Findings Brief: *January 4, 2001*

RURAL HOSPITAL WAGES AND THE AREA WAGE INDEX: 1990-1997

Kathleen Dalton, Ph.D., Rebecca T. Slifkin, Ph.D., Hilda A. Howard, B.S.

North Carolina Rural Health Research and Policy Analysis Program
Cecil G. Sheps Center for Health Services Research, UNC-Chapel Hill

The hospital wage index is used by the Health Care Financing Administration (HCFA) to adjust rates for hospital and other services under its Prospective Payment System (PPS). There is concern among rural health care providers and policy analysts, however, that the index does not accurately reflect rural labor markets. This Findings Brief examines whether incremental changes to the index made by HCFA over the last ten years have improved equity of the index as a regional cost adjuster, and investigates potential bias created by the broad rural labor market definitions. Hospitals located in rural areas with larger urbanized populations still appear to be at a modest disadvantage by being grouped within a single state-level rural market. However, hospitals in very rural communities receive the benefit from being averaged in with higher-wage hospitals. If the index were to be recomputed using more precisely defined rural labor markets, Medicare payments to the smallest and most vulnerable rural facilities would be reduced.

BACKGROUND

The hospital wage index is used by HCFA to adjust rates for hospital and other services under PPS. Index values for urban markets ranged from 0.73 to 1.51, while those for rural markets ranged from 0.71 to 1.30. Wage index values applied to rural hospitals have always been below those in urban markets — in FY 2000 they averaged 18% lower. Because the index has such a powerful effect on the distribution of Medicare payments, it came under close scrutiny when inpatient PPS was first introduced in 1984. There is renewed interest in assessing its validity now that PPS has been expanded into non-hospital areas.

DATA

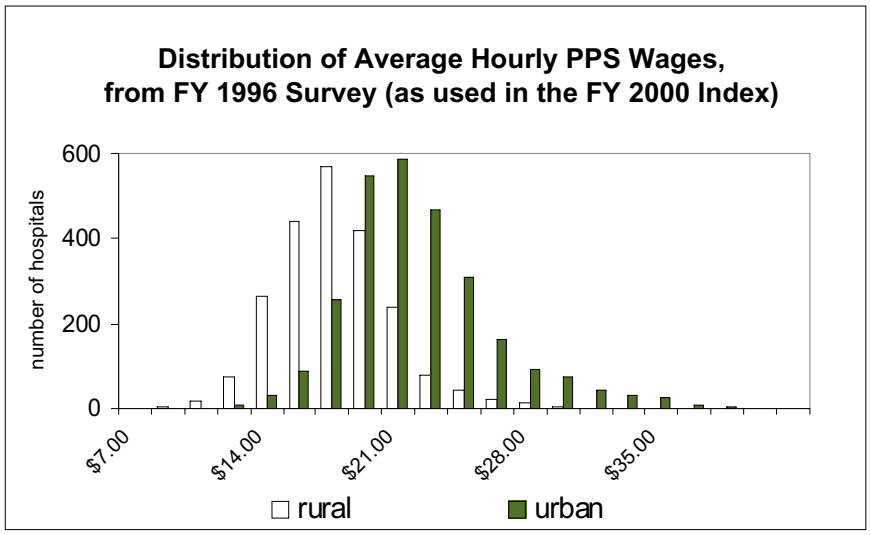
Hospital payment and cost data from Medicare's Hospital Cost Report Information System for each year from 1990 to 1997 were merged with HCFA's standardized hourly wage files. Urban and rural areas were defined, like HFCA, using the Office of Management and Budget's identification of counties within or not within metropolitan statistical areas (MSAs), and also using the rural-urban continuum codes (RUCC), as identified in 1993 by the U.S. Department of Agriculture. The RUCC groups identify rural counties both by the size of the "urbanized" population and by adjacency to a metropolitan area.

