

SECTION 2A

**Hospital inpatient and
outpatient services**

R E C O M M E N D A T I O N S

2A-1 The Congress should increase payment rates for the acute inpatient and outpatient prospective payment systems in 2009 by the projected rate of increase in the hospital market basket index, concurrent with implementation of a quality incentive payment program.

COMMISSIONER VOTES: YES 16 • NO 0 • NOT VOTING 0 • ABSENT 1

.....

2A-2 The Congress should reduce the indirect medical education adjustment in 2009 by 1 percentage point to 4.5 percent per 10 percent increment in the resident-to-bed ratio. The funds obtained by reducing the indirect medical education adjustment should be used to fund a quality incentive payment program.

COMMISSIONER VOTES: YES 16 • NO 0 • NOT VOTING 0 • ABSENT 1

SECTION A

Hospital inpatient and outpatient services

Section summary

Most of our indicators of payment adequacy for hospital services are positive. More Medicare-participating hospitals have opened than closed each year from 2003 on, and the number of facilities closing in 2006 was less than one-sixth the peak in 1999. Further, the proportion of hospitals offering specialty services such as cardiac catheterization and MRI rose more in 2005 than in any of the previous seven years. These data suggest continued access to care for Medicare beneficiaries. Inpatient and outpatient service volume per beneficiary continues to increase, and the quality of care hospitals provide to Medicare beneficiaries is generally improving. Mortality rates have dropped while CMS's indicators of clinical effectiveness have improved, although more adverse event rates have increased than decreased.

Spending on hospital construction has risen substantially—with increases averaging almost 20 percent in the past two years. In 2006, the value of construction permits per capita (adjusted for inflation) reached a level not seen since 1969 when the Hill-Burton program and the advent of Medicare and Medicaid fueled the industry's first

In this section

- Are Medicare payments adequate in 2008?
- How should Medicare payments change in 2009?
- Indirect medical education adjustment

construction boom. The value of debt for hospitals with upgraded credit ratings far exceeds the value of those with downgrades in 2007, continuing the trend from 2006. Finally, for the second year in a row, the median values of many financial indicators (e.g., days cash on hand and measures of debt service coverage) were among the best ever recorded.

One indicator of payment adequacy is negative—the overall Medicare margin for hospitals paid under prospective payment declined from –3.0 percent in 2004 to –4.8 percent in 2006. We project a margin of –4.4 percent in 2008 (reflecting 2009 policy other than payment updates). The slight improvement for 2008 reflects an expectation that policy and operational changes, coupled with the payment effect from improvements in coding and medical records documentation exceeding the legislated payment offsets, will provide some increase in payments.

If all hospitals were providing Medicare services efficiently, a margin of –4.4 percent would be a major source of concern. However, hospital costs and Medicare profitability vary widely. Hospitals under high financial pressure would be expected to exert great effort to control their costs. These hospitals had much lower standardized costs in 2006 (a median of about \$5,500) than hospitals under low financial pressure (a median of \$6,200). Hospitals with costs significantly above the national average also generally are not as efficient as competitors in their own markets.

Balancing these considerations, we conclude that an update of market basket is appropriate for inpatient and outpatient services, with this increase implemented concurrently with a quality incentive payment program. The Commission's reasoning is that given the mixed picture of indicators, an individual hospital's quality performance should determine whether its net increase in payments is above or below the market basket increase. Our finding that hospitals' costs are strongly related to the financial pressure they are under from non-Medicare sources suggests that Medicare should put pressure on hospitals to control their costs, rather than accommodate the current rate of cost growth.

Recommendation 2A-1

COMMISSIONER VOTES:
YES 16 • NO 0 • NOT VOTING 0 • ABSENT 1

The Congress should increase payment rates for the acute inpatient and outpatient prospective payment systems in 2009 by the projected rate of increase in the hospital market basket index, concurrent with implementation of a quality incentive payment program.

CMS's current projection of the market basket increase for fiscal year 2009 is 3.0 percent. However, this estimate is revised on a quarterly basis, so the actual update percentage may be different. We estimate that our recommendation for reducing the adjustment for indirect medical education (IME), discussed below, would generate the first percentage point of the withhold pool for pay for performance. For a larger pool, the additional amount would be taken from the base rates.

Last year the Commission undertook an extensive analysis of the IME adjustment and recommended that the Congress reduce the adjustment when the prospective payment system rates are adjusted for severity of illness (MedPAC 2007a). In 2006, IME payments to teaching hospitals totaled more than \$5.8 billion. In addition, IME payments are highly concentrated, with fewer than 300 hospitals receiving three-quarters of the payments. The current IME adjustment substantially exceeds the estimated relationship between teaching intensity and costs per case, contributing to a wide gap in Medicare margins between teaching and nonteaching hospitals.

The Commission recommends that the Congress reduce the IME adjustment by 1 percentage point to 4.5 percent per 10 percent increment in the resident-to-bed ratio. The savings should be used to provide at least part of the funding for the quality incentive payment policy noted above for all hospitals.

Recommendation 2A-2

COMMISSIONER VOTES:
YES 16 • NO 0 • NOT VOTING 0 • ABSENT 1

The Congress should reduce the indirect medical education adjustment in 2009 by 1 percentage point to 4.5 percent per 10 percent increment in the resident-to-bed ratio. The funds obtained by reducing the indirect medical education adjustment should be used to fund a quality incentive payment program.

An important feature of the Commission's recommendations for updating payments and redistributing a portion of IME payments is their implementation concurrent with a pay-for-performance program. The two recommendations should be viewed as a package that would improve the accuracy of Medicare's payments for acute inpatient services while creating a strong incentive for improving the quality of care. Rates of central line infections, ventilator-assisted pneumonia in intensive care units, and adverse events such as decubitus ulcers and postoperative sepsis are examples of quality dimensions for which current performance suggests that hospitals have room to improve. ■

Background

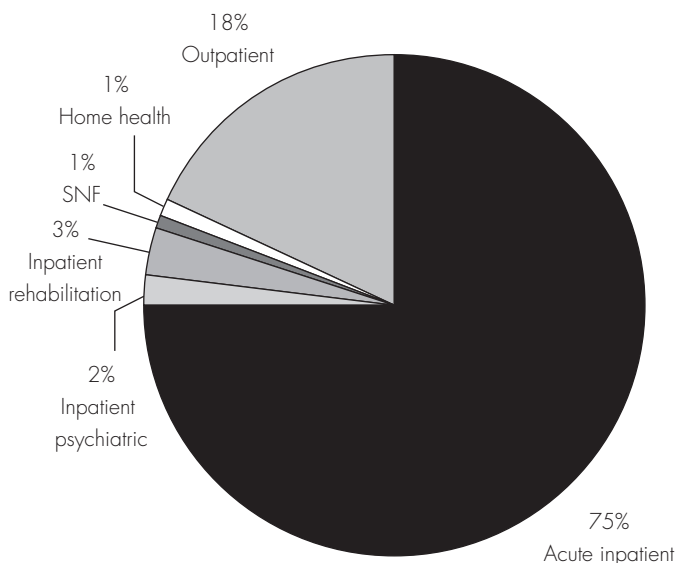
Hospitals provide Medicare beneficiaries with inpatient care for the diagnosis and treatment of acute conditions and manifestations of chronic conditions. They also provide ambulatory care through outpatient departments and emergency rooms. In addition, many hospitals provide home health, skilled nursing facility, psychiatric, or rehabilitation services. To be eligible for Medicare payment, short-term general and specialty hospitals must meet the program's conditions of participation and agree to accept its payment rates.

Medicare spending on hospitals

Medicare fee-for-service (FFS) payments for acute inpatient and outpatient services account for more than 90 percent of Medicare spending on hospitals covered by the inpatient prospective payment system (PPS) (Figure 2A-1). From 2000 through 2005, Medicare FFS payments for hospital inpatient and outpatient services increased at a rate of 8.5 percent per year (Figure 2A-2). In 2006,

FIGURE 2A-1

Acute inpatient services accounted for most of Medicare's payments to hospitals in 2006

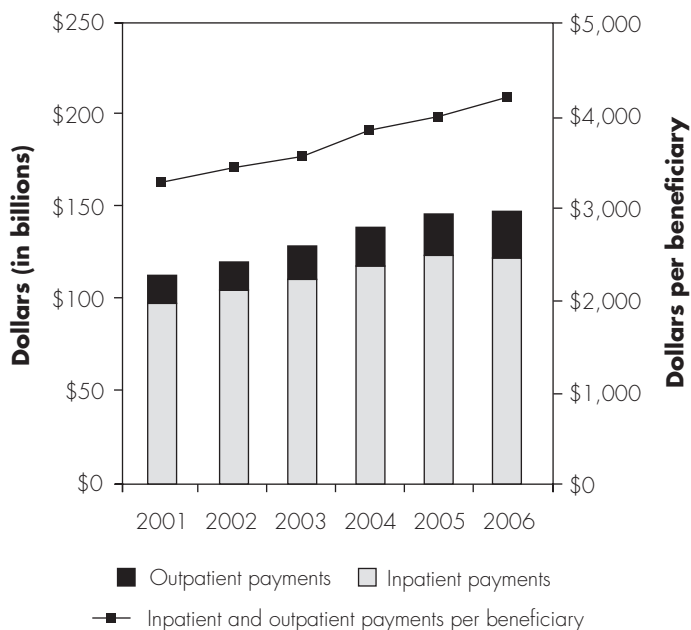


Note: SNF (skilled nursing facility). Data are for hospitals covered by the Medicare acute inpatient prospective payment system. Data exclude graduate medical education as well as several services that account for smaller shares of payment, such as hospice and ambulance services.

Source: MedPAC analysis of 2006 Medicare Cost Report file from CMS.

FIGURE 2A-2

Medicare payments per FFS beneficiary have grown steadily



Note: FFS (fee-for-service). Data include payments to all Medicare-participating hospitals for acute inpatient services covered by the prospective payment system (PPS); critical access hospitals; other inpatient services (psychiatric, cancer, children's, rehabilitation, and long-term care hospitals); outpatient services covered by PPS; and other outpatient services.

Source: 2007 annual report of the Boards of Trustees of the Medicare trust funds and Medicare enrollment data from the Office of the Actuary.

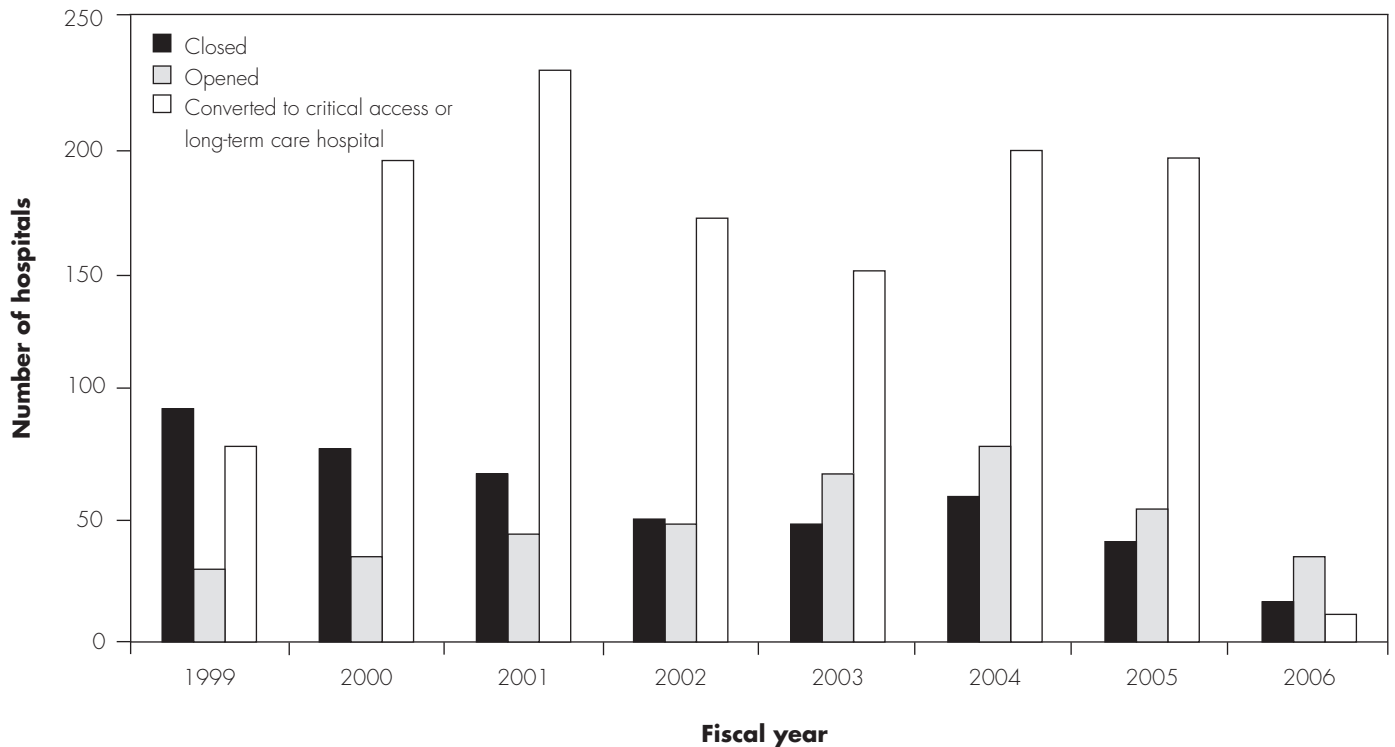
however, total spending for those services grew at a much slower rate of 1.9 percent. The primary reason for the relatively slow growth from 2005 to 2006 is that a large number of beneficiaries switched from traditional FFS Medicare to the Medicare Advantage (MA) program. Adjusting for this decline in FFS beneficiaries, spending per beneficiary increased by 4.5 percent in 2006. Looking forward, CMS's Office of the Actuary projects that FFS spending on hospital services will resume its strong growth and increase by 6.8 percent per year from 2006 to 2016 (OACT 2007).

