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One of the key factors in the debate over the level and distribution of hospital payments under Medicare’s prospective payment system (PPS) is the PPS operating margin. Although PPS margins do not explicitly correspond to any specific payment policy response, it is generally acknowledged that “adequate” payment is indicated by margins that are neither “too high” nor “too low” and that “fair” payment is indicated by margins that are not “too different” across groups of hospitals.

The PPS margin has been a primary focus of attention because it describes the relationship between PPS payments and Medicare inpatient operating costs. It thus indicates how well PPS payments “cover” the costs to which—by Medicare’s definition—they are intended to apply.

Data published by the American Hospital Association (AHA) and the Healthcare Financial Management Association (HFMA), among others, have also been used to describe the overall financial status of the hospital industry. These data provide some insight into the bottom-line effects of PPS (in combination, of course, with all of the other changes taking place in the hospital industry). However, they are not generally available on a disaggregated basis, limiting their usefulness for analysis.

In the past few years, the broader financial implications of PPS policy have attracted increased interest. The PPS margin is still the best indicator of the level and distribution of PPS payments compared with the corresponding costs. However, there is a growing sense that, to maintain Medicare beneficiaries’ access to high-quality hospital care, the overall financial status of hospitals must be considered.

Toward this end, the Prospective Payment Assessment Commission (ProPAC) has focused its efforts on the editing and evaluation of data from the hospital financial statement in the Medicare cost report. This provides an ongoing, readily available source of data for the analysis of...
overall hospital margins by hospital group during the PPS period.

In this DataWatch, we present data from the Medicare cost reports on PPS and overall margins. Available data consist of essentially complete files from the first four PPS years and a partially complete file of cost reports from the fifth year. The fifth-year data are adjusted to indicate our best estimate of what the results will be when the file is complete. We then compare PPS and overall margins for all hospitals and for selected hospital groups and discuss policy implications.

The PPS Operating Margin

The PPS operating margin may be described as the percentage of PPS payments remaining after PPS operating costs are accounted for. PPS payments include basic payments for discharges in each diagnosis-related group (DRG), outlier payments, indirect medical education payments, disproportionate share payments, and additional payments for end-stage renal disease (ESRD) patients to hospitals that treat many such patients. PPS operating costs include expenses recognized by Medicare for which payment is to be provided under PPS. Capital, direct medical education, and organ acquisition payments and expenses are not included.

Because the determination of PPS operating costs is based on Medicare rules and accounting practices, it is not clear how they are related to the actual costs incurred in the treatment of Medicare patients. The PPS margin thus does not necessarily describe the true profitability of Medicare patients under PPS. It does, however, compare the payments received by the hospital under PPS with the operating costs to which those payments are intended to apply, which provides a reasonable measure of the adequacy of PPS payments.

Trends in PPS margins. As is well known by now, the aggregate PPS margin for all hospitals was very high (14.5 percent) in the early years of PPS and has been decreasing since then (Exhibit 1). With the PPS margin for all hospitals falling toward zero, the distribution of PPS margins across hospital groups becomes increasingly important.

In the first PPS year, there was a 7.4 percentage point differential between PPS margins for urban and rural hospitals, but rural hospitals still had an aggregate PPS margin of 8.4 percent (Exhibit 1). In the fifth year, the estimated differential between urban and rural PPS margins had narrowed somewhat to six percentage points, but rural hospitals had an estimated aggregate PPS margin of –3.3 percent, which indicates that PPS payments did not cover PPS operating costs for the group as a whole.

In Exhibit 2, we disaggregated by subgroups of urban hospitals to show that hospitals in urban areas with populations of at least one million have
about the same pattern of aggregate PPS margins over time as those in other urban areas. In the fourth and fifth PPS years, the other urban group began to have a slightly higher aggregate PPS margin, but these data mostly predate the policy of larger updates to the PPS payment rates for large urban areas that Congress implemented during fiscal year 1988.
Rural referral centers, which are paid based on the urban rather than the rural standardized payment amount, appear to benefit from their special status under PPS. Although their estimated aggregate PPS margin for the fifth year was below zero (–0.2 percent), it was 4.8 percentage points higher than for other rural hospitals, not including sole community hospitals (Exhibit 2). Sole community hospitals, whose payments are based heavily on their own historical costs, have slightly higher aggregate PPS margins than the other rural group, with an estimated differential of 0.7 percentage points in the fifth year.

PPS payments to teaching hospitals are adjusted based on the ratio of interns and residents per bed in each hospital. This adjustment has led to consistently higher PPS margins for teaching hospitals (Exhibit 3). In the fifth year, major teaching hospitals had an estimated aggregate PPS margin of 11.3 percent–8.2 percentage points higher than other teaching hospitals and 13.3 percentage points higher than nonteaching hospitals.

