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## Review of “Drivers of Healthcare Costs Associated with Physician Services”

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What drives physician spending growth? What are the factors associated with physician spending and how important is each factor? These are the questions addressed in a recent study by the Lewin Group (*Drivers of Healthcare Costs Associated with Physician Services*, October 16, 2002) which was funded by the Blue Cross Blue Shield Association. The authors’ approach is to round up all of the usual suspects tied to physician spending growth from the health services research literature within a single analytic framework. Using data on physician spending, they then allot each factor its share of the total change in spending.

This is an ambitious project to say the least, with several major obstacles to overcome. Some factors are very difficult to measure, especially the role of technology. Many of the other factors are also difficult to quantify or to find suitable measures of, for example, health status and health care regulation. There are significant challenges in modeling all of these factors at once and in finding data that would allow them to be tested for a sufficiently broad patient population and time frame. It is also very difficult to assign importance to each factor within the analytic framework that the authors have chosen.

In short, the study tackles a difficult but important question. Unfortunately, the obstacles noted above were not dealt with successfully enough to place much confidence in the results. The key estimates from the study are the shares of physician spending growth accounted for by each of the factors considered. These estimates are highly suspect given the study’s methods.

## **Methods and Results**

The authors identified nine categories of cost drivers for physician services:

- demographics and economic conditions
- general price inflation
- provider market structure
- treatment patterns and technology
- physician supply
- provider operating costs
- health status
- health care regulation
- provider payment

Within each category, several measures of these cost drivers were included in the study. State level data on these measures was combined with physician expenditure data from two sources: i) physician claims for a privately insured group of patients (from a large national group health insurer) for 1998-2000, and; ii) all payer data on physician expenditures from the Centers for Medicare and Medicaid Services (CMS) Office of the Actuary for 1990-1998.

The authors used linear regression to measure the effect of each factor on physician spending. Two sets of estimates were obtained, one using the private payer data and the other using CMS all payer data. The methods differed between these two sets of estimates. With the private payer data, the authors used a stepwise regression approach to pick the factors in their model. With the all payer data, the authors used their own judgment in selecting the set of factors to include, and also included variables to measure state level factors not otherwise captured in the model.

With each set of estimates, the authors then examined the predicted impact of a one percent change in each factor on physician spending. The shares of the total predicted spending change accounted for by each of the cost driver categories are the key empirical results of the study. General economic and demographic factors and general price inflation were found to account for roughly half of the predicted change in spending. Physician supply and technology were also high on the list of important drivers. The remaining five categories of cost drivers accounted for little of the predicted change in spending in one or both sets of estimates.

### **Limitations of the Study**

Several of the factors that are considered in the study are very difficult to measure. In a May 1994 report to Congress, for example, the Physician Payment Review Commission stated that they had found “no satisfactory measures of the impact of technological change on either expenditures or volume growth.” Despite this, it is widely accepted that technological change is a key factor in accounting for growth in health care spending. The authors measure the impact of medical technology with a handful of facility-based variables (e.g., percent of hospitals with MRIs) that are, as a group, a poor proxy for medical technology.

The estimates based on the private payer data use “percent obese” as the sole proxy for health status. In the same way, provider market structure and healthcare regulation are measured with variables that make sense, but are unlikely to fully account for the factors they represent. The

lack of good measures for these factors results in their effects being understated, or captured by other factors that happen to be correlated with the missing information.

There are also problems with the data used in the study. The results from the private payer data, in particular, are limited because they apply to only three years (1998-2000) and because they apply only to patients from one particular insurer. With such a limited time frame and patient base, it is important to avoid generalizing the results too broadly. Because the private payer data span only three years, the results are really more a description of state level variation in (private) physician spending than they are a description of spending growth over time.

Another major concern with the study has to do with the method used to determine the influence of each factor. The authors highlight a pie chart and table in the executive summary that appear to show the percentage of total physician expenditure growth accounted for by each factor, and these seem to be the key results of the study. In fact though, these percentages are arrived at by looking at the predicted change in physician spending under the hypothetical situation where every factor in the model is changed by one percent. That is, these results do not explain the factors behind actual growth in physician spending in the 1990s, nor do they describe the actual variation in physician spending over time and across states in either of the two data sources.

### **Summary**

The task of estimating the contribution that all of these factors have made to physician spending growth simultaneously is a very difficult one, and the authors acknowledge many of the limitations of their empirical work. Despite these problems, some of the key results certainly make sense. It may not be surprising though that general economic and demographic factors account for much of the variation in physician spending. Other results are less believable though. Is it possible that state level variation in provider payment levels and patient health status account for only 5% of the variation in physician spending combined? In the end, the limitations of this study are too severe to merit placing any confidence in the results.