FINDINGS

Urban-Rural Differentials in Actual Wages Paid: In FY 1996 the average reported PPS hourly wage[1] was $23.29 for hospitals located in central counties of large (population>1 million) metropolitan areas, and $16.97 for those located in very rural counties (with fewer than 2,500 residents living in an urbanized setting). This

[1] "PPS hourly wage" is used here to identify the standardized hourly wage computed by HCFA for use in constructing the index. Over the years this statistic has been adjusted to include benefits and some types of contract labor, and to exclude wages and hours of employees in non-PPS settings.

Figure 1:

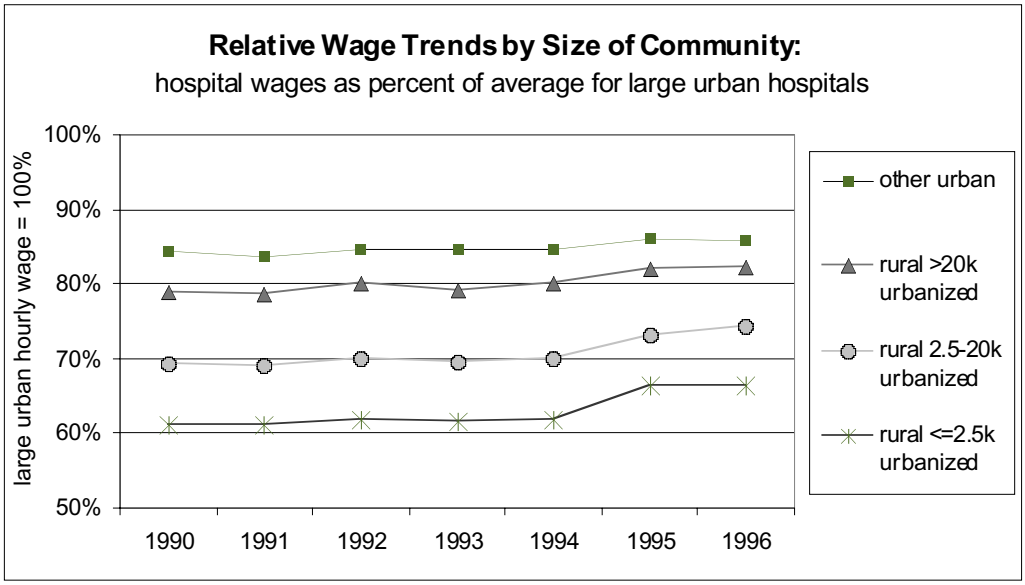


Source: Author's calculations from HCFA standardized hourly wage data

represents a gap of 27% between the most and the least urbanized settings. On average, hospitals located in non-MSA settings reported hourly PPS wages that were 21% lower than those reported by hospitals located in urban settings (Figure 1). Some of this difference can be attributed to the fact that rural hospitals tend to be smaller, and smaller hospitals require a less expensive mix of nurses and technicians, regardless of local wage levels. However, even when compared within similar-sized institutions, urban-rural wage differentials are still substantial. For example, in the FY 1996 data, the average reported hourly PPS wage in rural hospitals with greater than 300 beds was $18.71, compared to $22.00 for similar-sized urban hospital. In hospitals with fewer than 25 beds, the wages averaged $15.99 in rural areas and $19.56 in urban — a gap of 18%.

The gap between average urban and rural wages began to narrow around 1994. When hourly wage data are averaged across hospitals grouped by their county community size (Figure 2), it is evident that relative wages in the more rural areas have risen steadily relative to wages in hospitals within large urban areas. Some of the reduction in the wage gap may be due to reporting changes in HCFA's wage survey, but most appears to reflect a real increase in wages paid in rural areas.

