Adjusting for Occupational Mix Differences in the Medicare Hospital Wage Index

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The occupational mix adjustment: What is it?

A new computation added to the PPS hospital hourly wage survey

Objective is to obtain *market-level* average hourly wages ($AHW_{mkt}$) that reflect differences across markets in the *price* of labor, but not in the *mix of skills* hired.
When and for whom is it effective?

- Alters the wage index in federal fiscal year 2005
- Affects all Medicare prospective rates that use the wage index to adjust standard rates per service, including:
  - inpatient hospital
  - outpatient hospital
  - inpatient rehab
  - skilled nursing facilities
  - home health agencies
Why is it needed?

Some markets (especially state-wide rural markets) have below-average hourly wages both because the price of labor is below national average and because hospitals in these markets tend to use a less skilled labor mix.

- In theory, differences in skill mix should reflect differences in service mix, which in turn reflect differences in case-mix acuity. DRG weights already adjust payments for acuity; therefore, any differences in labor costs caused by skill mix differences should be removed from the wage index.
Why now?

- BIPA (2000) mandated data collection by job category to make an occupational mix adjustment possible
  - Congress was responding to pressure from rural advocacy groups. Rural hospitals are smaller and tend to hire a less expensive skill mix, and conventional wisdom has been that standardizing for occupation mix would increase relative wages in rural markets.

- Before BIPA, CMS had delayed implementation due to concerns about data quality, cost and validity
How does it work?

The adjustment is first computed for each hospital within a market, to standardize the hospital’s average hourly wage to reflect what it would be if that hospital hired the same mix of occupations as the national average.

Adjusted wages from each hospital are then used to compute a new market-level average hourly wage ($\text{AHW}_{\text{mkt}}$), from which the wage index is computed.

So, there is no individual hospital effect – only a market effect.
Mechanics:

- Occupational mix adjustment applies only to specific types of clinical staff
  - Nationally, covered occupations account for 48% of all hospital paid hours (most are in nursing)

For each occupation group:
  - Occupational mix adjustment derives from the difference between a hospital’s proportion of paid hours by job category, and the national average proportion of paid hours by job category
  - National hospital data come from the Bureau of Labor Statistics (BLS)
### Covered Occupation Categories:

<table>
<thead>
<tr>
<th>Classification</th>
<th>BLS national percent paid hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing</td>
<td>37.27 %</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>1.36 %</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>0.46 %</td>
</tr>
<tr>
<td>Respiratory Therapy</td>
<td>1.94 %</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>2.11 %</td>
</tr>
<tr>
<td>Dietary</td>
<td>0.84 %</td>
</tr>
<tr>
<td>Medical &amp; Clinical Lab</td>
<td>4.10 %</td>
</tr>
<tr>
<td><strong>Total, all adjusted categories</strong></td>
<td><strong>48.08 %</strong></td>
</tr>
</tbody>
</table>
Mechanics (continued):

- **Adjustment factor is dollar-weighted**
  - This means that differences in high-wage groups count more towards the final adjustment to the wage index than differences in low-wage groups
  - Dollar-weighting is accomplished using BLS national hourly wage by category – NOT the hospitals’ own hourly wages for that particular group
Mechanics (continued):

Adjustment to the wage index is *market based*. Therefore…

- The effect on the wage index depends on the weighted average of all of the occupation mix adjustments for hospitals in each market. Large hospitals have more influence than small ones.