Medicare's payment systems for inpatient and outpatient services

This section provides a brief overview of the acute inpatient and outpatient PPSs, which have a similar basic construct (a base rate modified for differences in type of case or service as well as geographic differences in wages) but somewhat different sets of payment adjustments.

**FIGURE
2A-3**

More hospitals have opened than closed since 2002, while many have become critical access and long-term care hospitals



Source: MedPAC analysis of Provider of Services file from CMS.

Acute inpatient payment system

Medicare's acute inpatient PPS pays hospitals a predetermined amount for each discharge. The payment rate is the product of a base payment rate and a relative weight that reflects the expected costliness of cases in a particular clinical category compared with the average of all cases. The labor portion of the payment rate is further adjusted by the hospital wage index to account for differences in area wages. Payment rates are updated annually.

Until 2007, patient classification was based on the diagnosis related group (DRG) system. In 2008, CMS began replacing the DRG system and its 538 groups with Medicare severity DRGs (MS-DRGs) with 745 groups. In the MS-DRG system, patients are assigned to 335 base DRGs that reflect similar principal diagnoses and procedures. Most base DRGs are further subdivided based on whether patients have no complication or comorbidity (CC), one or more CCs, or one or more major CCs. CMS is phasing in MS-DRGs, with payment weights equal to

a 50/50 blend of DRGs and MS-DRGs in 2008. Payment will be based entirely on MS-DRG weights in 2009.

Until 2007, the DRG relative weights were based on hospital charges, but CMS is eliminating charge-based weights and phasing in cost-based weights. In 2008, weights are one-third charge based and two-thirds cost based, with weights entirely cost based in 2009.

The acute inpatient PPS includes policy adjustments to payments for certain cases and to hospitals with specific characteristics. An adjustment for indirect medical education (IME) accounts for the higher costs of patient care in teaching hospitals, and hospitals that treat an unusually large share of low-income patients receive disproportionate share payments. Payments are reduced for cases with unusually short stays that are transferred to a post-acute care setting and for hospitals that do not report specified quality data. Outlier payments are made for cases with unusually high costs, and add-on payments are made for cases using specified technologies. Finally, special payments are made to rural hospitals

(sole community and Medicare-dependent hospitals), and hospitals with up to 25 beds may qualify for cost-based payment as critical access hospitals (CAHs).

A more detailed description of the acute inpatient PPS can be found on MedPAC's website: www.medpac.gov/documents/MedPAC_Payment_Basics_07_hospital.pdf.

Hospital outpatient payment system

The outpatient PPS pays hospitals a predetermined amount per service. CMS assigns each outpatient service to 1 of approximately 800 ambulatory payment classification (APC) groups. Each APC has a relative weight based on its median cost of service compared with the median cost of a visit to a midlevel clinic. A conversion factor translates relative weights into dollar payment amounts. A more detailed description of the outpatient PPS can be found on MedPAC's website at www.medpac.gov/documents/MedPAC_Payment_Basics_07_OPD.pdf.

Are Medicare payments adequate in 2008?

Each year, the Commission makes payment update recommendations for hospital inpatient and outpatient services for the coming year. In our framework, we address whether payments for the current year (2008) are adequate to cover the costs efficient hospitals incur and then how much efficient providers' costs should change in the coming year (2009). To make these judgments, we consider beneficiaries' access to care, changes in the volume of services, changes in the quality of care, hospitals' access to capital, and the relationship between Medicare's payments and hospitals' costs. In addition, the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) requires that we consider the efficient provision of services in recommending updates.

Beneficiaries' access to care and supply of providers

We assess beneficiaries' access to care through measures of the number of hospitals participating in the Medicare program, including CAHs in rural areas, and the proportion of hospitals offering certain specialty and outpatient services. We found no indication of significant change in hospitals' capacity to provide services to Medicare beneficiaries.

In each year from 2003 on, more Medicare-participating hospitals opened than closed. In 2006, 34 hospitals joined the Medicare program and 16 dropped out, for a net gain of 18 (Figure 2A-3).¹ The closures in 2006 were less than one-sixth the peak of 93 in 1999.

More than 80 percent of the closures in 2006 were in urban areas. On average, the closing facilities operated at 37 percent occupancy in their last year of operation and were located only nine miles from the nearest other PPS hospital. Thus, closures did not appear to have serious implications for beneficiaries' access to care in surrounding communities.

More than 1,100 hospitals converted to CAH status between 1998 and 2006 (of 1,285 converting since the beginning of the program), but the conversions slowed to 5 in 2006. Another 63 have converted to long-term care hospitals since 1998, including 6 in the last year. These facilities are no longer paid under the acute inpatient PPS but are still available to provide care to beneficiaries.

We examined a set of 11 specialized services and found that the share of hospitals offering most of them increased from 1998 to 2005 (Table 2A-1, p. 52). The proportion offering trauma center services (level 1, 2, or 3) grew from 26 percent to 33 percent and the share offering burn care increased from 3 percent to 5 percent, even though trauma and burn care services are often considered unprofitable for hospitals. The expansion of service capacity in 2005 was the largest in 7 years, with the share of hospitals providing each service increasing compared with 2004 in 7 of the 11 categories. We observed a small decrease in psychiatric services.

The percentage of hospitals offering outpatient and emergency services has been fairly stable (Table 2A-2, p. 52). A small increase in the share of hospitals providing outpatient care followed introduction of the outpatient PPS in August 2000. The only notable change since 2001 was a small increase in the percentage of hospitals offering outpatient surgery.

Changes in volume of services

Both inpatient and outpatient volume have increased in recent years, with particularly strong growth on the outpatient side. We use the number of discharges per FFS beneficiary and average length of stay as indicators of inpatient volume, while we measure outpatient volume by number of services per FFS beneficiary.

**TABLE
2A-1****The share of hospitals offering most specialized services has grown**

Service	1998	2001	2004	2005
Neonatal intensive care	19%	20%	21%	21%
Burn care	3	3	5	5
Transplant services	6	9	8	9
Open heart surgery	20	22	23	24
Trauma center (level 1 to 3)	26	32	32	33
Cardiac catheterization	37	38	36	39
Angioplasty	24	26	27	30
Hemodialysis	N/A*	27	30	30
Psychiatric services	50	47	47	46
Radiation therapy	N/A**	N/A**	20	23
MRI	50	55	58	61

Note: N/A (not available). Data are for services provided directly by community hospitals, which include critical access hospitals in addition to those covered by the acute inpatient and outpatient prospective payment systems.

* Not collected on the 1998 survey.

** Not collected in comparable form prior to 2004.

Source: American Hospital Association annual survey of hospitals.

Inpatient volume

Medicare FFS discharges grew a cumulative 9.8 percent from 2001 to 2005, with increases in the number of beneficiaries accounting for most of this growth (Figure 2A-4). In 2006, discharges dropped by 1.8 percent. This was attributable primarily to a decline in the number of FFS beneficiaries, as they shifted to the MA program. While total FFS discharges fell, the number of discharges per beneficiary continued to increase in 2006, contributing to steady growth in this measure—a cumulative increase of 2.4 percent—from 2001 to 2006.

The average length of stay of Medicare beneficiaries fell approximately 30 percent during the 1990s. The rate of decline has since slowed, yielding a cumulative decline of 8.9 percent since 1998 (Figure 2A-5). In 2006, average length of stay dropped by 1.0 percent. The cumulative decline in length of stay for Medicare patients has been more than three times that of all payers.

Outpatient volume

We measure the volume of outpatient care as the number of services provided because the outpatient PPS generally pays for individual services.² Service volume in FFS Medicare grew from 2001 (the first full year of the PPS) through 2005, but the rate of increase declined each year. In 2006, the volume of FFS outpatient services actually declined slightly (Figure 2A-6, p. 54). This small decrease was attributable to a drop in the number of beneficiaries in FFS Medicare because of more beneficiaries enrolling in the MA program. The volume of services per FFS beneficiary increased steadily from 2004 through 2006, averaging 2.5 percent per year during that period.³ Much of the overall growth in service volume from 2001 to 2006 was due to increases in the number of services per beneficiary receiving services rather than to increases in the number of beneficiaries served.

**TABLE
2A-2****The share of hospitals offering outpatient services has remained stable**

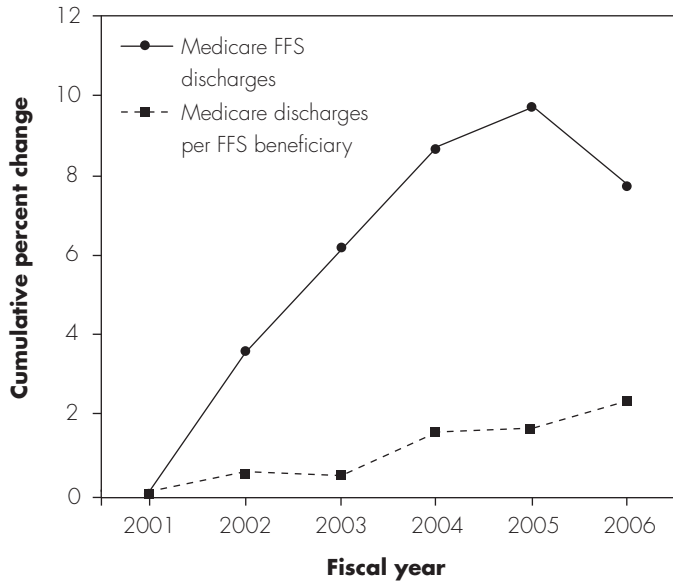
Service	1998	2001	2004	2006
Outpatient services	93%	94%	94%	94%
Outpatient surgery	81	84	86	86
Emergency services	92	93	92	91

Note: Includes services provided or arranged by short-term hospitals, excluding critical access hospitals.

Source: MedPAC analysis of Provider of Services file from CMS.

FIGURE 2A-4

Medicare discharges per FFS beneficiary continued to grow through 2006



Note: FFS (fee-for-service). Data are for hospitals covered by the Medicare acute inpatient prospective payment system.

Source: MedPAC analysis of Medicare Cost Report file from CMS.

Changes in quality of care

Trends in the quality of care hospitals provide to Medicare beneficiaries continue to show that quality is generally improving. Mortality rates dropped and CMS’s indicators of clinical effectiveness and appropriateness of care also showed improvement. But the results for adverse events continue to be mixed, with rates increasing for some measures and decreasing for others.⁴

The Agency for Healthcare Research and Quality (AHRQ) developed the measures of mortality and adverse events we used in our analysis. To assess safety in hospitals, we examined in-hospital mortality and mortality 30 days after admission to the hospital as well as the incidence of potentially preventable adverse events resulting from inpatient care. AHRQ chose these indicators after an extensive literature review, discussions with clinical and measurement experts, and empirical testing to explore the frequency and variation of the indicators and their potential biases.

