April, 2012

Analysis of Price Variations in New Hampshire Hospitals

Introduction

New Hampshire Revised Statutes Annotated (N.H. Rev. Stat. Ann.) § 420-G: 14-a required the New Hampshire Insurance Department (NHID) to hold annual public hearings and evaluate the factors that contribute to rising health care costs. The statute requires the following:

> The commissioner shall identify variations in the price that health carriers pay for health care services and shall undertake further analysis to determine whether the observed price variations correlate to the sickness or the complexity of the population served, the relative proportion of patients on Medicare or Medicaid that are served by the health care provider, the cost to the health care provider of delivering the service, or the relative proportion of free or reduced care provided to the uninsured.[1]

The NHID contracted with the Center for Health Law and Economics at the University of Massachusetts Medical School (UMMS) to complete this analysis.

Analysis and Findings

UMMS used claims data from the New Hampshire Comprehensive Health Care Information System (NHCHIS) for CY2009, the New Hampshire Hospital Discharge Dataset (HDD), calendar year 2009, uninsured charge data from the Medicaid Enhancement Tax (MET) forms, and CMS-2552 cost report data from hospital fiscal year 2009.

Using the source data described above, the UMMS team calculated the average prices paid to the 26 New Hampshire acute hospitals[2] by commercial carriers for both inpatient and outpatient services. These prices were adjusted to account for differences in patient acuity and resource use.

Key Terms

Price: The dollar amount the hospital received from the insurer plus the patient liability. Hospitals and insurers refer to this amount as the "allowed amount."

Charge: The full, undiscounted dollar amount billed by a hospital for a specific service.

Cost: The dollar amount incurred by the hospital for providing patient care services, including salaries, supplies, capital, and other items.

Casemix: A measure of acuity for a given population, with higher values reflecting higher acuity and complexity.

Inpatient Services

- Without adjusting for casemix, average inpatient commercial prices had a percent variance of approximately 300%. After adjusting for casemix, prices varied by 117%.

Outpatient Services

- Prior to adjusting for casemix, outpatient commercial prices varied by 141%; after adjustment, prices varied by 113%.

The UMMS team then completed correlation analysis to assess the relationship between the commercial prices paid and the factors cited in the statute. The UMMS team also examined the relationship to price of additional factors including hospital location, designation as a Critical Access Hospital (CAH), total margin, hospital size, and occupancy rate. The results of these correlation analyses are shown in Figures 1 and 2.

[1] NH RSA § 420-G: 14-a, paragraph V.

[2] Specialty and rehabilitation hospitals were excluded from the analysis.

Figure 1: Results of Inpatient Correlation Analysis

Statistically significant positive correlations found between inpatient hospital price and:
Occupancy rate
Commercial cost per discharge
Medicare percent of inpatient charges
Commercial casemix index
All payer casemix index

No statistically significant correlations between inpatient hospital price and:
Commercial cost per CMAD
Medicaid percent of charges
Number of beds
Total margin
Medicare percent of discharges
Medicare percent of days
Uninsured percent of charges
Medicaid percent of discharges
Medicaid percent of days
Hospital location
Designation as a critical access hospital

Figure 2: Results of Outpatient Correlation Analysis

Statistically significant positive correlations found between outpatient hospital price and:
Commercial cost per casemix adjusted episode
Medicare percent of discharges
Medicare percent of outpatient charges

Statistically significant negative correlations found between outpatient hospital price and:
Medicaid percent of days
Medicaid percent of discharges

No statistically significant correlations were found between outpatient hospital price and:
Commercial cost per episode
Medicare percent of days
Total margin
Medicaid percent of charges
Number of beds
Uninsured percent of charges
Outpatient casemix index
Total episodes

Discussion

The analysis indicated that there are certain factors that are correlated with a hospital's level of commercial prices. A hospital's cost and casemix are the most consistent predictor of a hospital's commercial prices for both inpatient and outpatient services. This suggests that hospitals and payers seriously consider patient acuity and service complexity when negotiating payment rates and corresponding payment models.

For inpatient services, the higher a hospital's occupancy rate, the more likely it is to have higher commercial prices. One reason for this finding may be that hospitals that have higher demand for their beds may command higher prices from insurers. Additional analysis is needed to explore this finding further.

Finally, the analysis indicated some relationship between a hospital's public payer mix and its level of commercial prices. If hospitals shift the cost of underpayments from public payers to private payers, we would expect to see higher commercial prices associated with higher public payer mix. However, the results of the analysis were mixed:

- Hospitals with higher proportions of Medicare charges were more likely to have **higher** commercial prices for both inpatient and outpatient services;
- Hospitals with higher proportions of Medicaid days and Medicaid discharges tended to receive **lower** commercial prices for outpatient services, and no relationship was found between proportion of Medicaid charges and inpatient service commercial prices.
- No significant relationships were found between proportion of uninsured charges and commercial prices for either inpatient or outpatient services.

The findings suggest a complex relationship between public payer mix and commercial prices. Hospitals with a higher public payer mix likely utilize a variety of strategies to compensate for lower public prices, including accepting reduced margins or reducing their costs. Commercial prices are more heavily influenced by the cost of care and the relative acuity of the patients being treated.

Prepared for the New Hampshire Insurance Department
By the Center for Health Law and Economics,
University of Massachusetts Medical School

Authors
Katharine London, M.S.
Michael G. Grenier, M.P.A.
Thomas N. Friedman, M.P.A.
Paul T. Swoboda, M.S.