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Relationships among Medicare inpatient, overall Medicare and total margins for hospitals

The purpose of this memo is to describe various types of hospital margins, discuss the variation in hospitals' Medicare margins, and explore the relationships among Medicare inpatient, overall Medicare, and total margins for hospitals. MedPAC uses hospitals' Medicare margins, among other factors, to help assess whether Medicare's payments to hospitals are adequate to ensure beneficiaries' access to high quality care.

- Medicare margins reflect the difference between hospitals' Medicare payments and costs for services provided to Medicare beneficiaries, expressed as a percentage of payments.
- Medicare inpatient margins include payments and costs for services covered by the inpatient prospective payment system (PPS).
- Overall Medicare margins incorporate payments and costs for most services hospitals furnish to Medicare beneficiaries, including inpatient, outpatient, skilled nursing, home health, psychiatric, and rehabilitative services, as well as graduate medical education and bad debt.
- Total margins include hospitals' total revenues and costs for all activities from all sources (Medicare, Medicaid, other government, and private payers).

Hospitals' Medicare inpatient margins (10.8 percent, on average, in 2000) are highly correlated with their overall Medicare margins (5.0 percent in 2000). Overall Medicare margins, however, are largely unrelated to hospitals' total (all-payer) margins (3.4 percent in 2000).

Variation in financial margins may have different implications for Medicare beneficiaries than for hospitals. The share of beneficiaries treated in hospitals with positive Medicare margins is greater than the share of hospitals with positive margins. For example, just over half of all hospitals had positive overall Medicare margins in 1999, but they accounted for 63 percent of Medicare discharges. Similarly, 69 percent of hospitals had positive Medicare inpatient margins in 1999, but they accounted for 78 percent of Medicare cases. This pattern occurs because hospitals with positive margins are more likely to be larger facilities that serve many patients.

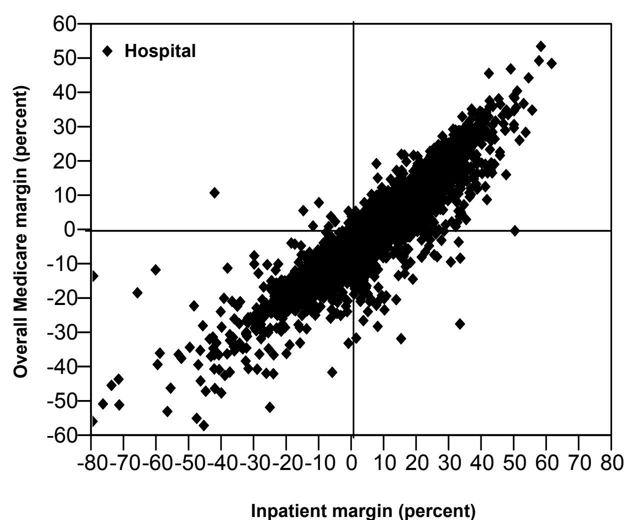
A recent MedPAC study using 1999 data found that Medicare inpatient margins vary widely at the hospital level. For example, the lowest 10 percent of hospitals had Medicare inpatient margins below −13 percent and the highest 10 percent had margins above +28 percent. We estimated that one-fourth of the variation in hospitals' Medicare inpatient margins is associated with factors included in the hospital inpatient PPS. Most of this explained variation is attributable to three policy adjustments: payments for indirect medical education costs, payments for treating a disproportionate share of low-income patients, and additional payments for certain rural hospitals.[1] An additional 20 percent of the variance is explained by hospital operating characteristics at least partially under management control, such as occupancy rates and

[1] A small portion of the explained variation is related to factors such as the case-mix and wage-index adjustments, which are designed to capture the influence of factors beyond hospitals' control.

length of stay (relative to expected length of stay based on national averages per diagnosis related group). Much of the impact of management effectiveness is probably unmeasured, however, and likely accounts for a substantial portion of the variation that remains unexplained. A fuller description of these findings is available in Chapter 3 of MedPAC's June 2003 Report to the Congress (http://www.medpac.gov/publications/congressional_reports/June03_Ch3.pdf).

Figure 1 illustrates the strong correlation between inpatient and overall Medicare margins (R^2 = 0.82). Each data point on the figure represents an individual hospital.

Figure 1: Relationship between hospitals' Medicare inpatient and overall Medicare margins, 1999

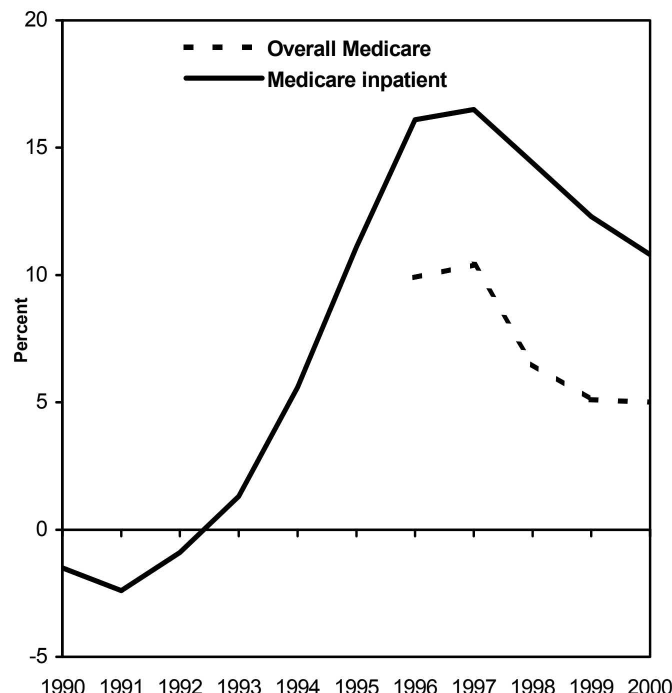


Note: A margin is calculated as revenue minus costs, divided by revenue. The Medicare inpatient margin includes services covered by the inpatient prospective payment system (PPS). Overall Medicare margins cover the costs and payments of hospital inpatient, outpatient, psychiatric and rehabilitation (PPS-exempt), skilled nursing facility, and home health services, as well as graduate medical education and bad debts.