We calculated the mortality and patient safety indicators based on all Medicare inpatient claims with specified

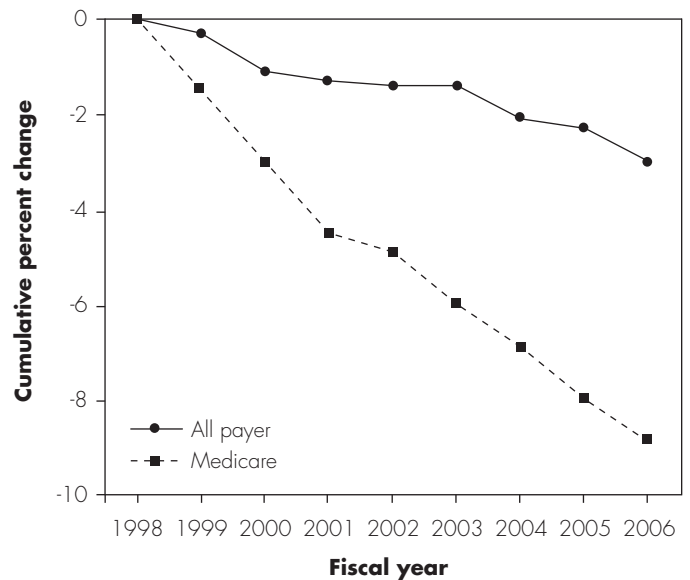
conditions or procedures in CMS’s Medicare Provider Analysis and Review (MedPAR) file. We used an AHRQ methodology to risk-adjust the data on mortality and adverse events.

In-hospital and 30-day mortality declined from 1998 to 2006 for each of the eight conditions or procedures we measured. In-hospital mortality rates provide a measure of hospital performance on inpatient care. The 30-day rate is somewhat more difficult to interpret strictly as a quality measure for hospital care, because it reflects care experienced in post-acute and outpatient settings along with the in-hospital experience.

The rate of adverse events increased for five of the nine most common measures from 1998 to 2006 (Table 2A-3, p. 54). These events are rare, often with rates of fewer than 100 per 10,000 eligible discharges, making it difficult to interpret changes in these small numbers of cases. The most common adverse event is decubitus ulcer (bed sores), for which the rate increased from 2005 to 2006, continuing a trend seen since 1998. The second most common event is failure to rescue, which results in death. The rate for this measure decreased from 2005 to 2006 as well as over

FIGURE 2A-5

Hospital length of stay continues to decline

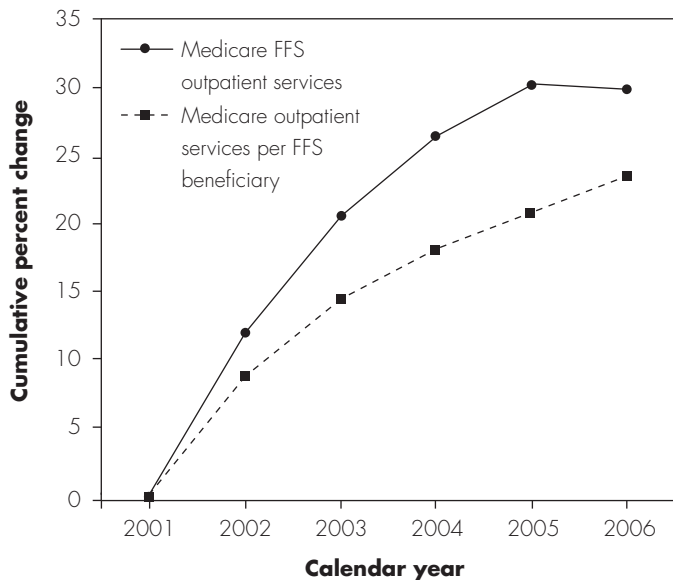


Note: Data are for hospitals covered by the Medicare inpatient prospective payment system.

Source: MedPAC analysis of Medicare Cost Report file from CMS.

FIGURE 2A-6

Medicare outpatient services per FFS beneficiary continued to grow through 2006



Note: FFS (fee-for-service). Data are for hospitals covered by the Medicare outpatient prospective payment system.

Source: Hospital outpatient claims data and Medicare enrollment data from CMS.

the longer period. This is consistent with the decline in mortality rates.

CMS reports quality performance data on the CMS Hospital Compare website. Most of these measures reflect hospital performance in delivering recommended care to Medicare beneficiaries with heart attack, heart failure, and pneumonia. The data suggest that rates improved between 2004 and 2006 for 22 of the 23 clinical effectiveness indicators for which comparisons can be made. In 2009, hospitals will be required to report data on 27 indicators or receive a 2 percent reduction in their payments.

Although many of our quality measures show improvement, we are concerned about the trend for the patient safety indicators. The increase in some adverse events coupled with the gap between actual and recommended care reflected in the Hospital Compare measures indicate that further efforts to improve quality are needed, including linking payment to quality performance. As we discussed in our March 2005 report, the Commission recommends that the Congress establish a quality incentive payment policy for hospitals that

participate in Medicare (MedPAC 2005). In November 2007, CMS issued a report presenting the agency's proposal for a value-based purchasing program. This program would link incentive payments under the acute inpatient PPS to hospitals' quality scores based on many of the same measures we use in evaluating trends in quality.

Hospitals' access to capital

Access to capital allows hospitals to maintain and modernize their facilities and capabilities for patient care. If hospitals were unable to access capital, it might in part reflect problems with the adequacy of Medicare payments, as Medicare represents about 40 percent of hospital revenues. Payments from other payers, changes in uncompensated care, management actions concerning the hospital and related businesses, and investors' perception of the regulatory environment (including potential changes in federal and state hospital payment policies) also influence access to capital.

Indicators suggest that access to capital is good

The trend in spending on hospital construction suggests that access to capital for the overall sector is good. Hospital construction has increased steadily since 1999 (in both real and nominal dollars), and the Census

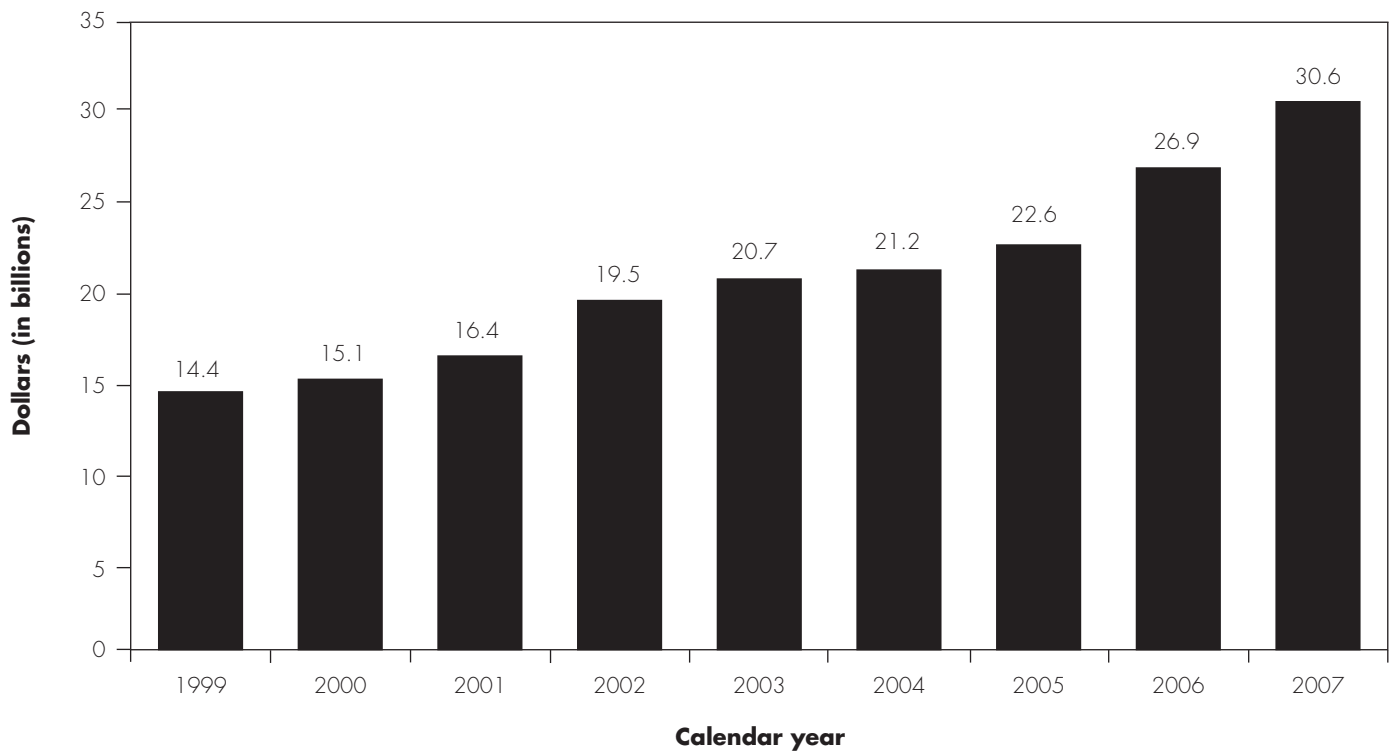
TABLE 2A-3

Patient safety indicators show mixed changes

Indicator	Change in rate 1998 to 2006	Events 2006
Decubitus ulcer	Worse	156,781
Failure to rescue	Better	59,965
Postoperative PE or DVT	Worse	46,220
Puncture/laceration	Worse	38,576
Infection due to medical care	Better	16,817
Postoperative respiratory failure	Worse	12,221
Iatrogenic pneumothorax	Better	10,350
Postoperative hemorrhage	Better	7,183
Postoperative sepsis	Worse	6,643

Note: PE (pulmonary embolism), DVT (deep vein thrombosis). "Worse" indicates that the risk-adjusted rate per 10,000 eligible discharges has increased; "better" indicates that this rate has fallen.

Source: MedPAC analysis of CMS data using Agency for Healthcare Research and Quality risk-adjustment method.

**FIGURE
2A-7****Spending on hospital construction continues to grow**

Note: Spending is for nonfederal hospital construction. Data are deflated to 2006 dollars using the McGraw-Hill construction cost index. Construction in 2007 is a census projection based on data through August of 2007.

Source: Census Bureau. <http://www.census.gov/const/www/c30index.html>.

Bureau projects that it will increase another 16 percent in 2007 to more than \$30 billion (Figure 2A-7) (Census Bureau 2007). We have looked at the long-term trends in spending on hospital construction and found that the value of construction has grown to a level not seen since 1969. We have also explored the implications of this spending for Medicare policy (see text box, p. 56). The three major bond rating agencies report that the capital spending ratio—the ratio of capital spending to depreciation and amortization—increased to 1.5 or more in 2006, implying that hospitals are going beyond merely replacing worn-out plant and equipment (FitchRatings 2007; Moody's 2007a; S&P 2007a, 2007b). For multistate health care systems, Moody's reports the capital spending ratio was 2.0 (Moody's 2007a).

Tax-exempt municipal bond issuances for nonprofit and government hospitals increased from the 2000 level of less than \$15 billion to more than \$33 billion in 2005 and reached about \$24 billion in the six months through June 2007 (Thomson 2007). Overall, bond ratings in this

sector have either improved or remained stable from the previous year. In the Fitch ratings, more bond issues were upgraded than downgraded in the first half of 2007, continuing the trend from 2006. The most important trend, however, is stability, with more than 80 percent of ratings unchanged (FitchRatings 2007). While Moody's reports that downgrades exceeded upgrades by a ratio of 1.3 in the first three quarters of 2007, most ratings were unchanged. In addition, the amount of debt upgraded (\$9.3 billion) far exceeded the amount downgraded (\$5.4 billion) (Moody's 2007b).