Figure 2:



Source: Author's calculations from HCFA standardized hourly wage data

Calculation of the Wage Index: To calculate the wage index, all hospitals are grouped into labor markets. Urban hospitals are assigned by MSA/SMSA and rural hospitals are grouped together into one rural market per state. A weighted average hourly wage (AHW) is computed for each labor market, and for the nation as a whole. The index value for each labor market is defined as the ratio of the AHW for that market, to the average hourly wage for the nation, calculated as follows:

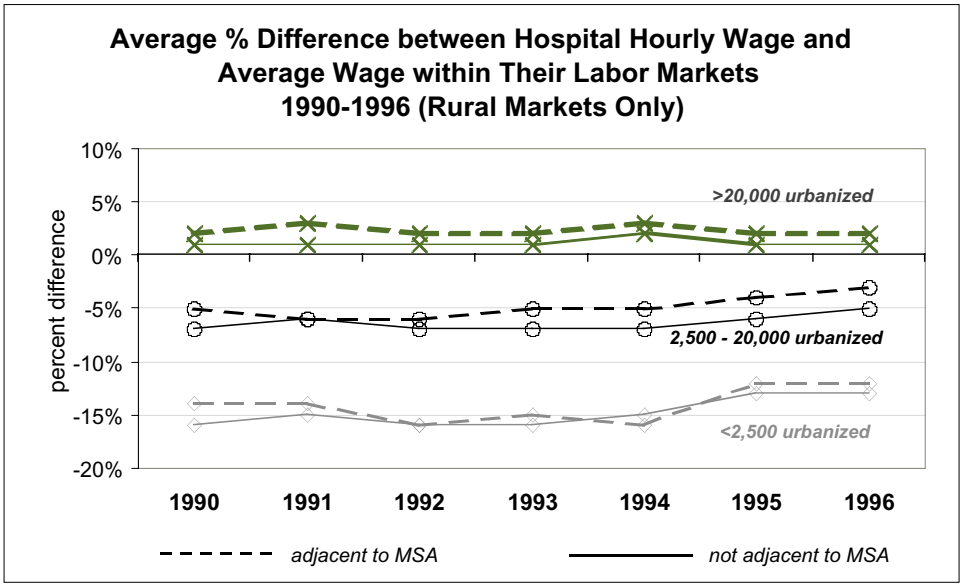
$$\frac{\text{Sum of all wages paid in that market / Sum of all hours worked in that market}}{\text{Sum of all wages paid nationally / Sum of all hours worked nationally}}$$

Some hospitals are allowed to be reassigned from their original labor market to a neighboring one, if they can show that their wage structure is more closely aligned with a market other than their own. Since 1992, the Medicare Geographic Classification Review Board (MGCRB) has reviewed requests for reassignment on a case-by-case basis. In FY 2000, about 17% of all rural hospitals were reassigned to neighboring urban markets. When these (relatively) higher-wage hospitals are reassigned out of their rural markets, the AHW for that rural market is still computed using the data from all of the original hospitals. This protects the remaining rural hospitals from being penalized by MGCRB decisions.

The Effect of a Single, Statewide Rural Market: The more precisely the market areas for an index are defined, the less variation one would expect to see in average wages across hospitals in the same market. Figure 3 summarizes the average deviation of rural hospitals' hourly wages from the average hourly wage (AHW) of the labor markets in which they are actually located. Predominately negative values result from the fact that the AHW is a weighted average, and within each market there are often a few large facilities that have significantly higher wages that bring up the average for the market. The majority of hospitals within most markets, however, are smaller, with hourly wages that are below their market's AHW. A negative deviation means that the hospital's own hourly wage is below the average within its assigned labor market, and that its adjusted prospective payment per case would be relatively favorable. Other cost factors such as capital or other non-labor costs, as well as length of stay or other treatment-related considerations could still create a situation where the wage and case-mix adjusted payment per case was insufficient for the hospital to recover costs. The wage index in such a case, however, would not be the cause of the payment shortfall.

In Figure 3 there is evidence of three distinct rural sub-markets that appear to be defined by size of "urbanized" population, though not by adjacency to a metropolitan area. The presence of sub-markets indicates that the statewide rural labor markets are biased. The group that is likely to be put at a disadvantage from this bias is the set of hospitals located in counties with urbanized populations in excess of 20,000. However, reclassification to a neighboring labor market has been approved for 25%-30% of hospitals in this category. Figure 4 plots the same average deviation both before and after taking the reclassification decisions of the

