.

We used the Medicare 2008 impact file to measure the percentage of care provided to low-income patients. This percentage is based on a hospital's disproportionate-share hospital percentage, which represents the proportion of low-income and uninsured patients at each hospital, and whether the hospital is in an urban or rural location.

The 2008 Medicare Cost Reports were used for hospital ownership, and the 2006–08 reports were used for hospital total margins. In calculating the total margin, we averaged the three years prior to performance measurement (2006–08) to reduce statistical noise.

ANALYSES We summarized average hospital performance and change in Medicare payment overall, by region, and by hospital characteristic. For noncategorical hospital characteristics—in other words, characteristics that are measured on a continuous scale, such as nursing hours per inpatient day, hospital margin, and percentage of care provided to low-income patients—we divided hospitals into quartiles and compared the top quartile to the bottom three quartiles.

LIMITATIONS Our study had several limitations. The most important was that it was a simple description of the expected outcome of the new CMS pay-for-performance program as if it had been in place in 2009. We cannot address how hospitals will actually perform under the program in 2012. In addition, although the program will evolve over time, we describe only the changes expected to occur in the program's first year.

Study Results

Our analyses included 3,018 hospitals. The mean hospital score was 56.4 (the standard deviation was 15.2 and the interquartile range 46.2–67.1). The mean achievement score was 42.7 (standard deviation 19.5, interquartile range 27.3–26.0), and the mean improvement score 14.3 (standard deviation 10.5, interquartile range 6.3–20.9).

Hospital performance varied substantially across states (Exhibit 1). Hawaii had the lowest average score (44.2) and New Hampshire the highest (69.8). By region, New England hospitals had the highest total scores and process scores, while hospitals in the Mountain and Pacific regions scored lowest (Exhibit 2). Patient-reported experience scores were lowest in the Mid-Atlantic and Pacific regions. Achievement and improvement scores were inversely correlated with each other ($\rho = -0.64$). That is, hospitals that scored higher on achievement had lower improvement scores, and vice versa.

The Affordable Care Act requires that the hospital pay-for-performance program be budget-neutral. Thus, the average projected change in total Medicare payment was zero, with a standard deviation of \$90,925 (or 0.26 percentage points) and an interquartile range of $-\$27,032$ to $\$31,249$. Based on 2009 performance, 1,581 hospitals (51 percent) would receive increased Medicare payments under this pay-for-performance program, and the remaining 1,437 (49 percent) would receive decreased payments.

Medicare payments would decrease by more than 0.5 percent for 3.0 percent of hospitals and increase by 0.5 percent or more for 2.4 percent of hospitals (Exhibit 3). Only eight hospitals would have a change of greater than 0.75 percent. The average absolute change in payment for the hospitals would be \$125,000 for hospitals with the largest percentage loss and \$55,381 for hospitals with the largest percentage gain in Medicare payment. The majority of hospitals (65 percent) would see a change in Medicare payment between -0.25 percent and 0.24 percent.

The regional differences in hospital scores translated into regional differences in Medicare payment. In New Hampshire, Vermont, and Maine—the states with the highest scores—average Medicare payments would increase by \$66,948 (0.24 percent), \$10,458 (0.19 percent), and \$35,006 (0.18 percent), respectively. In Hawaii, Maryland, and North Dakota—the states with the lowest scores—average Medicare payments would decrease by \$25,596 (0.20 percent), \$116,800 (0.16 percent), and \$51,068 (0.14 percent), respectively.

Changes in expected hospital payment varied by most hospital characteristics (Exhibit 4). The

EXHIBIT 1

Average Hospital Performance By State, 2009

SOURCE Authors' calculations from Hospital Compare data (Note 7 in text). **NOTE** The range of total scores achieved (100 is the highest, and 0 is the lowest) is color coded, and each state's mean total score is represented by one of the six categories.

percentage of hospitals that would have an increase in Medicare payment by 0.25 percent or more varied by teaching status (10 percent of hospitals with a major teaching affiliation were in this category, compared to 20 percent of non-teaching hospitals), ownership (35 percent of for-profit hospitals versus 15 percent of not-

for-profit and 11 percent of government hospitals), and levels of nurse staffing (15 percent for hospitals with low nurse staffing levels versus 28 percent of hospitals with high levels).