Recent trends in the cost of capital are mixed. For example, although the interest rate on AAA insured 30-year tax-exempt hospital bonds was higher in November 2007 than a year earlier, rates on 10-year bonds were unchanged (Cain 2007a). Uncertainty in credit markets and risk aversion since the collapse of the subprime mortgage bond market have also increased the risk premium that lower rated bonds have to pay over higher rated bonds. Concerns about bond insurers, who

Hospital construction trends

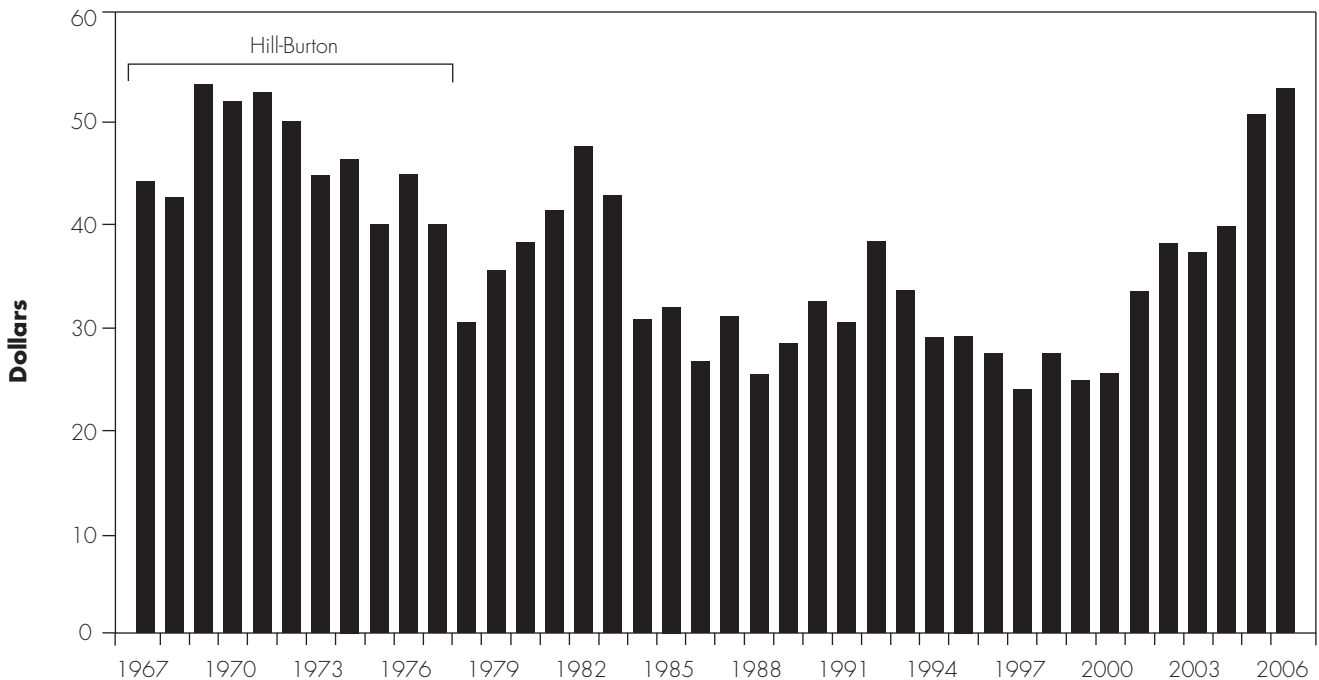
In the late 1960s, the combination of the Hill-Burton program, the creation of Medicare and Medicaid, and the entrance of hospitals into the municipal bond market combined to fuel rapid growth in hospital construction (Kinkead 1984). The nation's first building boom peaked in the late 1960s; 40 years later, we are in the midst of a second building boom. In 2006, the value of construction permits per capita (adjusted for inflation) grew to a level not seen since 1969 (Figure 2A-8). Just as hospital construction doubled from 1960 to 1966 (data not shown), the value of construction permits doubled from 2000 to 2006 (Maffetone 2007, Kinkead 1984).

In the most recent building boom, roughly 85 percent of the construction is for new facilities and expansions

of existing hospitals. The remainder is for remodeling existing buildings. Constructing a whole new facility may be the easiest way to incorporate evidence-based design. This new design paradigm incorporates features that have been shown to promote patient healing, safety, and worker satisfaction. It includes tenets such as increased use of natural light, standardized patient rooms, larger single rooms for patients and larger rooms for procedures, and putting nurses closer to patients. Adding these features to a hospital's design increases construction costs by about 5 percent. But many argue that the additional costs will be recouped by improved patient safety and shorter patient stays. There may also be benefits from increased worker retention and putting the hospital in a better competitive position (McCarthy 2004).

FIGURE 2A-8

Value of hospital construction permits per capita at highest level since 1969



Note: Construction permit values are all inflated to 2006 dollars. The hospital category of construction includes ambulatory surgical centers and imaging centers, which account for less than 10 percent of construction in the hospital category. Hill-Burton was a federal program providing grants and loans to hospitals to fund construction and renovation projects.

Source: Permits reported by McGraw-Hill, deflated by the McGraw-Hill construction cost index.

Hospital construction trends (cont.)

(continued from previous page)

From the perspective of Medicare, there are two key questions to investigate. First, is the growth in construction desirable or does it reflect a “medical arms race” where some spending is not driven by patient needs? Second, how should Medicare policy respond to the costs of the building boom?

At least part of the increase in construction is due to the increasing demand for health care services. As countries become wealthier they spend a larger share of gross domestic product (GDP) on health care (Reinhardt et al. 2004). From 1996 to 2006, the share of GDP spent on health care increased in the United States from 13.7 percent to 16 percent and the share spent on construction of health care facilities increased from 0.2 percent to 0.3 percent of GDP (BEA 2007, Census Bureau 2007, CMS 2007). Construction projects may also be catching up from low levels of building in the late 1980s and 1990s when construction was moderated due to declines in the length of stay, a shift to outpatient care, and managed care pressures. Because of low levels of construction in the 1990s, hospitals were primed to start building once they obtained rapid increases in payments and profits from private payers. Given the growth in national income and the recent increase in hospitals’ total profit margins, it should not be surprising that hospital construction is growing rapidly.

However, some have argued that the construction is not simply a function of communities’ demand for new hospitals with single-occupancy rooms but may represent a “medical arms race” among providers (Bazzoli et al. 2006, Berenson et al. 2006). In some cases, the construction represents duplicative capacity in a market—for example, duplication of existing service lines such as cardiac surgery or outpatient imaging. Increasing capacity may lead to higher volumes without necessarily improving patient outcomes (Dartmouth Atlas 2007, Nallamouthu et al. 2007, Cram et al. 2005).

Looking forward, the next question is how should Medicare policy respond to the costs of the building boom? New construction leads to higher capital costs. Capital represents roughly 10 percent of hospitals’ costs. Therefore, if capital costs increased by 20 percent, total hospital costs would rise by roughly 2 percent. Unless the new facilities generate some offsetting efficiency gains, overall costs will increase—either because of increased costs per discharge or because of increased volume. Volume of supply-sensitive services may increase as capacity expands (Dartmouth Atlas 2007). The policy question will be whether Medicare payments should rise to accommodate the potential increases in volume and the cost per unit of service. ■

provide insurance guarantees to issuers of municipal debt, may also be lowering bond prices (WSJ 2007).

For the second year in a row, many of the median financial indicators, such as days cash on hand and debt service coverage, are among the best ever recorded (FitchRatings 2007). This improvement occurs at the same time hospitals have been making larger capital investments and borrowing more money. Few ratings have been lowered, implying that hospitals’ operating results and the increase in the market value of their investments have been sufficient to offset higher debt and preserve key measures the ratings industry uses. Some analysts see this as the high point for many indicators and foresee more

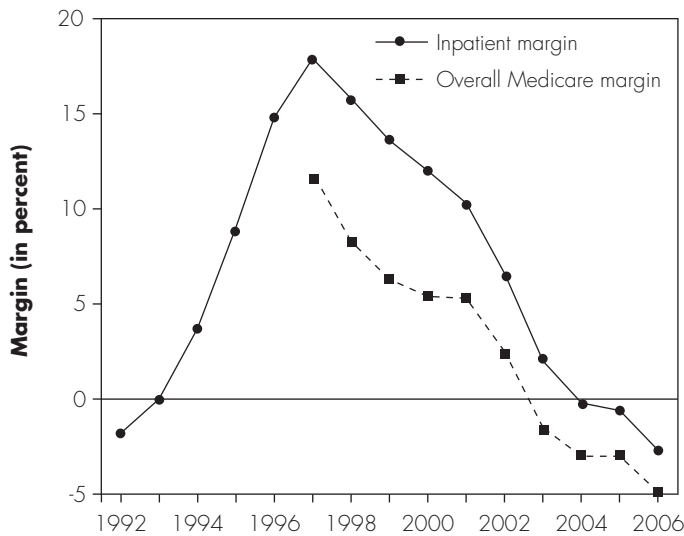
uncertainty in the years ahead. Moody’s, for example, sees overall softening in volumes and operating performance and states that the outlook in 2008 and 2009 is uncertain (Moody’s 2007a).

For-profit hospitals have had good access to capital, in some instances using their strong cash flows to support debt that has been used to fund acquisitions, buyouts, and special dividends to shareholders. For example:

- Community Health Systems acquired Triad for \$6.8 billion, creating the largest publicly traded hospital company in the United States (S&P 2007c).

**FIGURE
2A-9**

**Overall Medicare and
Medicare inpatient margins**



Note: A margin is calculated as payments minus costs, divided by payments; margins are based on Medicare-allowable costs. Analysis excludes critical access hospitals. Medicare inpatient includes services covered by the acute inpatient prospective payment system. Overall Medicare margin covers acute inpatient, outpatient, hospital-based home health and skilled nursing facility (including swing bed), and inpatient psychiatric and rehabilitation services, plus graduate medical education.

Source: MedPAC analysis of Medicare Cost Report file from CMS.

- A consortium of private capital firms and management bought out Hospital Corporation of America (HCA) stockholders in a transaction estimated at about \$32 billion (Cain 2007b).
- Health Management Associates, which primarily runs rural hospitals, issued bonds to fund a special dividend of \$10 a share, increasing interest expenses approximately fourfold (S&P 2007d).

The HCA and Health Management Associates deals alone added more than \$1.5 billion of annual interest expense to the income statements of the companies (HCA 2007, S&P 2007d). To date, strong cash flows and the selective sale of hospitals have allowed these large for-profit chains to absorb the higher interest expenses and remain profitable.

Looking forward, investors in this sector have some of the same concerns as those in the nonprofit sector about volume growth, bad debt, charity care, and the ability or willingness of payers, particularly Medicaid, to continue to increase payments over the longer term. Bad debt and the

delayed recognition of bad debt are causing concern in this sector, particularly for firms with facilities concentrated in areas of the country with high rates of self-pay patients. However, increases in Medicare PPS rates and strong increases in commercial reimbursement rates are expected to provide some financial support for hospitals (Morgan Stanley 2006).

Hospitals expect access to capital to remain good

Hospitals plan to continue to add capacity and increase capital spending, implying that they expect to have continued access to capital. A recent survey of nonprofit hospitals found the following (BoA 2007):

- Nearly 84 percent of hospitals plan to add capacity over the next two years. About 80 percent intend to add outpatient capacity, 50 percent intend to add inpatient capacity, and 46 percent intend to add both.
- The mean forecasted increase in 2007 capital spending over the previous year is 13 percent.
- The top three capital spending priorities were diagnostic equipment (cited by 79 percent of respondents), clinical information systems (72 percent of respondents), and maintenance spending (71 percent of respondents). It is possible that these intentions will not be carried out; for example, insufficient return on investment may delay capital investment in information technology (IT) systems. That said, 62 percent of respondents expect to increase IT budgets materially.

**TABLE
2A-4**

Hospital Medicare margins

Measure	2003	2004	2005	2006
Overall Medicare	-1.3%	-3.0%	-3.0%	-4.8%
Inpatient	2.2	-0.3	-0.6	-2.6
Outpatient	-11.5	-10.7	-9.2	-11.0

Note: Data are for all hospitals covered by Medicare acute inpatient prospective payment system in 2006. A margin is calculated as payments minus costs, divided by payments; margins are based on Medicare-allowable costs. Overall Medicare margin covers acute inpatient, outpatient, hospital-based skilled nursing facility (including swing bed) and home health, and inpatient psychiatric and rehabilitation services, plus graduate medical education.

Source: MedPAC analysis of Medicare Cost Report file from CMS.

Some believe this substantial increase in building and capacity could result in higher costs for the health care system. The Center for Studying Health System Change, for example, has reported an ongoing building boom and expansion of both inpatient and outpatient capacity in the 12 health care markets it tracks (HSC 2005). The Center reports that much of the added capacity is located in suburban areas and in particular specialties, raising the possibility that health care costs will increase without significantly improving access to services in lower income areas.