The Overall Hospital Margin

The major difference between the overall hospital margin and the PPS margin is that the overall margin includes all of the revenues and expenses of the entire facility, whether or not they have anything to do with inpatient care—or even patient care at all. The accuracy of the cost

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### Exhibit 3
Aggregate PPS Margins, First Five Years Of PPS, By Teaching Group

<table>
<thead>
<tr>
<th>PPS Margin (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
</tr>
<tr>
<td>15</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>-5</td>
</tr>
</tbody>
</table>

**Major teaching**

**Other teaching**

**Nonteaching**

<table>
<thead>
<tr>
<th>PPS Year</th>
<th>PPS1</th>
<th>PPS2</th>
<th>PPS3</th>
<th>PPS4</th>
<th>PPS5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Medicare Hospital Cost Report Information System.

*Preliminary estimate.
report data on total margins was, until recently, considered dubious. Because of the increasing interest in these data, ProPAC has worked with AHA’s Hospital Data Center to investigate the relationship between the hospital revenue and expense information reported in AHA’s Annual Survey of Hospitals and in the Medicare cost report. This investigation indicates that, with the appropriate editing procedures, the overall margins obtained from the cost report data are compatible with those obtained from the AHA annual survey data.

Interpreting the data on overall margins is especially difficult because they depend to a great extent on the financial structure of the hospital and the relationship between the hospital and any other accounting entities with which it may be related. For instance, hospitals that are parts of chains may differ in how they report their own revenues and expenses. There are many other questions about the accounting and analytic meaning of these margins.

As we continue to use these data, we undoubtedly will learn more about their reliability and usefulness. For now, however, we believe that they are sufficiently accurate to allow us to conduct analyses of the overall financial status of hospitals that previously have not been possible.

**Trends in overall margins.** As is the case with the PPS margin, the aggregate overall margin for all hospitals has been declining from its very high values in the early years of PPS (Exhibit 4). From a high of 7.4 percent in the first PPS year, the overall margin has fallen to an estimated 3.5 percent in the fifth year.

Comparing the overall margins of urban and rural hospitals indicates
that the gap between the two groups has been narrowing over time (Exhibit 4). In the first PPS year, the differential between the urban and rural aggregate overall margins was 2.7 percentage points. By the fifth year, rural hospitals had an estimated aggregate overall margin that was 0.1 percentage points higher than urban hospitals.

The differential between overall margins for hospitals in large urban areas and those in other urban areas has been widening over time (Exhibit 5), with the other urban group having the higher aggregate overall margin. In the first PPS year, the aggregate overall margin for the other urban group was 0.6 percentage points higher than for the large urban group. By the fifth year, the estimated differential had widened to 2.4 percentage points.

Among rural hospitals, rural referral centers have the highest aggregate overall margins (Exhibit 5). The differential between rural referral centers and the other rural group ranged from 2.3 percentage points in the first PPS year to an estimated 4.8 percentage points in the fifth year. Sole community hospitals, which in the first year had a slightly higher aggregate overall margin than the other rural group, appear to have lost that advantage by the fourth year.

Major teaching hospitals have consistently had a lower aggregate overall margin than other teaching and nonteaching hospitals (Exhibit 6). In the first PPS year, the differential between the major teaching and nonteaching groups was 2.9 percentage points. This difference narrowed

Exhibit 5
Aggregate Overall Margins, First Five Years of PPS, By Type of Urban and Rural Hospital

<table>
<thead>
<tr>
<th>Overall margin (percent)</th>
<th>Large urban</th>
<th>Rural referral</th>
<th>Other urban</th>
<th>Sole community</th>
<th>Other rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>-</td>
<td>-</td>
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<td>2</td>
<td>-</td>
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<td>0</td>
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</tbody>
</table>

Source: Medicare Hospital Cost Report Information System.

*Preliminary estimate.
somewhat in the second through fourth years, but the estimated differential in the fifth year was 4.8 percentage points. Other teaching hospitals, on the other hand, have consistently had a slightly higher aggregate overall margin than the nonteaching group.

Comparing PPS And Overall Margins

As shown above, both the aggregate PPS margin and the aggregate overall margin for all hospitals have declined in every PPS year from a first-year high. The PPS margin, however, was much higher in the first year and has declined much more steeply, finally falling below the overall margin in the fifth year. This indicates that other sources of revenue have been more stable than Medicare over this period. It must be remembered, though, that the transition to national rates took more than four years to complete. Further, the relatively low recent annual updates in the PPS payment rates have reflected, in part, the response of policymakers to the initially very high PPS margins. In a sense, then, the true effects of PPS payment policy are just beginning to become evident.

For both PPS and overall margins, the trends over time differ widely across hospital groups. For urban hospitals, the estimated fifth-year aggregate PPS margin was similar to the overall margin (Exhibit 7). For rural hospitals, the estimated aggregate PPS margin was substantially below zero in the fifth year, while the overall margin was substantially above
zero and actually slightly higher than the overall margin for urban hospitals.