Medicare payments would also vary among hospitals that had high and low margins and that provided a high and low percentage of care to

EXHIBIT 2

Hospital Performance Scores, By Region, 2009

Region	Average score (standard deviation)				
	Total	Process	Patient-reported experience	Achievement	Improvement
New England	62.3 (12.2)	74.0 (13.1)	35.1 (20.7)	52.7 (16.6)	9.6 (8.7)
West North Central	59.6 (15.2)	68.5 (17.6)	39.0 (23.9)	47.9 (19.9)	11.8 (9.9)
East South Central	58.0 (15.3)	65.7 (18.9)	39.8 (21.5)	40.9 (19.2)	17.1 (11.3)
West South Central	57.8 (16.2)	66.0 (18.7)	38.6 (24.4)	40.4 (20.0)	17.4 (10.8)
South Atlantic	57.1 (15.9)	68.4 (19.5)	30.5 (20.8)	42.8 (19.9)	14.2 (10.3)
East North Central	56.4 (14.6)	66.8 (17.3)	32.2 (23.1)	45.2 (18.6)	11.2 (9.0)
Mid Atlantic	54.3 (12.9)	69.1 (17.5)	19.8 (16.6)	41.9 (17.2)	12.4 (9.0)
Mountain	53.0 (13.8)	63.8 (17.7)	27.9 (20.5)	35.8 (17.0)	17.2 (10.5)
Pacific	51.8 (15.1)	65.2 (19.4)	20.8 (17.1)	35.5 (19.4)	16.3 (11.3)

SOURCE Authors' calculations from Hospital Compare data (Note 7 in text). **NOTES** The total score (which is used to calculate payment incentives) is a weighted average of the process and patient-reported experience scores. Both of those scores are based on achievement or improvement scores, whichever is higher. All of the scores range from 0 to 100.

EXHIBIT 3

Expected Changes In Medicare Hospital Payments Under A Pay-For-Performance Program

	Change in payment				
	Less than -0.50%	-0.50% to -0.26%	-0.25% to 0.24%	0.25% to 0.49%	0.50% or more
Number (%) of hospitals	90 (3.0)	409 (13.6)	1,961 (65.0)	487 (16.1)	71 (2.4)
Change in Medicare payment, mean % (SD)	-0.60 (0.08)	-0.35 (0.07)	0.00 (0.14)	0.34 (0.07)	0.60 (0.07)
Change in Medicare payment, mean \$ (SD)	-125,000 (128,331)	-88,739 (102,407)	2,071 (61,380)	81,213 (84,358)	55,381 (64,378)

SOURCE Authors' calculations from Hospital Compare data (Note 7 in text) and data from the Medicare Provider Analysis and Review file. **NOTE** SD is standard deviation.

low-income patients. Thirty percent of high-margin hospitals would have an increase in Medicare payments of 0.25 percent or more, compared to 14 percent of low-margin hospitals. Twenty-one percent of hospitals providing a low percentage of care to low-income patients would have increases in Medicare payment of 0.25 percent or more; among hospitals providing a high percentage of care to such patients, 12 percent would have increases of 0.25 or more.

Discussion

SMALL CHANGES EXPECTED IN HOSPITAL PAYMENTS We found that despite variation in performance among hospitals, the expected changes in hospital payment from Medicare under the new hospital pay-for-performance program were small. Almost two-thirds of hospitals nationwide would have very small changes in payment, between -0.25 percent and 0.24 percent (Exhibit 3). Only eight hospitals would have pay-

EXHIBIT 4

Relationship Between Hospital Characteristics And Expected Changes In Medicare Payments Under A Pay-For-Performance Program

	Change in payment, n (%)				
Characteristic	Less than -0.50%	-0.50% to -0.26%	-0.25% to 0.24%	0.25% to 0.49%	More than 0.50%
TEACHING AFFILIATION^a					
Major	4 (1)	26 (10)	215 (79)	26 (10)	0 (0)
Minor	16 (3)	68 (14)	339 (69)	62 (13)	5 (5)
None	68 (3)	307 (14)	1,371 (63)	385 (17)	62 (3)
OWNERSHIP					
For-profit	10 (2)	52 (8)	363 (56)	174 (27)	49 (8)
Not-for-profit	49 (3)	272 (14)	1,290 (68)	262 (14)	20 (1)
Government	30 (7)	80 (18)	296 (65)	48 (11)	2 (0)
URBAN CLASSIFICATION^b					
Large urban	29 (2)	161 (13)	824 (68)	181 (15)	16 (1)
Nonlarge urban	32 (3)	126 (13)	650 (66)	152 (15)	30 (3)
Rural	29 (4)	118 (15)	468 (60)	148 (19)	20 (3)
NURSE HOURS PER PATIENT DAY^c					
Low	78 (4)	323 (15)	1,481 (67)	316 (14)	18 (1)
High	10 (1)	78 (11)	444 (60)	157 (21)	49 (7)
HOSPITAL MARGIN^d					
Low	78 (3)	333 (15)	1,493 (67)	300 (13)	28 (1)
High	11 (1)	72 (10)	443 (60)	175 (24)	43 (6)
DISPROPORTIONATE-SHARE PERCENTAGE^e					
Low	51 (2)	264 (12)	1,463 (65)	401 (18)	59 (3)
High	39 (5)	141 (19)	479 (64)	80 (11)	7 (1)