Example:

- A small MSA that has one very large, sophisticated hospital with a negative adjustment factor, plus five small hospitals with positive adjustment factors, might still have a negative adjustment to its wage index.
Data Sources:

- Hospital data on paid hours by occupation category will be collected every three years (mandated)
  - Hospitals can choose to use either:
    - Payroll and contract hours from the same year as the cost report wage survey, or
    - A special 4-week data collection, that must be conducted during the first two months of the year

- National data for standard occupation mix and pay rates come from BLS surveys
Hospital-level computation

Adjustment factor

is the ratio of the following two sums computed across all covered job categories:

\[ \frac{\sum (\text{National Hrly Mix} \times \text{National Hrly Wage})}{\sum (\text{Hospital Hrly Mix} \times \text{National Hrly Wage})} \]

If a hospital has below-average skill mix, then

\[ \Rightarrow \text{numerator} > \text{denominator} \]

\[ \Rightarrow \text{occupational mix adjustment factor} > 1.00 \]

\[ \Rightarrow \text{adjusted hourly wage} > \text{actual hourly wage} \]
Hospital-level computation (continued)

- Wages for covered occupation groups are multiplied by the computed adjustment factors.
- Wages for non-covered groups are left alone.
- New hourly wage is computed by dividing the adjusted plus unadjusted wages by total paid hours.
- Hospital’s new occupational-mix adjusted hourly wage is used to compute the market’s new occupational-mix adjusted \( AHW_{mkt} \) – there is no individual hospital effect.
Easiest way to think of the occupation-adjusted hourly wage:

For each hospital —

\[
\text{Occupation-adjusted wages} = \frac{\text{Adjusted hourly wage}}{\text{Total paid hours}}
\]

\[
\text{Adjusted hourly wage} = \frac{\text{Occupation-adjusted wages}}{\text{Total paid hours}}
\]

Adjustment Factors × Covered group portions (48% of wages) + 1.00 × Non-covered group portion (52% of wages) =

= Occupation-adjusted wages

= Total paid hours

= Adjusted hourly wage
Market-level computation:

New $AHW_{mkt}$ is computed by summing across all hospitals within the labor market:

$$\sum (\text{adjusted wages})$$
$$\sum (\text{actual paid hours})$$

So the occupation-adjusted wage index value for a given market will be higher ONLY if weighted average adjustment that includes ALL of the hospitals in the labor market is greater than one.
How big are the adjustments?

- Hospitals’ adjustment factors can be substantial
  - range across hospitals for all covered groups: 0.93 to 1.29
- Because the factor only applies to the covered groups, adjustment to hospitals’ overall hourly wage is less
  - estimated range across hospitals: 0.96 to 1.14
- When averaged within markets, the effect is even smaller
  - estimated range across markets: 0.98 to 1.09
“Transition” period for implementation

CMS chose to minimize initial impact by implementing only 10% of the adjustment in FY 2005.

Although this is called a “transition”, CMS did not publish a schedule indicating when or if the adjustments would increase from 10% to 100%.
Distribution of adjustment factors and hourly wage effects across hospitals and labor markets

- Hospital adjustment factors
- Hospital hourly wage effect
- Market-level AHW effect
- Market AHW effect @ 10%

Shaded boxes identify 25th to 75th percentiles of the distributions.
10%-transition market wage effects by type of labor market: urban (metropolitan) vs. rural (state non-metropolitan)

Shaded boxes identify 25th to 75th percentiles of the distributions.
What is the impact on payments?

- Very small, for now
- Difficult to identify, because the adjustment was implemented simultaneously with several other wage index changes:
  - New metropolitan areas
  - New “labor-related share” of hospital payments
  - New market reclassification rules
- Wage index affects only a portion of each PPS rate
  - The “labor-related share” ranges from 62% to 76% of various PPS rates
From CMS’ initial predictions of the impact of the adjustment on rural-urban distribution of payments:

Market-level effect on the wage index is not what was expected

- Rural markets
  - 31 (63%) have an INCREASE in wage index
  - 18 (37%) have a DECREASE in wage index

- Urban markets:
  - 158 (49%) have an INCREASE in wage index
  - 166 (51%) have a DECREASE in wage index
What happened?

- Hospital data may be inaccurate
- The rural differentials in occupation mix for covered categories may be smaller than expected (especially in nursing, which dominates the calculation)
- Critical access hospitals are no longer included in PPS sample
  - This eliminated the rural facilities that are most likely to have the lowest skill mix, and therefore the highest occupation mix adjustment factors