For major teaching hospitals, there is a dramatic difference between PPS and overall margins (Exhibit 7). While their aggregate PPS margin in the fifth year was an estimated 11.3 percent-higher by far than for the other teaching and nonteaching groups-their overall margin was estimated to have fallen below zero by the fifth year-lower by far than the other groups.

**Implications**

Although the data on overall hospital margins provide additional perspectives on hospitals’ financial performance under PPS, the evidence in some ways becomes more difficult to interpret. If unfairly low PPS payments to rural hospitals are threatening to force them to close, then how does one explain the higher aggregate overall margins for rural hospitals? If major teaching hospitals are overpaid under PPS relative to other hospitals, then what does the fact that they have the lowest aggre-
gate overall margin of any group, falling below zero in the fifth year, mean for hospital payment policy decisions?

The data presented here and the questions that they raise point out once again that the key to good health policy rarely involves the simple answer to a simple question. Medicare has a responsibility to pay hospitals adequately and fairly for the services that they provide to Medicare beneficiaries. Otherwise, PPS will fail to encourage the efficient provision of appropriate services, and the availability of care may also be adversely affected.

On the other hand, while Medicare is a major payer for hospital services, it is not the only—and frequently not the dominant—source of hospital payment. Understanding the interaction between Medicare and other sources of payment and their relationship to the cost of care is critical to the development of hospital payment policy, because these are forces that affect both the availability and quality of hospital care not only to Medicare beneficiaries but to all Americans.

It is important to strike an appropriate balance between the internal objectives of prospective payment and the broader implications of prospective payment decisions for the hospital industry and for the patients that it treats. The availability and continued analysis of data on PPS and overall margins will, we hope, make it possible to frame and evaluate policy that is sensitive to both of these considerations.

NOTES

1. The American Hospital Association (AHA) produces data on hospitals’ total and net patient margins, as published in their quarterly Economic Trends. These data are obtained from their monthly National Hospital Panel Survey. The AHA also obtains similar types of data from their Annual Survey of Hospitals. The Healthcare Financial Management Association (HFMA) collects and analyzes financial data from hospitals that subscribe to their Financial Analysis Service. Data from these analyses are published regularly in their Hospital Industry Financial Report.

2. This sense is reflected in the Prospective Payment Assessment Commission’s (ProPAC’s) recent discussions, particularly on the indirect medical education adjustment. For example, see ProPAC, Report and Recommendations to the Secretary, U.S. Department of Health and Human Services (Washington, D.C.: ProPAC, 1 March 1989), 40.

3. Estimated fifth-year PPS margins are derived by computing ratios comparing PPS payments and costs for all hospitals in the fourth year with those for a cohort of hospitals that have cost reports on file for both the fourth and fifth years. Fifth-year PPS payments and costs for that cohort of hospitals are then adjusted by those ratios, and the estimated PPS margins are computed. Estimated fifth-year overall margins are derived using an analogous procedure. These estimated fifth-year margins must be viewed as preliminary and subject to change as the data file becomes more complete.

4. For the time periods during which it has been in effect, the Gramm-Rudman-Hollings sequestration is taken into account, reducing the payments that hospitals receive under PPS.
5. Hospitals that treat a high percentage of end-stage renal disease (ESRD) patients are paid an amount in addition to the basic diagnosis-related group (DRG) payment for each ESRD patient in a given DRG. This additional payment is to cover the cost of dialysis for ESRD patients while they are in the hospital for treatment that is not directly related to ESRD.

6. The aggregate PPS margin for a group of hospitals is defined as total PPS payments for the group minus total PPS operating costs for the group, divided by total PPS payment for the group.

7. In the Omnibus Budget Reconciliation Act (OBRA) of 1987, Congress provided that the PPS standardized payment amounts for hospitals in large urban areas be increased by 0.5 percentage points more than for hospitals in other urban areas. This provision, which differentiated between hospitals in large and other urban areas for the first time under PPS, took effect 1 April 1988. For fiscal years 1989 and 1990, the standardized payment amounts for hospitals in large urban areas were also increased more than for hospitals in other urban areas.

8. Teaching hospitals are defined and categorized here by the ratio of interns and residents per bed used in Medicare payment. Major teaching hospitals are those with ratios of 0.25 or greater, while nonteaching hospitals are those with ratios of zero.


10. Extreme values are much more of a problem in computing overall margins than in computing PPS margins, probably because the data used to compute overall margins are not audited. Based on AHA’s preliminary findings, a special editing procedure has been developed by ProPAC to eliminate unreasonably extreme values.

11. Given the large difference between the estimate for rural referral centers in the fifth year and the actual data in the partially complete fifth-year file, this estimate may be particularly subject to substantial revision as the fifth-year file becomes more complete. The estimate may thus overstate the true differential between rural referral centers and the other rural group.

12. The data do show that overall margins are lower for smaller rural hospitals—those most susceptible to closure—than for larger ones; however, overall margins for rural hospitals in a given size group are comparable to those for urban hospitals in the same size group.