SOURCE Authors' calculations of data from Hospital Compare (Note 7 in text), the Medicare Provider Analysis and Review file, the American Hospital Association 2008 annual survey, the Medicare 2008 impact file, and Medicare Cost Reports from 2006 to 2008. ^a"Major" means hospitals that are members of the Council of Teaching Hospitals; "minor" means hospitals that were not members but whose residency programs were certified by the Accreditation Council for Graduate Medical Education; "none" means remaining hospitals. ^b"Large urban" is a Metropolitan Statistical Area with a population of at least one million; "nonlarge urban" is a Metropolitan Statistical Area with a population of less than one million; "rural" is counties outside of a Metropolitan Statistical Area. ^cAverage low is 13.4; average high is 26.1. ^dAverage low is -0.3 percent; average high is 14.6 percent. ^eAverage low is 19.8; average high is 46.2.

Close to half of US hospitals will face changes in Medicare payment of at least \$35,000 under the new pay-for-performance program.

ment changes of 0.75 percent or more, and no hospital would have a change in its Medicare payments of more than 1 percent (data not shown).

Whether or not changes in Medicare payments of this size will affect hospital quality remains uncertain. On the one hand, such small changes in payment might be only a weak stimulus to improve performance. In the Medicare Premier hospital pay-for-performance demonstration project, which resulted in small but statistically significant improvements in hospital performance,² hospitals received \$48 million in bonus payments in the first five years of the demonstration,⁹ or payments of approximately \$35,000 per hospital per year.

We found that close to half of US hospitals will face changes in Medicare payment of at least \$35,000 under the new pay-for-performance program. However, there are important differences between the demonstration project and the new hospital pay-for-performance program that make an even smaller response to the new program possible, compared to the demonstration project.

First, participation in the Premier demonstration project was voluntary, which may have led to the enrollment of hospitals that were more motivated to improve than the typical hospital. Under the new national pay-for-performance program, participation will be mandatory for all acute care hospitals. Thus, the effects are likely to be smaller, because many of these hospitals are less likely to be motivated to improve than the hospitals that participated in the Premier demonstration.

Second, when the Premier demonstration project was implemented in 2003, pay-for-performance was a new policy tool with which providers had little experience. As a result, hospitals that enrolled in the demonstration might

have been more attentive to improving performance than might be expected under a new pay-for-performance program today, when some policy analysts view pay-for-performance as a weak stimulus to improve quality.^{10,11}

Even with its potential biases in favor of finding an impact from such small payments, the Premier demonstration project produced small improvements that were only transitory.⁴ Other pay-for-performance programs in which payments were of similar size have had little impact on performance.^{11–13}

However, even though the expected payment changes are generally small, the incentives are framed as potential revenue losses to hospitals. In the new program, the pay-for-performance bonus pool will be created by reducing all hospitals' base diagnosis-related group payments. The fact that the current program puts hospitals at risk of losing current levels of payment is an important difference between the new program and the demonstration project.

Framing financial incentives as losses rather than gains may increase their effect. People are generally more motivated by the desire to avoid losing what they consider theirs, as will happen when the full Medicare payment is reduced, than they are by the desire to gain something of equal value that is perceived as extra, such as an increase in payment.¹⁴ This fact may increase the likelihood that the pay-for-performance program will affect provider performance.

However, although the total size of the projected bonus pool appears large, at \$850 million, dividing this pool among more than 3,000 participating hospitals will produce small bonuses for individual hospitals. Even after a scheduled doubling in size of the payments by 2017, only eight hospitals would see payment changes as large as 1.5 percent. These amounts may not have a major influence on hospital care.

WAYS TO INCREASE THE PROGRAM'S IMPACT

Our findings of the small financial impact of the new pay-for-performance program raise questions of whether the program is structured optimally and whether the bonus pool is large enough.

One alternative is to change the payment structure to a fee-for-quality—or piece-rate—pay-for-performance system. Under this approach, Medicare would pay hospitals for each patient whose care met a performance standard. For example, a bonus payment could result for each patient with acute myocardial infarction who received fibrinolytic therapy—the use of drugs to break up blood clots—within thirty minutes of arriving at the hospital.