Source: MedPAC analysis of Medicare cost report data from CMS.

Hospitals with positive inpatient margins were highly likely to have had positive overall Medicare margins in 1999 and vice-versa. This relationship is not surprising because inpatient payments make up about three-quarters of total Medicare payments to PPS hospitals. Over time, national average Medicare inpatient margins and overall Medicare margins have followed similar trends (Figure 2).

Figure 2: Trend in Medicare inpatient and overall Medicare margin, 1990- 2000

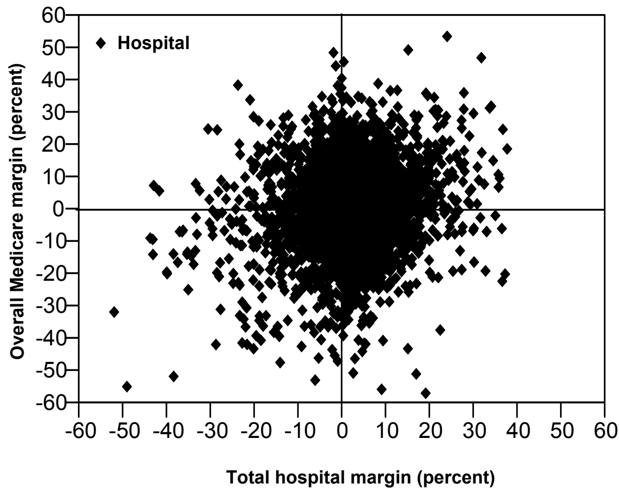


Note: Overall Medicare margin covers the costs and payments of hospital inpatient, outpatient, psychiatric and rehabilitation (prospective payment system-exempt), skilled nursing facility, and home health services, as well as graduate medical education and bad debt. The data required to calculate overall Medicare margins were not available prior to 1996.

Source: MedPAC analysis of Medicare cost report data from CMS.

Figure 3 shows that there is no consistent relationship between hospitals' overall Medicare margins and total (all-payer) margins (R^2 = 0.06). Hospitals in the upper right quadrant of the graph had positive overall Medicare margins and positive total margins in 1999, while hospitals in the lower right quadrant had negative overall Medicare margins but positive total margins. Hospitals with negative Medicare margins and those with positive Medicare margins were almost equally likely to have had positive total margins: 65 percent of hospitals with negative overall Medicare margins had positive total margins, while 69 percent of hospitals with positive Medicare margins had positive total margins.

Figure 3: Relationship between hospitals' overall Medicare and total margins, 1999

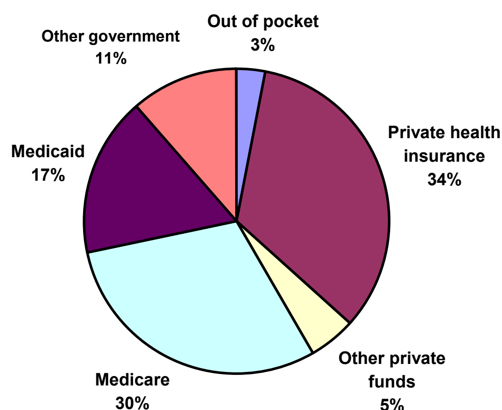


Note: A margin is calculated as revenue minus costs, divided by revenue. Overall Medicare margins cover the costs and payments of hospital inpatient, outpatient, psychiatric and rehabilitation (prospective payment system-exempt), skilled nursing facility, and home health services, as well as graduate medical education and bad debts. Total margins include all patient care services funded by all payers, plus nonpatient revenues.

Source: MedPAC analysis of Medicare cost report data from CMS.

What explains the lack of a consistent relationship between Medicare margins and total (all-payer) margins? Medicare is the largest single purchaser of hospital services, on average accounting for 30 percent of hospital revenues in 2001 (Figure 4).

Figure 4: Distribution of hospital care expenditures, by source of funds, 2001



Source: CMS, Office of the Actuary.

However, the majority of hospital revenues—70 percent—comes from other government payers (such as Medicaid) and private sources (primarily private health insurance). Because these purchasers account for most of hospitals' revenues, they have a more significant impact on total hospital margins than Medicare alone. Thus, hospitals with positive Medicare margins may have negative total margins if payments for non-Medicare patients do not cover their costs. Payments by non-Medicare payers may not cover costs because the payment level is inadequate, the hospital provides a substantial amount of uncompensated care, or because the hospital does not operate efficiently. Conversely, hospitals with negative Medicare margins may achieve positive total margins if payments for non-Medicare patients exceed their costs.

The lack of a consistent relationship between Medicare margins and total (all-payer) margins suggests that changes in Medicare's payment policies may not provide a targeted or reliable tool for addressing total hospital financial performance. For example, increasing payments for hospitals with low Medicare margins would help those hospitals with low total margins but also would help hospitals with high total margins. Further, the increased payments received by a hospital would be proportionate to its Medicare volume; e.g., hospitals with low Medicare volume would not receive much assistance. Finally, additional Medicare payments might induce private payers to reduce their payments, with little net benefit for hospitals.

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