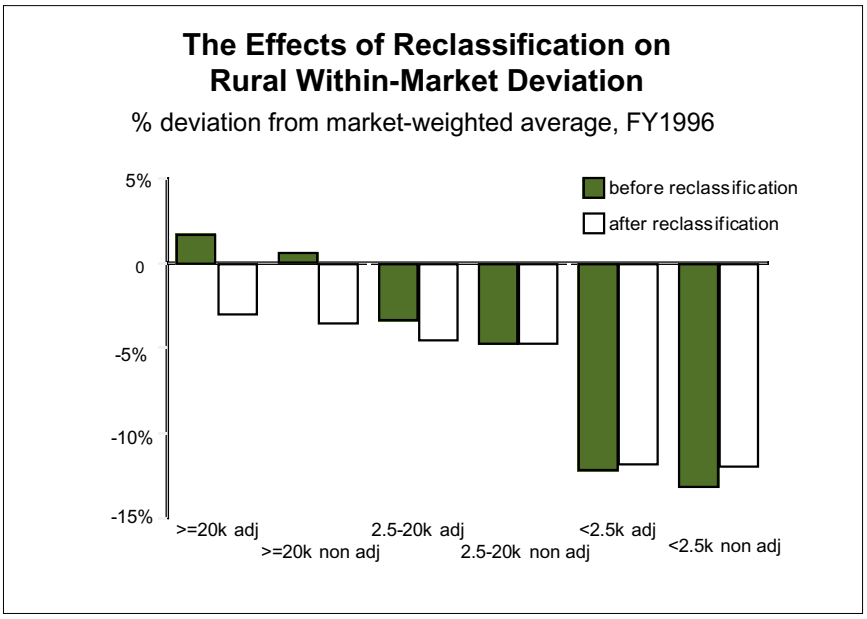
Figure 3:



Source: Author's calculations from HCFA standardized hourly wage data and Historical Wage index File

MGCRB into account, for FY 1996 alone.[2] The rural bias is greatly reduced, but certainly not eliminated. There is continued evidence of two distinct rural sub-markets, but hospitals in the larger rural communities no longer appear to be at a disadvantage.

Figure 4:



Source: author's calculations from HCFA standardized hourly wage data and Historical Wage index File

The rural market bias that remains after accounting for reclassification works in favor of hospitals in the smallest communities. The PPS hourly wages of these hospitals average 13% below the weighted averages of their assigned labor markets in FY 1996. The wage index that they were assigned in FY 2000, while below the national average, was still higher than it would have been in a more precisely defined labor market.

Assessing the Impact of the Wage Index on Rural Hospital Margins: The wage index has a powerful influence on a hospital's Medicare payment per case; hospitals in areas with low wage index values can receive substantially less per DRG-adjusted case than will those in higher wage index areas. But because their costs per case may also be lower, it does not necessarily follow that inpatient Medicare margins (that is, their payments relative to their cost per case) are also lower. On average, PPS payments for hospitals in the most rural areas were greater than their operating costs, and their inpatient PPS margins in FY 1996 were as high or higher than those of hospitals in other rural areas. This may be attributed, at least in part, to the advantage they received by being grouped in the statewide rural markets. These same hospitals tended to be in worse overall financial difficulty than the other rural hospitals. From PPS cost report payment and cost data, however, it does not appear that these overall difficulties were associated with inpatient PPS payment ratios. The rural wage index markets, as now constructed, protect the inpatient Medicare payments for the sub-group of very small, very isolated hospitals; their poor financial condition may be *in spite of*, but does not appear to be *because of*, the PPS hospital wage index. In the years following the Balanced Budget Act of 1997, Medicare PPS ratios have deteriorated and the overall financial condition of these facilities is also likely to have declined. Such trends would not, however, alter these findings with respect to the specific influence of the wage index on these margins.

Supported by the Federal Office of Rural Health Policy, Health Resources and Services Administration, U.S. Department of Health and Human Services Contract Number 5-UIC RH00014-0.

---

[2] Note that if one were to compute a wage index based on simple averages (giving each hospital equal weight within a market) and then construct the same type of graph as appears in Figure 4, the rural bars would be equally divided above and below the 0-line.