This approach would provide continual measures of performance and payment, which would

increase the differential payment between high and low performers while continually rewarding improvement regardless of baseline performance levels.¹⁵ A fee-for-quality payment approach has been found to be an effective payment method for pay-for-performance.¹⁶

CMS could also increase the impact of the pay-for-performance program by increasing the percentage of payment at risk. Our data suggest that if payment reductions to fund the bonus pool were increased from 1 percent to 5 percent, almost two-thirds of hospitals would still receive payments that were within 1.25 percent of their current payments. However, the incentive for hospital leaders to focus on quality would be much stronger at the higher percentage. In fact, even reducing base payments by 10 percent to fund the bonus pool would place relatively few hospitals in financial jeopardy but would clearly strengthen the incentive.

Another approach to increasing the potential impact of the pay-for-performance program is to direct payment toward areas of poor performance. CMS targeted measures that were not “topped out” for the new program by not including measures with performance close to the maximum level of 100 percent. Nonetheless, many of the measures were approaching the maximum even in 2007, the benchmarking year for this study. For example, in 2007 the median score for a quarter of the process measures was 90 percent or above, and mean performance for the top decile of hospitals was above 98 percent for eight of the twelve measures.

When data on performance under the new pay-for-performance program are available, it is likely that even more of the measures will be approaching their ceiling performance. This fact will limit the pay-for-performance program’s potential to improve quality. Larger effects can be expected by targeting areas with lower performance.

Such a change could require moving beyond the current reliance on simple process measures. CMS plans to include outcomes measures, for which there is substantial variation in performance across hospitals, in subsequent years of the pay-for-performance program. Safety culture, leadership, and other measures of organizational performance may also be fruitful areas for measurement and incentives.^{17,18}

OTHER CONCERNS There have been concerns about the proposed CMS program because it is funded through a redistribution of payments. It may, in effect, redistribute resources among hospitals, resulting in regional shifts in payments or loss of revenue for safety-net hospitals as a group. Our data suggest that the redistribution of payments is not likely to cause major problems

CMS could also increase the impact of the pay-for-performance program by increasing the percentage of payment at risk.

because the amount being redistributed is small.

We found that only 5 percent of hospitals providing a high proportion of care to low-income patients would face a revenue loss of 0.5 percent or more (Exhibit 4). Although our findings suggest that safety-net hospitals are more likely to lose revenue than their non-safety-net counterparts based on current performance levels, the amounts lost are small.

In addition, recent evidence suggests that although safety-net hospitals often start behind other hospitals in terms of performance measures used in pay-for-performance programs, they achieve larger performance gains than other hospitals over the short term, once pay-for-performance is implemented.¹⁹

Similarly, the projected redistribution of payment between regions is expected to be small. The average hospital in Hawaii, the state with the worst performance, would have a decrease in its Medicare payment of 0.20 percent. In contrast, the average hospital in New Hampshire, the state with the best performance, would gain 0.24 percent.

Nonetheless, as the size of these incentives grows over time, the transfer of funds among regions and away from safety-net hospitals may be an issue that policy makers wish to monitor.

Our descriptive study documents hospital performance in 2009, prior to the implementation of pay-for-performance. But it seems unlikely that variation in performance on the proposed measures will have increased by 2012, when the program is implemented. Therefore, the narrow range in payment changes that we describe is very likely to persist.

The hospital pay-for-performance program will evolve over time. For example, in the second year of the program, CMS plans to incorporate into its payment system patient outcomes such

as mortality rates, measures of patient safety, and hospital-acquired conditions. The effects of these changes in program design on hospital performance and payment could not be explored here.

Conclusion

The most noteworthy finding of our assessment of the variations in hospital performance and payment under CMS's new pay-for-performance program is that the financial impact will be

small, even at the extremes of best- and worst-performing hospitals. These findings help clarify what can be expected from the new program and identify alternative payment methods that might increase its potential clinical effect.

As we move forward with the implementation of pay-for-performance in hospitals, it will be vital to monitor changes in their performance and payments, as well as the effects of these changes on care. Only by doing so will we be likely to achieve sustainable improvements in hospital quality. ■