Improvements may be closing the credit gap

Some in the industry are concerned about a divergence in access to capital between “haves” and “have-nots” and fear that hospitals with weaker credit will languish. However, one agency reports that hospital systems with speculative grade bond ratings are continuing to access debt markets to finance projects and notes a recent \$735 million debt issue from one system as an example (S&P 2007a). Analysts also point out that hospitals that cannot put money into capital spending may merge or be acquired by a stronger hospital or health system. Although mergers might affect competition within market areas, they do not necessarily result in a decline in access to hospital care for Medicare beneficiaries. Some hospitals without investment grade bond ratings have alternative sources of financing—for example, loans from commercial lenders such as banks and private placement of tax-exempt bonds. Hospitals may also lease equipment instead of using capital to purchase it outright. The leasing market for health care equipment is projected to reach \$8 billion in 2007 (HFMA 2006).

Payments and costs for 2008

In assessing payment adequacy, the Commission considers the estimated relationship between Medicare payments and hospitals’ costs in the current year, fiscal year 2008. We assess the adequacy of Medicare payments for the hospital as a whole, and thus our indicator of the relationship between payments and costs is the overall Medicare margin. This margin includes payments and costs for the six largest services that hospitals provide to Medicare patients, plus graduate medical education. We take this approach because hospitals allocate large amounts of overhead across service lines, particularly between inpatient and outpatient care. Only by combining data for all major services can we estimate Medicare costs without the influence of how overhead costs are allocated.

**TABLE
2A-5**

Overall Medicare margin by hospital group

Hospital group	2003	2004	2005	2006
All hospitals	-1.3%	-3.0%	-3.0%	-4.8%
Urban	-0.9	-2.9	-3.0	-4.8
Rural	-3.9	-3.4	-3.1	-5.1
Major teaching	6.6	5.0	5.0	2.8
Other teaching	-1.5	-3.2	-3.6	-5.4
Nonteaching	-5.3	-7.0	-6.8	-8.5

Note: Data are for all hospitals covered by the Medicare acute inpatient prospective payment system in 2006. A margin is calculated as payments minus costs, divided by payments; margins are based on Medicare-allowable costs. Overall Medicare margin covers acute inpatient, outpatient, hospital-based skilled nursing facility (including swing bed) and home health, and inpatient psychiatric and rehabilitation services, plus graduate medical education.

Source: MedPAC analysis of Medicare Cost Report file, MedPAR, and impact file from CMS.

Trend in Medicare margins

The overall Medicare margin has trended downward since 1997 (Figure 2A-9).⁵ The margin was unchanged at -3.0 percent going from 2004 to 2005, but it declined to -4.8 percent in 2006 (Table 2A-4). The difference between these two rates of change resulted from policy changes that increased payments in 2005 and decreased them in 2006.

In 2004 and 2005, the gap between the inpatient and outpatient margins (components of the overall Medicare margin) narrowed by 5 percentage points. This was due primarily to inpatient costs per discharge rising faster than outpatient costs per service, as is discussed further in the next section. Policy changes affected both inpatient and outpatient services in 2006, causing the two margins to fall by almost equal amounts.

Conversions to CAH status and MMA provisions aimed at helping rural PPS hospitals closed the gap between the margins of rural and urban PPS hospitals in 2005, and the rural margin remained only slightly lower in 2006 (Table 2A-5). CAHs are not included in our margin calculations, but the overall Medicare margin went up slightly when poorly performing rural facilities left the acute inpatient PPS for CAH status. Nonteaching hospitals, most of which are in urban areas, had the poorest financial performance.

Policy changes between 2006 and 2008 increase some payments and decrease others

A number of payment policy changes, including some scheduled to be implemented in 2009, affect our projection of the 2008 margin under 2009 policy. These changes affect Medicare's payments for acute inpatient and outpatient services as well as hospital-based post-acute care services, including home health, skilled nursing facility, and inpatient rehabilitation services. The provisions affecting inpatient and outpatient payments are summarized below, and provisions affecting the post-acute services are described in other chapters.

Inpatient payments

CMS implemented major changes to the acute inpatient prospective payment system (PPS) in 2008. In response to a Commission recommendation, it introduced a new patient classification system that incorporates severity adjustment. Medicare severity diagnosis related groups (MS-DRGs) will replace DRGs as the method for grouping patients for payment of per discharge payments. CMS is phasing in MS-DRGs, with payment based entirely on MS-DRGs in 2009. CMS and the Commission anticipate that hospitals will respond to the incentives of the MS-DRG system by improving coding and medical records documentation, which will result in assignment of cases to higher

weighted MS-DRGs. Since this assignment will increase payments without an accompanying increase in resources used, it will inappropriately increase payments. CMS will reduce payments in 2008 and 2009 to ensure that implementation of MS-DRGs is budget neutral. The Medicare, Medicaid, and SCHIP Extension Act of 2007 (MMSEA)—a bill to extend transitional medical assistance, the abstinence education program, and the Qualifying Individuals program—set a schedule for these reductions of 0.6 percent in 2008 and an additional 0.9 percent in 2009.

Changes in the indirect medical education (IME) adjustment paid to teaching hospitals reduced inpatient payments in 2007 but will increase payments in 2008 and beyond.

Hospitals may qualify for reclassification to a different labor market for purposes of the wage index. Section 508 of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 gave eligible hospitals an opportunity for one-time reclassification to a different labor market and allowed this change to increase their payments. Expiration of Section 508 at the end of 2007 returned these hospitals to the wage index of the area where they are located and removed

We estimate that the overall Medicare margin in 2008 will be -4.4 percent, an improvement of 0.4 point over 2006.⁶ Our projection reflects the effects of policy changes occurring between 2006 and 2008 as well as 2009 payment policy changes other than updates. These policy changes are summarized in the text box. Several offsetting factors lie behind this projection.

On the negative side, several 2008 or 2009 policy changes—notably two cuts in inpatient capital payments (capital IME and an add-on for large urban hospitals), the sunsetting of a special geographic reclassification program (Section 508), and elimination of outpatient hold-harmless payments for certain small rural hospitals—will reduce payments. In addition, preliminary data from a Census Bureau survey and six for-profit chains suggest that hospitals' rate of cost growth will edge up in 2007

and exceed the forecasted increase in the hospital market basket. This higher cost growth may reflect a lack of financial pressure and the effects of the current surge in construction spending but could also reflect spending on health IT and continued pressure on wages from shortages of professional personnel such as nurses and pharmacists. Hospitals in markets with growing populations experience more pressures to expand facilities and staffing.

However, the effects of four factors increasing payments will more than offset the factors decreasing payments:

- The MMA increased disproportionate share (DSH) and hospital-based payments for Medicare-dependent hospitals.

Policy changes between 2006 and 2008 increase some payments and decrease others (cont.)

(continued from previous page)

the extra payment, although they may still qualify for a higher wage index through the ongoing budget-neutral system for reclassification. The MMSEA recently extended the Section 508 program for another year, but unless there is further legislative action, it will once again expire at the end of fiscal year 2008.

CMS implemented two Deficit Reduction Act (DRA) provisions intended to improve hospital quality of care that will affect payments in 2008 and 2009. The DRA mandated that failure to submit valid quality data for 2007 will result in a one-time 2 percent reduction in payment for 2008. However, virtually all hospitals paid under the inpatient PPS submitted the required data and thus will avoid a penalty. CMS also implemented a mandate to identify preventable conditions with high cost or volume that, as secondary diagnoses, result in assignment to a higher paying DRG. In 2009, cases with any one of five designated conditions will not receive the extra payment of the higher weighted DRG if the condition is acquired after admission and no other qualifying secondary diagnosis is present.

Under the inpatient PPS, separate payments are made for operating and capital costs. For 2008, CMS

eliminated a 3 percent add-on to capital payments for hospitals in large urban areas. It also began a phase-out of the IME adjustment to capital payments, with a 50 percent reduction in 2009 and full elimination in 2010.

The Congress has established several special payments for rural hospitals. In 2007, CMS implemented provisions of the DRA affecting payment to Medicare-dependent hospitals (MDHs). These provisions increased payment to hospitals with low hospital-specific rates, allowed a 2002 base year for calculating payments, and increased disproportionate share payments to MDHs. The critical access hospital (CAH) program provides cost-based payments to certain small rural hospitals. Provisions allowing states to deem hospitals necessary providers eligible for CAH status ended in 2006; CAHs designated as “necessary providers” before 2006 were allowed to stay in the program.

Outpatient payments

Aggregate outpatient payments are expected to decline in 2009 because hold-harmless payments made to rural hospitals that are not sole community hospitals and that have 100 or fewer beds will expire at the end of 2008. ■

- Our simulations suggest that fewer discharges will be affected by the post-acute transfer policy under MS-DRGs relative to the current DRGs.
- DSH payments will increase due to rising low-income shares, most likely caused by the combination of Section 1115 waivers expanding Medicaid eligibility and court cases liberalizing the count of Medicaid days.
- We expect the payment increases resulting from improvements in coding and medical records documentation after MS-DRGs were introduced to exceed the legislated payment offsets for coding effects. These offsets are 0.6 percent in 2008 and 0.9 percent in 2009, totaling 1.5 percent.

The Medicare, Medicaid, and SCHIP Extension Act of 2007 (MMSEA) extended the Section 508 reclassification program through fiscal year 2008. Although we estimate that this will raise the overall Medicare margin by 0.2 percent in 2008, we have not reflected the increased revenue in our margin forecast because the program is scheduled to sunset in 2009. As we describe in Section 2F, the MMSEA also increased payments for hospital-based rehabilitation units by requiring that 60 percent rather than the previous requirement of 75 percent of patients come from prescribed diagnostic categories. This change is reflected in our forecast, although the effect is small because rehabilitation units are responsible for only about 3 percent of hospitals’ Medicare revenue.

When first proposing the MS-DRG system in April 2007, CMS estimated that coding refinements and improved

**TABLE
2A-6**

Medicare cost growth slowed in 2005 and 2006

Type of cost	Unadjusted			Case-mix adjusted		
	2004	2005	2006	2004	2005	2006
Inpatient costs per discharge	5.7%	5.2%	4.8%	4.7%	4.2%	3.9%
Outpatient costs per service	3.7	4.6	2.6	2.8	2.8	3.2
Weighted average	5.3	5.1	4.3	4.3	3.9	3.8

Note: The results are adjusted to account for changes in hospitals' case mix (complexity of services provided) as measured by diagnosis related groups for inpatient services and ambulatory patient classifications for outpatient services. Analysis excludes critical access hospitals. The weighted average is based on hospitals' inpatient and outpatient Medicare costs.

Source: MedPAC analysis of Medicare Cost Report and claims files from CMS.

documentation of medical records would increase payments by 2.4 percent in each of 2008 and 2009, based on the experience of the Maryland rate-setting agency in implementing severity-adjusted DRGs for all payers. Based on our own analysis of data from Maryland hospitals, we recommended a payment offset of 1.7 percent in each of 2008 and 2009—about a third less than CMS proposed. Therefore, we assumed that payments will rise a combined 3.4 percent over this two-year period, while the Congress will take back only 1.5 percent with coding offsets. Consequently, our margin projection assumes a net increase in payments of 1.9 percent.

No one can definitively predict the effects of the coding and medical record changes, but the experience of Maryland hospitals, CMS's documentation of the effects of previous changes in the patient classification systems upon which facility-based payments are based, and the specific design features of the MS-DRG system all support the conclusion that the effects will be larger than the legislated offsets.⁷ The most important design feature in this regard is not DRG restructuring but redefinition of CCs that CMS implemented simultaneously. Under the MS-DRG system, the presence of any one CC in most cases will qualify the patient for a higher payment rate, and the presence of a major CC will result in an even higher payment. For example, the base payment for a patient with a major large bowel procedure is \$8,983; a CC raises the rate to \$14,114 and a major CC raises it to \$21,980.

Congestive heart failure (CHF), one of the most common secondary diagnoses for the elderly, provides an excellent example of the payment effect that changing CC definitions can have. Under the old DRG system, coding

“CHF not otherwise specified” qualified the case as having a CC, although the payment system usually did not provide a higher payment rate for such patients. Under the MS-DRG system, CHF not otherwise specified no longer qualifies as a CC—instead, 1 of 13 specific types of CHF (e.g., chronic diastolic heart failure) must be coded. In 2005, 93 percent of the 2.2 million cases coded with CHF as a secondary diagnosis would not have qualified as a CC under the new system. We do not know how many of these patients actually had 1 of the 13 types of CHF, but either the physician did not record the necessary detail in the medical record or the coder did not pick it up. In the future, hospitals will have a strong incentive to make sure more specific codes are used when the patient's condition warrants it, and payment increases will undoubtedly result from hospitals adopting these appropriate coding refinements.

