Maternal Minimum-Stay Legislation: Cost and Policy Implications

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ABSTRACT

Objectives. Recently, most state legislatures and Congress have passed laws mandating insurance coverage for a minimum period of inpatient care following delivery. This study analyzed the likely cost implications of one state's law.

Methods. Hospital discharge records for Illinois women who gave birth (n = 167 769) and infants born (n = 164 905) during a 12-month period predating the law were analyzed.

Results. As a percentage of total spending on birth-related admissions and readmissions, the net effect of the law ranges from a savings of 0.1% to a cost of 20.2%.

Conclusions. There may be large cost implications to this legislation, even with savings from avoided readmissions. (*Am J Public Health.* 1999; 89:922–923)

In the past 4 years, a majority of states and the federal government have passed laws requiring insurers to cover a minimum period of hospitalization for mothers and newborns following delivery. Maryland passed the first maternal length-of-stay legislation in 1995. The governor of Illinois signed minimum-stay legislation (HB 2557) in July 1996. In the fall of 1996, President Clinton signed the Newborns' and Mothers' Health Protection Act, which supplements state laws by covering those receiving care in a state without legislation, insured by a company headquartered in another state, or working for a self-insured employer.[1]

Minimum-stay legislation is, at least in part, a reaction to the trend toward shorter hospital stays. Although this trend began 50 years ago, it has accelerated in recent years.[2] In 1992, the average length of stay for a vaginal delivery in the United States was 2.1 days.[3] There is disagreement about the appropriate length of stay for healthy newborns.[4–6] Similarly, there is a lack of systematic information about the cost-effectiveness of long stays.[7,8] Some analysts attribute the rapid adoption of minimum-stay laws, at least in part, to the absence of compelling data from researchers and the medical community.[9]

To examine the possible cost implications of one such law, we analyzed Illinois hospital discharge data for mothers and newborns. Illinois' maternal minimum-stay legislation is similar to other laws, requiring insurers to provide hospital coverage for at least 48 hours following normal vaginal deliveries and 96 hours following cesarean deliveries.

Methods

The analysis was based on the all-payer Illinois Health Care Cost Containment Council database, which includes all hospital discharges in the state over a 12-month period (April 1995 through March 1996) that predated implementation of the law in 1997. The Illinois data do not allow for linking patients across hospitalizations or for linking mothers with their newborns. As a result, we analyzed 2 distinct types of stay for both mothers and newborns: stay at delivery and readmission.

Only women and infants who were given a routine discharge to home within a week of delivery were included in the analysis, as this group is most likely to be affected by minimum-stay legislation. Women and infants whose bills were combined (1.6% of mothers) were excluded. In addition to descriptive statistics, we calculated the mean marginal cost for each day in hospital, based on a simple hazard rate model. We then calculated the net change in hospital charges under several scenarios.

Results

During the analysis period, 176 348 women delivered children in Illinois hospitals (diagnosis related groups 370–375); 167 769 of these deliveries were routine and were included in the analysis. Similarly, of the 180 701 infants born during this period, 164 905 were included in the analysis.

After an uncomplicated vaginal delivery, nearly 76 000 women (56%) stayed only 1 day in the hospital. The mean stay following an uncomplicated vaginal delivery was 1.54 days, well below the legislated minimum. Nearly 72% of women who had uncomplicated cesarean deliveries were discharged in less than 4 days; for all such women, the mean stay was 3.21 days. Among infants with routine hospital stays of a week or less, the average stay was 1.8 days.

The fixed cost for a vaginal delivery, based on hazard rate estimates, was just over $3000; the fixed cost for a cesarean delivery was over $5650 (Table 1). A second hospital day for a vaginal delivery was associated with nearly $1000 in additional charges, the fourth day after a cesarean delivery with about $1900.

Readmissions for women were relatively rare. Just under 2000 women (1.1%) who gave birth and received a routine discharge were readmitted, at an average cost of $5779 per admission. During the first 2 weeks of life, 3572 (2.1%) of infants with routine discharges were readmitted to the hospital. Jaundice, the most common cause of newborn readmissions, accounted for more than one third of readmissions. Because

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TABLE 1—Estimated Mean Charges ($) for Each Additional Hospital Day After Routine Childbirth: Illinois, April 1995–March 1996

	Care of Mother, Vaginal Delivery	Care of Mother, Cesarean Delivery	Newborn Care
Fixed cost	3087	5650	761
Day 2 after delivery	990		497
Day 3 after delivery	1485	1674	816
Day 4 after delivery	2196	1922	1591
Day 5 after delivery	1608	2121	1904
Day 6 after delivery	1658	2018	1985
Day 7 after delivery	1197	1594	2241

Note. All estimates are significantly different from zero at $P<.0001$.
Source. Calculated on the basis of data from the Illinois Health Care Cost Containment Council Research Oriented Data Set.

TABLE 2—Percentage Change in Birth-Related Hospital Costs Under Various Scenarios Related to Minimum-Stay Legislation: Illinois, April 1995–March 1996

Percentage of Short Stayers Opting to Stay New Minimum	Percentage of Readmissions Avoided				
	10	25	50	75	100
10	1.8	1.5	1.0	0.5	–0.1
25	4.9	4.6	4.0	3.5	3.0
50	10.0	9.7	9.1	8.6	8.1
75	15.1	14.8	14.2	13.7	13.2
100	20.2	19.8	19.3	18.8	18.3

Source. Calculated on the basis of data from the Illinois Health Care Cost Containment Council Research Oriented Data Set for the period April 1995 through March 1996.

readmission rates for jaundice are unlikely to be affected by longer stays at birth, inclusion of all readmissions overstates the possible savings estimated below.

The estimated net costs of the law vary widely (Table 2). As a percentage of total spending on birth-related admissions and readmissions, the net effect of the law under various scenarios ranges from a savings of 0.1% to a cost of 20.2%.

Discussion

Most of the women in the sample stayed fewer days than the newly legislated minimum. For those with uncomplicated vaginal deliveries, the mean length of stay was well under 2 days. Moreover, most newborns discharged from the hospital remained healthy. As has been found in other studies, approximately 2% were readmitted during their first 2 weeks of life. According to these estimates, if 10% of short-stay women increased their stay to the legislated minimum, additional hospital charges would exceed savings unless 100% of readmissions were avoided. As a percentage of total spending, the legislation could increase charges by 20.2% if all women stayed longer and only 10% of readmissions were averted.

There are some important limitations to this analysis. It focuses solely on changes to inpatient charges, ignoring both outpatient and informal care costs and the tenuous relationship between costs and charges. The data available do not allow for analyzing readmission rates with information about length of stay at birth or about the mother–baby pair.

Given the limited evidence of improved maternal and infant well-being after an additional day of hospital care and the untested promise of alternative, cheaper models such as postdischarge home nurse visits, minimum-stay legislation may be an expensive reaction to alarming anecdotes about improper utilization review and management techniques. □

Contributors

K. Raube and K. Merrell jointly conceived and designed the study and analyzed and interpreted the data; both wrote the paper and approved the final version.

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