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NOTES

- 1 Centers for Medicare and Medicaid Services. Medicare program; hospital inpatient value-based purchasing program; final rule. *Fed Regist*. 2011;76(88):26490–547.
- 2 Lindenaier PK, Remus D, Roman S, Rothberg MB, Benjamin EM, Ma A, et al. Public reporting and pay for performance in hospital quality improvement. *N Engl J Med*. 2007; 356(5):486–96.
- 3 Ryan AM. Effects of the Premier Hospital Quality Incentive Demonstration on Medicare patient mortality and cost. *Health Serv Res*. 2009;44(3):821–42.
- 4 Werner RM, Kolstad JT, Stuart EA, Polsky D. The effect of pay-for-performance in hospitals: lessons for quality improvement. *Health Aff (Millwood)*. 2011;30(4):690–8.
- 5 Werner RM, Goldman LE, Dudley RA. Comparison of change in quality of care between safety-net and non-safety-net hospitals. *JAMA*. 2008; 299(18):2180–7.
- 6 Chien AT, Dudley RA. Pay-for-performance in pediatrics: proceed with caution. *Pediatrics*. 2007; 120(1):186–8.
- 7 HHS.gov. Hospital Compare [home page on the Internet]. Washington (DC): Department of Health and Human Services; [last updated 2012 Jul 19; cited 2012 Jul 25]. Available from: <http://www.hospitalcompare.hhs.gov/>
- 8 To access the Appendix, click on the Appendix link in the box to the right of the article online.
- 9 Premier. CMS/Premier Hospital Quality Incentive Demonstration (HQID) [Internet]. Charlotte (NC): Premier; [cited 2012 Jul 26]. Available from: <http://www.premierinc.com/quality-safety/tools-services/p4p/hqi/index.jsp>
- 10 Rosenthal MB. Beyond pay for performance—emerging models of provider-payment reform. *N Engl J Med*. 2008;359(12):1197–1200.
- 11 Damberg CL, Raube K, Teleki SS, dela Cruz E. Taking stock of pay-for-performance: a candid assessment from the front lines. *Health Aff (Millwood)*. 2009;28(2):517–25.
- 12 De Brantes FS, D'Andrea BG. Physicians respond to pay-for-performance incentives: larger incentives yield greater participation. *Am J Manag Care*. 2009;15(5): 305–10.
- 13 Ryan AM, Blustein J. The effect of the MassHealth hospital pay-for-performance program on quality. *Health Serv Res*. 2011;46(3):712–28.
- 14 Kahneman D, Tversky A. Prospect theory: an analysis of decision under risk. *Econometrica*. 1979;4:263–91.
- 15 Werner RM, Dudley RA. Making the “pay” matter in pay-for-performance: implications for payment strategies. *Health Aff (Millwood)*. 2009;28(5):1498–1508.
- 16 Chien AT, Li Z, Rosenthal MB. Improving timely childhood immunizations through pay for performance in Medicaid-managed care. *Health Serv Res*. 2010;45(6, Pt 2):1934–47.
- 17 Chassin MR, Loeb JM. The ongoing quality improvement journey: next stop, high reliability. *Health Aff (Millwood)*. 2011;30(4):559–68.
- 18 Curry LA, Spatz E, Cherlin E, Thompson JW, Berg D, Ting HH, et al. What distinguishes top-performing hospitals in acute myocardial infarction mortality rates? *Ann Intern Med*. 2011;154(6): 384–90.
- 19 Jha AK, Orav EJ, Epstein AM. The effect of financial incentives on hospitals that serve poor patients. *Ann Intern Med*. 2010;153(5): 299–306.

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In this month's *Health Affairs*, Rachel Werner and Adams Dudley report on their calculations of the effect on hospital payment of Medicare's new hospital pay-for-performance program, which will begin in October 2012. They found that despite differences in hospital performance as of 2009, the expected changes in payments from the new demonstration would be small, even for hospitals with the best and worst performance scores. The authors write that this result raises questions about whether the new pay-for-performance program will greatly alter the quality of hospital care, and that it highlights the challenges of designing effective quality improvement incentives.

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Medical Center and an associate professor of medicine at the University of Pennsylvania. She also directs one of five national centers to evaluate the effectiveness of the medical home program run by the Department of Veterans Affairs. Werner's research seeks to understand the effect of health care policies and delivery systems on quality of care. In particular, she has examined the influence of provider payment and financial incentives on provider behavior, the organization of health care, racial disparities, and overall health care quality.

A practicing physician, Werner is a primary care internist at the Philadelphia Veterans Affairs Medical Center. She received a medical degree and a doctorate in health economics from the University of Pennsylvania.

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Dudley is a professor of medicine and health policy as well as an associate director for research at the Philip R. Lee Institute for Health Policy Studies, University of California, San Francisco. The leader of several ongoing projects to measure and reward higher quality of care, Dudley focuses his research on developing measures of quality of care and resource use and on assessing the impact of value-based purchasing by employers and health plans.

In addition to serving as a consultant to the Institute of Medicine, the Joint Commission, General Motors, and other organizations and large employers, Dudley authored the Agency for Healthcare Research and Quality's decision guides on pay-for-performance and consumer incentives. He holds a medical degree from Duke University and an MBA from Stanford University.