Cost growth has moderated in recent years

The weighted average of Medicare inpatient and outpatient costs—unadjusted for changes in case mix—increased by 5.3 percent in 2004, 5.1 percent in 2005, and 4.3 percent in 2006 (Table 2A-6). Much of these increases was due to the rising complexity of patients treated (for which Medicare pays). After accounting for reported case-mix increases, the weighted average cost increase was 4.3 percent in 2004 and 3.8 percent in 2006. The 3.8 percent rate of cost growth was close to the average market basket update hospitals received from Medicare in 2006 for operating and capital payments.

Looking at inpatient costs separately, unadjusted inpatient costs per discharge increased by 5.2 percent in 2005 and 4.8 percent in 2006. Case-mix-adjusted inpatient costs

rose 4.2 percent in 2005 and 3.9 percent in 2006 (Table 2A-6). Inpatient complexity, as measured by case mix, increased by 1.0 percent in 2004, 1.0 percent in 2005, and 0.9 percent in 2006.

Medicare outpatient cost per unit of service (adjusted for case-mix change) has been slightly lower, increasing by 2.8 percent in 2005 and 3.2 percent in 2006 (Table 2A-6). Outpatient complexity of services has been inconsistent. The service-mix index for outpatient services increased by 1.7 percent in 2005 and decreased by 0.5 percent in 2006. We calculate the service-mix index as the sum of the relative weights of all outpatient PPS services divided by the volume of all services. The concept is similar to the case-mix index for inpatient services.

The growth in outpatient volume could explain why outpatient costs grew more slowly than inpatient costs in recent years. First, outpatient service volume for Medicare patients increased about 2.5 percent per year from 2004 through 2006, allowing hospitals to spread fixed costs over more services. Much of this growth is due to increases in the number of services patients received on each day they visited the hospital outpatient department, which had an average annual increase of 1.7 percent from 2004 through 2006. As patients receive more services per trip to the outpatient department, the cost per service should decline.

Looking forward to 2007, we expect the rate of growth in hospital costs per unit of service to edge up. While 2007 Medicare cost report data are not available, we do have partial year data from the Census Bureau through June 2007 and from certain hospital systems with publicly traded stock or bonds for the nine months ending in September 2007.⁸ These data suggest that cost growth will be roughly 5 percent in 2007, before any case-mix adjustment.

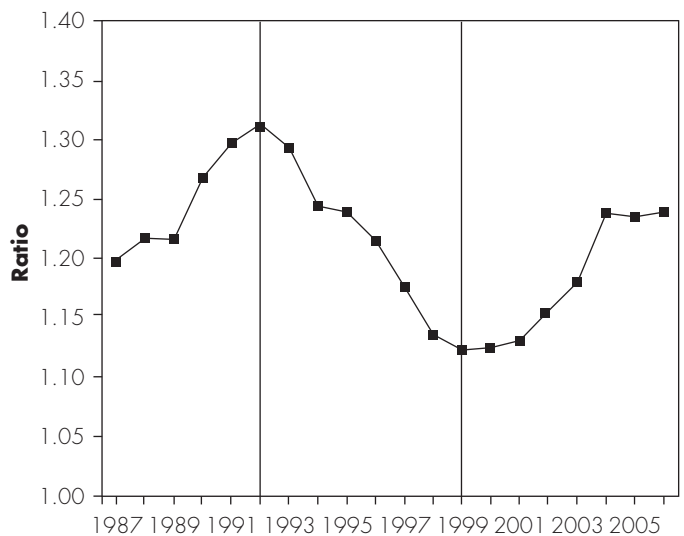
Factors influencing cost growth and financial performance

In this section, we discuss the relationship between the financial pressure hospitals face in their private sector operations and their growth in Medicare costs and financial performance under Medicare. We first address this relationship over time for the industry as a whole, and then we contrast the cost and financial outcomes in recent years of hospitals facing the most and least financial pressure.

Industrywide financial pressure and cost growth In recent years, hospital costs per discharge have risen faster than the rate at which input prices and Medicare payments

FIGURE 2A-10

Three distinct periods in the private payer payment-to-cost ratio

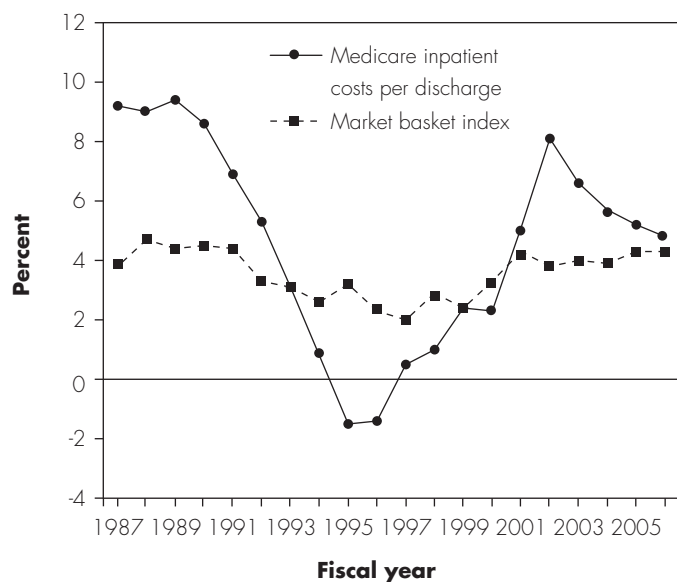


Source: MedPAC analysis of data from the American Hospital Association annual survey of hospitals.

have increased. This has been possible primarily because of improving profits on private payer patients. The level of private payer profits has been cyclical. During the first cycle (1986 through 1992), most insurers still paid hospitals on the basis of their charges, with little price negotiation or selective contracting. With limited pressure from private payers, hospital margins on private payer business increased rapidly (Figure 2A-10). In the mid-1990s, HMOs and other private insurers began to negotiate much harder with hospitals, and most insurers switched to paying for inpatient services on the basis of DRGs or flat per diem amounts for broad types of services. The payment-to-cost ratio for private payers declined by 17 percentage points from 1993 through 1999.

By 2000, hospitals had regained the upper hand in price negotiations due to hospital consolidations and consumer backlash against managed care. Rates for private payers rose rapidly and their payment-to-cost ratio consequently increased 11 percentage points from 2000 to 2004. In 2005 and 2006, private payer profit margins began to level off. This suggests that private payers are toughening in their negotiations with hospitals.

While private payer payments remain more than 20 percent above costs, they are no longer rising faster than

**FIGURE
2A-11****Costs have risen faster than the market basket in recent years**

Note: The market basket index measures changes in the prices of the goods and services hospitals use to deliver patient care.

Source: Medicare analysis of Medicare Cost Report file from CMS and CMS's rules for the acute inpatient prospective payment system.

costs. This excess growth in payment previously enabled hospitals to fund cost growth above the increase in input prices or the market basket increases on which Medicare payment updates are based. However, hospitals' "other operating revenue" increased about 17 percent in 2006, essentially serving the same purpose as double-digit increases in private payer payments in earlier years. This surge in other operating revenue (which generally includes income from activities other than direct patient care) was the largest increase in nearly a decade and may reflect an expansion of joint ventures with physician or other provider groups.⁹

When we examine cost growth during the same three periods, we see that the rate of increase tended to follow trends in private payer profitability. From 2001 to 2004, increases in private payer profitability were accompanied by hospital costs rising at a rate faster than the market basket (Figure 2A-11). In 2005, private payer profit margins leveled off and (as discussed previously) cost growth returned to a level close to the market basket increase.

Hospital-level financial pressure and hospital costs The effect of financial pressure on costs is not only evident over time, it is also evident when comparing hospitals under differing levels of financial pressure to constrain costs. Some hospitals have strong profits on non-Medicare services and investments and are under little pressure to constrain Medicare costs, while others face losses if they do not constrain costs and generate profits on Medicare patients. To test the relationship between financial pressure and hospitals' costs, we divided hospitals into three levels of financial pressure: high, medium, and low. We tested whether hospitals under high levels of financial pressure from 2001 to 2005 ended up with lower standardized inpatient costs per discharge in 2006. The question is whether financial pressure leads to lower costs.

We defined high-pressure hospitals as those that meet the following two criteria:

- Median non-Medicare profit margins of 1 percent or less from 2001 to 2005, covering both inpatient and outpatient services. Non-Medicare margins reflect the sum of net profit (or loss) on private pay, Medicaid, self-pay, and charity cases, as well as nonpatient revenues and costs.
- Net worth would have grown by less than 1 percent per year from 2001 to 2005 if the hospitals' Medicare profits had been zero. In other words, high-pressure hospitals depend on Medicare profits to grow their net worth.

In contrast, low-pressure hospitals can grow their net worth even if they suffer Medicare losses. We deemed a hospital low pressure if it met the following two criteria:

- Median non-Medicare margins greater than 5 percent from 2001 to 2005, and
- Net worth would have grown by more than 1 percent per year if its Medicare profits were zero. In other words, low-pressure hospitals do not depend on Medicare profits to grow their net worth.

The medium-pressure hospitals fall into neither the high-pressure nor the low-pressure category. They consist of hospitals that either have modest non-Medicare profit margins in the 1 percent to 5 percent range or tended to have losses on their non-Medicare business but received large transfers or restricted gifts for buildings that caused the hospital's net worth to increase. Some nonprofit hospitals generate losses but still experience increases in net worth because of transfers, unrealized investment

**TABLE
2A-7**

Financial pressure leads to lower costs

Level of financial pressure 2002 to 2005

	High pressure (non-Medicare margin <1%)	Medium pressure	Low pressure (non-Medicare margin >5%)
Financial characteristics, 2006			
Non-Medicare margin (private, Medicaid, uninsured)	-1.1%	6.3%	13.6%
Standardized cost per discharge			
Median of for profit and nonprofit	\$5,500*	\$5,800	\$6,200
Nonprofit hospital	5,500*	5,800	6,200
For-profit hospital	5,600*	5,600	5,800
Annual growth in cost per discharge 2003 to 2006	4.6%*	5.4%	5.5%
Overall 2006 Medicare margin	3.7*	-3.3	-10.8
Patient characteristics (medians)			
Total hospital discharges in 2006	5,495*	7,350	7,130
Medicare share of inpatient days	47%	45%	49%
Medicaid share of inpatient days	13%*	12%	12%
Medicare case-mix index	1.26*	1.35	1.36
Hospital characteristics			
Number of:			
All hospitals	911	427	1,529
Rural hospitals	284	113	483
For-profit hospitals	184	69	335
Major teaching hospitals	149	47	49
Share of:			
All hospitals	32%	15%	53%
Rural hospitals	31	13	55
For-profit hospitals	31	12	57
Major teaching hospitals	61	19	20

Note: Standardized costs are adjusted for hospital case mix, wage index, outliers, transfer cases, interest expense, and the effect of teaching and low-income Medicare patients on hospital costs. The sample includes all hospitals that had complete cost reports on file with CMS by August 31, 2007.

* Indicates significantly different from low-pressure hospitals using p=0.01 and a Wilcoxon rank test. A Wilcoxon rank test is used to limit the influence of the few hospitals that report very large costs per discharge.

Source: MedPAC analysis of Medicare Cost Report and claims files from CMS.

gains, or gifts for buildings that are not recorded as income, but these gains and gifts are recorded on the balance sheet as increases in net worth. The results are not sensitive to small changes in the cutoffs used to define the pressure groups. We find similar results if we use a 4 percent or a 7 percent margin as the upper bound for medium pressure.¹⁰

The comparison of hospital groups (low pressure to high pressure) confirms the three-period analysis showing that

high levels of financial pressure lead to lower standardized costs. Hospitals under high levels of financial pressure have median Medicare standardized costs of \$5,500 per discharge on average (Table 2A-7).¹¹ In contrast, hospitals with low levels of financial pressure had standardized costs more than 10 percent higher at \$6,200 per discharge. The effect of financial pressure on costs is greater for nonprofit hospitals. When the financial pressure is low, nonprofits' operating costs rise to a higher level than for-

**TABLE
2A-8**

Characteristics of consistently low- and high-cost hospitals

Hospital characteristic	Standardized costs in:	
	Lower third for three years	Upper third for three years
Percent of hospitals	22%	21%
Annual percent change in:		
Medicare length of stay, 1997–2006	-1.5	-0.7
Inpatient cost per case, 2003–2006	3.9	6.4
Median standardized costs at:		
Low-cost and high-cost hospitals	\$5,000	\$7,000
Hospitals within 15 miles of low-cost or high-cost hospitals	5,600	6,200
Average Medicare margin	6.7%	-21.4%

Note: Per case costs are standardized for wages, case mix, severity, outlier cases, interest expense, low-income shares, and teaching intensity. Median values shown.

Source: MedPAC analysis of impact file, MedPAR, and Medicare cost report data from CMS.

profits’ operating costs on average. As discussed earlier, strong cash flows at for-profit hospitals have been used for other purposes in recent years, including capital expansion, leveraged buyouts, and special dividends. On average, hospitals under financial pressure tend to be smaller, have lower case-mix levels, and depend slightly more on Medicaid, but there are a wide variety of hospitals in all three financial pressure categories.

Hospital-level variation in costs We examined the variation in hospital costs per discharge after standardizing for geographic, patient-level, and some hospital characteristics that can affect cost, such as area wages, case mix, outlier cases, transfer cases, interest expense, and the cost of teaching residents. After adjusting for these factors, costs are no longer correlated with rural versus urban location or teaching versus nonteaching status. Rural, urban, teaching, and nonteaching hospital categories all have median standardized costs of about \$5,900 per discharge. For-profit hospitals have a slightly lower standardized cost (\$5,700 per discharge) than nonprofit hospitals (\$5,900) or government hospitals (\$6,000). However, within each category of hospitals there is a wide distribution of costs. In 2006, roughly one-third of hospitals had standardized costs below \$5,600 per discharge and roughly one-third had standardized costs above \$6,300 per discharge. Cost differences drove margin differences. Low-cost hospitals

had a median Medicare margin of 5.1 percent, while high-cost hospitals had a median margin of -15.6 percent.

When we examine individual hospital costs over time, we see that certain hospitals consistently have low costs and others consistently have high costs. From 2004 through 2006, roughly 20 percent of hospitals had costs in the bottom third for three years in a row and roughly 20 percent of hospitals had costs in the top third for three years in a row. Many low-cost hospitals are under financial pressure to constrain costs, but the low-cost hospital group also includes hospitals that choose to keep their costs low despite having high non-Medicare margins. The performance and competitiveness of hospitals in the low-cost and high-cost groups differ dramatically (Table 2A-8). Hospitals with consistently low standardized costs had a median cost of \$5,000 per discharge in 2006. In contrast, hospitals with costs consistently in the highest third of all hospitals had a median standardized cost of \$7,000 in 2006 and had costs more than 10 percent above those of competing hospitals located within 15 miles. While some market-level factors affect the costs of all hospitals in a market, even within a single market the high-cost hospitals have a cost structure significantly higher than that of neighboring hospitals.

Hospitals with consistently high costs contribute to lowering the overall Medicare margin. The 2006 aggregate overall Medicare margin would be more than 3 percentage

points higher (–1.7 percent) if the hospitals with standardized costs in the top third every year from 2004 to 2006 were excluded from the margin calculation. The lack of financial pressure at certain hospitals can lead to higher costs and in turn bring down the overall Medicare margin for the industry.

How should Medicare payments change in 2009?

When we consider whether Medicare’s aggregate payments are adequate, we look at the six largest hospital service lines—acute inpatient, outpatient, rehabilitation, home health, psychiatric, and skilled nursing facility (including swing beds). In this section, we provide update recommendations for services covered by Medicare’s operating inpatient and outpatient PPSs. For both the acute inpatient and outpatient PPSs, the update in current law for fiscal year 2009 is the forecasted increase in the hospital market basket index.

Changes in input prices

CMS measures price inflation for the goods and services hospitals use in producing inpatient and outpatient services with the hospital operating market basket index. CMS’s latest forecast of this index for fiscal year 2009 is 3.0 percent, but it will update the forecast twice before using it to update payments in 2009.

Productivity

One of the Commission’s key policy principles is that Medicare’s payment systems should encourage efficiency. Hospitals and other health care providers should be able to reduce the quantity of inputs required to produce a unit of service by at least a modest amount each year while maintaining quality of care. The Commission’s approach links the adjustment for improving efficiency to the gains achieved by firms and workers who pay the taxes and premiums that fund Medicare benefits. Our adjustment is set equal to the Bureau of Labor Statistics’ estimate of the 10-year average growth rate of multifactor productivity in the general economy, which is currently 1.5 percent.

Technology

Much of hospitals’ spending for new devices, drugs, and equipment has the potential to improve their productivity—that is, reduce costs with constant or

improving quality—and fixed payment rates provide a strong financial incentive for hospitals to adopt these technologies. Providers have less incentive to adopt quality-enhancing technologies that increase costs, but Medicare’s inpatient and outpatient PPSs provide direct payment for certain technologies used in delivering patient care that meet certain criteria. In addition, Medicare can support the adoption of IT through a quality incentive payment policy.

Payment system mechanisms addressing technology

Since fiscal year 2003, new technology payments have supplemented the base DRG payment rates in the acute inpatient PPS. These payments are in addition to the MS–DRG payment and are not budget neutral. They provide transitional funding (for two to three years) to assist hospitals in adopting technologies that will increase their costs. New technology payments improve hospitals’ accountability by providing extra funds only when a new technology meets certain criteria, is in place, and is being used to treat patients. CMS approved three technologies for inpatient add-on payments in 2006, accounting for about \$84 million in payments.

CMS’s criteria for approving technologies for payment require that they must be new, offer substantial clinical improvement, and have a major impact on costs. Base payments already have funding for technology, and small improvements to existing technologies usually do not have significant independent cost implications. In addition, there have been instances in which the clinical benefit of new technologies is later questioned (e.g., drug-eluting stents), increasing the importance of the new technology review process. Finally, additional payment should not be made when the technology reduces costs over time or substitutes for existing technologies of approximately equal cost.

CMS reviews DRG definitions annually (MS–DRG definitions in the future) to ensure that each group contains cases with clinically similar conditions requiring comparable amounts of inpatient resources. Manufacturers and providers may apply to CMS to have certain cases moved from one MS–DRG to another if use of a new technology increases the cost of care. This increases payment and complements new technology add-on payments as a way to address the costs of new technologies.

Use of new technologies often shifts patients into higher-weighted MS-DRGs, which increases payment for cases using the new technologies and the hospitals that treat them. This provides an additional source of funds for users of new technologies.

Medicare's outpatient PPS makes new technology add-on payments similar to those in the inpatient PPS, although these payments are budget neutral. But the outpatient PPS also creates new technology APCs, which cover completely new services for which CMS does not yet have adequate data to establish payment rates. The new technology APCs generate a new payment for each service rendered, resulting in an increase in total Medicare payments. New technology APCs accounted for about \$300 million in outpatient payments in 2006.

Information technology considerations

While add-on payments and new technology APCs address new technologies in patient care, they do not provide direct funding for investment in IT, such as computerized physician order entry systems and electronic medical records. IT systems are expensive, but IT is reflected in the historical cost base that Medicare's DRG and APC payment are designed to cover, including medical records and data-processing costs as well as depreciation for past purchases of computer systems and software. For the increment above what base payments will cover, we believe productivity improvements should provide an adequate return on investment in the long run.

A pay-for-performance program provides a better mechanism than the update for encouraging hospitals to invest in IT. Paying for the use of IT through a pay-for-performance program will likely target payments to hospitals that actually install quality-improving IT systems. Increasing the update, in contrast, does not provide Medicare with any tool for ensuring that hospitals spend the additional payment on performance-improving IT. Because IT has the potential to improve the quality of patient care, we have recommended that the Congress direct CMS to include measures of functions supported by the use of IT in pay-for-performance measures (MedPAC 2005). Pay for performance will help give providers the business case to adopt IT and reap rewards from payments for improvements in quality that flow from better clinical information.

As discussed earlier in the chapter, hospitals appear able to support large increases in their capital expenditures. Spending for construction alone was expected to surpass

\$30 billion in 2007 (Figure 2A-7, p. 55). Moody's estimates that investments in clinical and other IT account for 15 percent to 20 percent of hospitals' capital expenditures, and the share is growing (Moody's 2005). Further, 46 percent of community hospitals reported moderate or high use of health IT in 2006, up from 37 percent in 2005, and more than two-thirds of hospitals had fully or partially implemented electronic health records in 2006 (AHA 2007).

Pay for performance

The Commission has concluded that Medicare should take the lead in developing incentives for high-quality care. To that end, our March 2005 report recommended that the Congress establish a quality incentive payment policy for hospitals under Medicare (MedPAC 2005). Recent research finds that most hospitals appear capable and willing to move forward into a pay-for-performance environment (Felt-Lisk and Laschober 2006).

A number of accepted quality measures are available—including process measures, measures of safe practices, and mortality measures. These measures would enable CMS to implement the program fairly quickly and then to enhance and expand the set of measures in future years. One targeted approach would implement and expand pay for performance focusing on specific conditions or services (e.g., central line infections or ventilator-assisted pneumonia in intensive care units) where evidence suggests that quality improvement initiatives have the most impact.

Pay for performance would result in a larger share of payments going to hospitals that achieve high quality scores or improve their quality substantially from one year to the next. Funding for the pool should come from existing Medicare hospital payments. Our recommended update and the pay-for-performance program would replace the provision in current law that reduces a hospital's payments by 2 percent if it fails to report required quality data to CMS. On November 26, 2007, CMS released a mandated report to the Congress presenting the agency's proposal for a value-based purchasing program for hospitals. The report describes the quality incentive payment program CMS would implement, pending congressional action to authorize it, in fiscal year 2009. The Commission believes it is critical that the Congress authorize CMS to implement a quality pay-for-performance system in 2009.

Update recommendation

This section presents our update recommendation covering acute inpatient and outpatient payments along with a summary of our rationale and the implications of the recommendation.

RECOMMENDATION 2A-1

The Congress should increase payment rates for the acute inpatient and outpatient prospective payment systems in 2009 by the projected rate of increase in the hospital market basket index, concurrent with implementation of a quality incentive payment program.

RATIONALE 2A-1

Most of the Commission's indicators of payment adequacy are positive. Access to care remains strong, as indicated by more hospitals opening than closing as well as the share of hospitals offering many services rising. Volume of both inpatient and outpatient services is growing, quality of care is generally improving, and access to capital is, by some measures, at an all-time high. On the other hand, while Medicare margins are not expected to fall between 2006 and 2008, they will remain low. Our analysis of hospital costs and financial pressure showed that hospitals with low non-Medicare profit margins have below-average standardized costs. Most of these facilities have positive overall Medicare margins.

Balancing these considerations, we conclude that an update of market basket is appropriate for both inpatient and outpatient services, with this increase implemented concurrently with a quality incentive payment program.¹² The Commission's reasoning is that, given the mixed picture of indicators, an individual hospital's quality performance should determine whether its net increase in payments is above or below the market basket increase. Our finding that hospitals' costs are strongly related to the financial pressure they are under from non-Medicare sources suggests that Medicare should put pressure on hospitals to control their costs rather than accommodate the current rate of cost growth.

CMS's current projection of the market basket increase for fiscal year 2009 is 3.0 percent. However, this estimate is revised on a quarterly basis, so the actual update percentage may be different.

IMPLICATIONS 2A-1

Spending

- This recommendation would have no effect on federal baseline program spending.

Beneficiary and provider

- This recommendation should have no impact on beneficiary access to care and is not expected to affect providers' willingness and ability to provide care to Medicare beneficiaries. There is a potential for improved quality of care for beneficiaries.

Indirect medical education adjustment

Last year the Commission undertook an extensive analysis of the IME adjustment and recommended that the adjustment be reduced when the PPS rates are adjusted for severity differences (MedPAC 2007a).

The IME adjustment is a percentage add-on to the PPS rates that varies with the number of residents a hospital trains. In 2008, payments increase approximately 5.5 percent for each 10 percent increment in resident intensity, measured by the ratio of residents to hospital beds. A hospital's IME payments are therefore tied to its volume and mix of PPS cases as well as to the number of residents it trains.

In 2006, IME payments to hospitals totaled about \$5.8 billion, and about 30 percent of hospitals paid under the acute inpatient PPS received an IME adjustment.¹³ IME payments go to 41 percent of urban hospitals compared with just 7 percent of rural hospitals, and the payments are highly concentrated. Major teaching hospitals—those with more than 25 residents per 100 hospital beds—account for a little more than a quarter of all teaching hospitals but receive almost three-quarters of IME payments, averaging almost \$14 million per hospital.

The current IME adjustment, however, substantially exceeds the estimated relationship between teaching intensity and costs per case. Our analysis found that Medicare inpatient costs per case (operating and capital costs combined) increase about 2.2 percent for every 10 percent increase in the ratio of residents to hospital beds (MedPAC 2007a). Therefore, the current adjustment is set at more than twice what can be justified empirically, directing more than \$3 billion in extra payments to teaching hospitals with no accountability for how the funds are used.

Having the adjustment set considerably above what is empirically justified contributes substantially to the large disparities in Medicare financial performance between teaching and nonteaching hospitals (see Table 2A-5, p. 59). Overall Medicare margins for major teaching hospitals, for example, were 2.8 percent in 2006 compared with -8.5 percent for nonteaching hospitals, a difference of about 11 percentage points.¹⁴

Moving the IME adjustment closer to the empirical cost relationship would help to reduce these margin differences. Cutting the IME adjustment to 4.5 percent per 10 percent increment in teaching intensity would narrow the gap in overall Medicare margin between major teaching and nonteaching hospitals by about 2 percentage points. The disparity in financial performance would be cut in half if the adjustment were reduced to the empirical level. The difference in financial performance is not eliminated because a large proportion of disproportionate share payments, which have little relationship to patient care costs, goes to major teaching hospitals.

If the IME adjustment were reduced, the payments could be redirected in various ways. The funds could be returned to the inpatient base rate, so that all PPS hospitals benefit proportionately. This would reduce the gap in financial performance between teaching and nonteaching hospitals. Alternatively, the funds could be used to finance a pay-for-performance program to reward high-quality care and quality improvement. Under this approach, teaching hospitals would compete with all other hospitals for the payment set-aside based on their performance on selected quality measures.

A third possible use of the funds obtained from reducing IME payments is to support initiatives to emphasize a new set of skills and knowledge in residency training. Alternatively, a new funding source (outside of Medicare) might be directed to spurring changes in medical school curricula. This new focus could include integrating geriatric training, using evidenced-based medicine more effectively, measuring performance against quality benchmarks, and working in interdisciplinary teams. Finally, the IME funds could be removed from the inpatient PPS altogether and taken as savings. The Commission discussed all these options and concluded that the funds should be used to reward high-quality hospitals and those that improve in quality over time.

RECOMMENDATION 2A-2

The Congress should reduce the indirect medical education adjustment in 2009 by 1 percentage point to 4.5 percent per 10 percent increment in the resident-to-bed ratio. The funds obtained by reducing the indirect medical education adjustment should be used to fund a quality incentive payment program.

RATIONALE 2A-2

IME payments currently exceed the effect of teaching on Medicare costs, which contributes to the large differences in financial performance under Medicare between teaching and nonteaching hospitals. These funds are provided to teaching hospitals with no accountability for how they are used, and a better use of the funds is desired. The Commission therefore recommends that the IME adjustment be reduced from 5.5 percent to 4.5 percent per 10 percent increment in the resident-to-bed ratio. We also recommend that the funds obtained from reducing the IME adjustment be used as part of the funding for a quality incentive payment program. The Commission recommended a pay-for-performance program for hospitals in its March 2005 Report to the Congress, and CMS recently published a report outlining the pay-for-performance program it plans for 2009, although this would require congressional action.

IMPLICATIONS 2A-2

Spending

- This recommendation would have no impact on federal program spending because it is intended to be budget neutral.

Beneficiary and provider

- The recommendation would reduce IME payments to teaching hospitals but would redistribute payments to all hospitals (including teaching hospitals) that perform well under a quality incentive payment program. There is potential for improved quality of care for beneficiaries. ■

Endnotes

- 1 In 2006, states lost the ability to declare hospitals necessary providers eligible to participate in the CAH program (MedPAC 2005). Consequently, the number of CAHs only increased from 1,283 in June 2006 to 1,285 in June 2007.
- 2 A service in our volume measure is identified by a Healthcare Common Procedure Coding System (HCPCS) code that is payable under the outpatient PPS. HCPCS definitions can change over time, which can have some effect on annual changes in volume.
- 3 Each year, a number of drugs and implantable devices are paid separately from the services for which they are used. We do not include these items in our analysis of outpatient volume because the list of separately paid drugs and devices has changed widely from year to year throughout the history of the outpatient PPS. Including separately paid drugs and devices in our analysis can result in substantial changes in volume simply because of changes in the list of separately paid drugs and devices.
- 4 The mortality, patient safety, and process measures we have considered in this analysis are the most comprehensive public data available to indicate changes in the quality of care provided to Medicare beneficiaries in hospitals over time and across the country. These indicators rely on administrative data such as patients' secondary diagnoses from claims, which may be prone to changes in coding, or they rely on self-reported data that may not be adequately audited. This may reduce their accuracy.
- 5 A margin is calculated as the difference between payments and costs divided by payments. The services included in the overall Medicare margin are acute inpatient, outpatient, skilled nursing facility (including swing beds), home health care, inpatient psychiatric, and inpatient rehabilitation.
- 6 Our forecast is for 2008, but we considered the policy environment hospitals will be operating under in 2009 as we deliberated the appropriate update for that year. Therefore, the forecast estimates what payments would have been in 2008 if 2009 policy (other than the 2009 update) had been in effect at the time.
- 7 Under the provisions of the Deficit Reduction Act, CMS can retrieve any overpayment occurring in fiscal years 2008 and 2009 that it documents as attributable to coding improvement exceeding the legislated coding offset. Hospitals would pay back the overpayment in the form of reduced payment rates in 2010, 2011, or 2012.
- 8 The most recent cost growth data available at the time the Commission voted on the proposed update were for the nine months ending September 30, 2007, from certain for-profit systems that report quarterly results. We compared 2006 and 2007 costs for HCA, Community Health Systems, Lifepoint, Health Management Associates, and Tenet.
- 9 This measurement of change in other operating revenue was based on unpublished data from the 2006 American Hospital Association annual survey of hospitals. Examples of other operating revenue are services such as parking and cafeteria, revenue from real estate transactions, rent from owned property, and income from joint ventures when the hospital has less than 50 percent ownership.
- 10 We also found similar differences in standardized costs among pressure groups when using different case-mix adjustments, wage indexes, and other factors used to standardize costs.
- 11 Costs per discharge are standardized to account for regional differences in wages using the MedPAC wage index (MedPAC 2007b), case mix, transfer cases, outliers, differences in interest expense, and the empirically estimated cost of medical education and serving a disproportionate share of low-income Medicare beneficiaries.
- 12 The inpatient update would apply to fiscal year 2009, and the outpatient update would apply to calendar year 2009.
- 13 Medicare IME payments to hospitals for FFS patients totaled \$5.1 billion, and IME payments to hospitals for MA patients totaled almost \$0.8 billion in 2006.
- 14 The gap is wider for inpatient margins because the IME adjustment is made on inpatient payments. Medicare inpatient margins for major teaching hospitals, for example, were 9.2 percent in 2006, compared with -8.0 percent for nonteaching hospitals, a difference of 17 percentage points.

References

- American Hospital Association. 2007. *Continued progress: Hospital use of information technology*. Washington, DC: AHA.
- Banc of America Securities. 2007. 5th annual nonprofit hospital survey. BoA. <http://www.bofasecurities.com>. June.
- Bazzoli G., A. Gerland, and J. May. 2006. Construction activity in U.S. hospitals. *Health Affairs* 25, no. 3 (May/June): 783–791.
- Berenson, R. A., T. Bodenheimer, and H. H. Pham. 2006. Specialty-service lines: Salvos in the new medical arms race. *Health Affairs* 25, no. 5 (September/October): 337–343.
- Bureau of Economic Analysis. 2007. Current dollar and real gross domestic product. <http://www.bea.gov/national/index.htm#gdp>.
- Cain Brothers and Company. 2007a. *Industry insights*. Issue 545. New York: Cain Brothers and Company, LLC. November.
- Cain Brothers and Company. 2007b. Strategies in capital finance. Volume 55. *Private equity investment: the “takeover” of health care*. New York: Cain Brothers and Company, LLC.
- Census Bureau. 2007. Construction spending. <http://www.census.gov/const/www/c30index.html>. November.
- Center for Studying Health System Change. 2005. *HSC issue brief: Initial findings from HSC’s 2005 site visits: Stage set for growing health care cost and access problems*. Washington, DC: HSC. August.
- Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2007. NHE summary share of GDP: Calendar years 1960–2006. http://www.cms.hhs.gov/NationalHealthExpendData/02_NationalHealthAccountsHistorical.asp.
- Cram P., G. Rosenthal, and M. Vaughtan-Sarrazin. 2005. Cardiac revascularization in specialty and general hospitals. *New England Journal of Medicine* 352, no. 14 (2005): 1454–1462.
- Dartmouth Atlas. 2007. Supply-sensitive care. http://www.dartmouthatlas.org/topics/supply_sensitive.pdf.
- Felt-Lisk, S., and M. Laschober. 2006. *Pay for performance: Are hospitals ready and willing?* Issue brief no. 4. Princeton, NJ: Mathematica Policy Research, Inc. November. <http://www.mathematica-mpr.com/publications/pdfs/p4p.pdf>.
- FitchRatings. 2007. 2007 median ratios for nonprofit hospitals and health care systems. <http://www.fitchratings.com>. August 8.
- Healthcare Financial Management Association. 2006. Financing the future II. Report 6: The outlook for capital access and spending. Westchester, IL: HFMA. August.
- Hospital Corporation of America. 2007. HCA reports third quarter 2007 results. <http://www.hcahealthcare.com>.
- Kinthead, B. 1984. Medicare payment and hospital capital: The evolution of policy. *Health Affairs* 3, no. 3 (May/June): 49–74.
- Maffetone, C. 2007. Hospital construction permits: 1967–2007. McGraw-Hill Construction data extraction for MedPAC.
- McCarthy, M. 2004. Healthy design. *The Lancet*. 364 (July 31): 405–406.
- Medicare Payment Advisory Commission. 2007a. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC. March.
- Medicare Payment Advisory Commission: 2007b. *Report to the Congress: Promoting greater efficiency in Medicare*. Washington, DC: MedPAC. June.
- Medicare Payment Advisory Commission. 2005. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.
- Moody’s Investor Service. 2007a. *Not-for-profit hospital medians for fiscal year 2006: Financial measures remain strong, although the tide appears to be turning*. New York: Moody’s. August.
- Moody’s Investor Service. 2007b. *Moody’s not-for-profit healthcare 2007 quarterly ratings monitor: Third quarter downgrades outpace upgrades 1.2 to 1*. New York: Moody’s. October.
- Moody’s Investor Service. 2005. *Clinical information technology spending for not-for-profit hospitals: Benefits, challenges and impact on bond ratings*. New York: Moody’s. May.
- Morgan Stanley Research North America. 2006. *Health care facilities initiation of coverage: Not yet time to jump*. New York: Morgan Stanley. October.
- Nallamotheu, B. K., M. A. Rogers, M. E. Chernew, et al. 2007. Opening of specialty cardiac hospitals and use of coronary revascularization in Medicare beneficiaries. *Journal of the American Medical Association* 297: 962–968.
- Office of the Actuary, Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2007. Data from the Office of the Actuary in support of Medicare Trustees Report for 2007.

Reinhardt, U., P. Hussey, and G. Anderson. 2004. International issue: Global views on costs, access, and quality. *Health Affairs* 23, no. 3 (May/June): 10–25.

Standard & Poor's. 2007a. *U.S. not-for-profit health care system 2007 median ratios point to less robust growth ahead*. New York: S&P. August 3.

Standard & Poor's. 2007b. *U.S. not-for-profit health care 2007 stand-alone median ratios show stability but slowed growth*. New York: S&P. August 3.

Standard & Poor's. 2007c. *Stock report: Community Health Systems Inc*. New York: S&P. October.

Standard & Poor's. 2007d. *Stock report: Health Management Associates Inc*. New York: S&P. October.

Thomson Financial. 2007. Private communication. Hospital municipal new issues. Data as of July 2007. New York: Thomson Financial. July.

Wall Street Journal. 2007. *Credit pressure filters down to muni market: Bond insurer's exposure to troubled mortgages ripples through system*. <http://online.wsj.com/article/SB119513955507594253.html>.