Examination of the Relationship of Service Prices Between Hospitals and Independent Physicians

CHARLIE DENHART

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ABSTRACT

The relationship between private practitioners and hospitals is one riddled with complications from all aspects of the health care industry; from negotiating service prices with pharmaceutical companies, to managing costs of care, there are a daunting number of factors that can cause changes in quality, quantity, and prices between the two groups. Due to the scope of the topic, this paper focuses specifically on price differences between hospitals and individual providers in Massachusetts from 2012 to 2015. Services are compared between the two types of providers and the most significant are determined. For discrepancies identified, explanations are proposed and an attempt is made to understand why these differences exist.

INTRODUCTION

Spending on health care in the United States is rivaled by few other categories at roughly sixteen percent of GDP. Within the types of health care spending, hospital care and physician services are the two most pertinent categories at 32 and 20 percent share respectively (National Health Expenditures 2016 Highlights). Suffice it to say that spending on care provided by both hospitals and independent physicians is extremely relevant and as such, the mechanisms by which prices are set by the parties involved should be well understood and thoroughly observed. However, due to the nature of the health care field, with its intricate web of nested industries, sophisticated regulations, and frustratingly partial data, there are incomplete and conflicting beliefs about what drives the price of care. While the inconsistency present must be acknowledged, there are still many prominent studies available that provide a hint of why prices

are what they are and what to expect of the relationship between hospitals and private practices in the current climate.

Partially as a result of incentives provided by the Affordable Care Act, the hospital market has been consolidating at an extraordinary rate in recent years. In fact, as found by David Cutler and Fiona Morton in their paper *"Hospitals, Market Share, and Consolidation"*, nearly half of the hospital markets across the country were considered highly concentrated and none were considered highly competitive in 2011. This monopolistic control of care over regions allows hospitals to be price setters, pushing insurance companies to become price takers. With insurance companies losing the ability to negotiate prices down, hospitals are able to maintain prices at levels suiting their interests.

While independent physicians have also recently been pushed to integrate with each other or with hospitals, there has been significantly less acquisition activity on that side of the market. Primary care physicians are highly concentrated in just 39 percent of metropolitan areas while hospitals are highly concentrated in 90 percent of metropolitan areas (Longman 2017). As a result of this, physicians still have minimal market power and are unable to set their own prices. As we would expect, therefore, prices for similar treatments are on average more expensive at hospitals than at an independent physician.

DATA AND STATISTICAL SUMMARY

In order to determine the relationship in pricing between hospitals and physicians, data supplied by the Centers for Medicare and Medicaid Services, which contains average Medicare payments to providers in the US for each Medicare service they performed over the course of the year, was primarily investigated. After all of the data was retrieved, it was first separated by entity type

(individual vs. hospital). Each data set was then pieced through in an attempt to identify significant services. The approach used to identify the most significant services was to count the number of each in the data set and find the most frequent. As there are more independent physicians than there are hospitals, there are considerably more Medicare payments to independent physicians than there are to hospitals in the data. Therefore, it seemed that the results would be most representative if the service most frequent were used to compare . Shown in Table 1 is the count of the highest frequency of hospital provider services that Medicare made payments to in 2012. These services are used as a base for the calculations due to its high count between both provider types, as mentioned above, and for its consistency over time.

Table 1: Most Frequent Hospital Services In 2012

Hospital Service	Hospital Count
Administration of influenza virus vaccine	985
Vaccine for influenza for injection into muscle	938
Administration of pneumococcal vaccine	574
Pneumococcal vaccine for injection into muscle	523
Vaccine for influenza for injection into muscle, patient 3 years and older	477

Chart 1: Independent Service Usage From 2012 To 2015

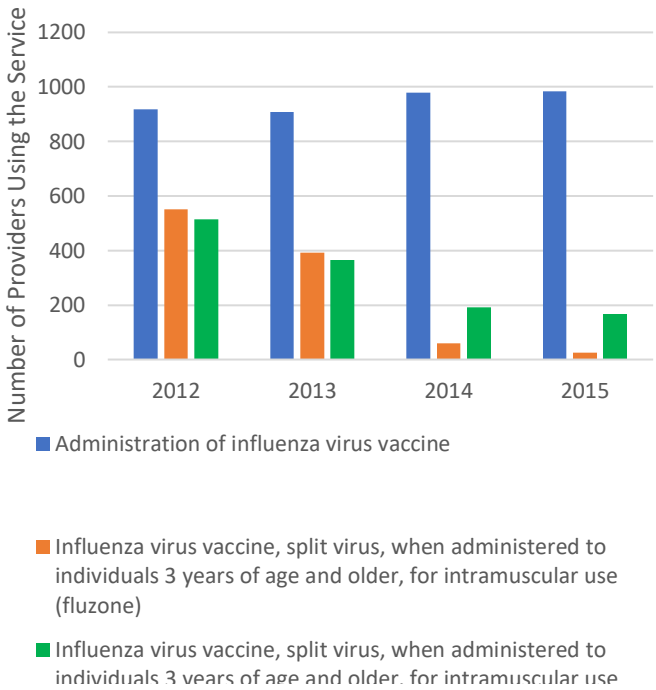


Chart 1 supports the previous statement by showing that the number of hospitals Medicare made payments out to remains relatively similar for each payment over the time

interval. Once these variables were known to be usable, calculations on the average prices and price distributions of these variables were able to be performed on both the hospital and independent sets of data.

The significant information collected was that relating to MRI scans. This data was chosen because it services in a higher price range. There has also been more public controversy about MRI prices and more sophisticated academic research on the service, causing it to be a particularly interesting feature in the dataset.

ANALYSIS AND DISCUSSION

After determining which variables to use to study the relationship between price levels of the two groups, calculations were performed on the variables determining the average price of the service in each category. As shown in Table 2 and Table 3, there are very different findings

Table 2: Average prices and distributions for significant hospital services

Category	Average Price	Standard Deviation
MRI Brain Scan	309.69928	41.3510765
MRI Spinal Scan	283.90301	45.0677194
Influenza Vaccine Administration	18.98048	3.2745248
Fluzone Vaccine Administration	12.48142	0.2818312
Fluvirin Vaccine Administration	13.55445	0.6495278

Table 3: Average prices and distributions for significant individual physician services

Category	Average Price	Standard Deviation
MRI Brain Scan	87.98879	89.6462909
MRI Spinal Scan	97.85288	89.2170592
Influenza Vaccine Administration	24.91166	3.5127907
Fluzone Vaccine Administration	12.34613	0.439824
Fluvirin Vaccine Administration	13.84802	0.7942075

based on the type of service. Looking at the services identified by frequency from the hospital

data (the three vaccine administration categories), individual physicians actually charge similar if not higher prices than hospitals do. On the other hand, if you look at the various MRI prices listed in the tables, there are major discrepancies between hospital and independent prices as hospitals are charging nearly three times more than their counterparts.

While one might look to hospital consolidation over the last few years to point towards this anomaly, that does not explain why simple vaccine administrations show unrelated differences. Furthermore, as shown in Chart 2 and Chart 3, hospital prices have been decreasing over time, while independent prices have been steady or increasing.

Chart 2: Hospital Vs. Independent MRI Brain Scan Prices

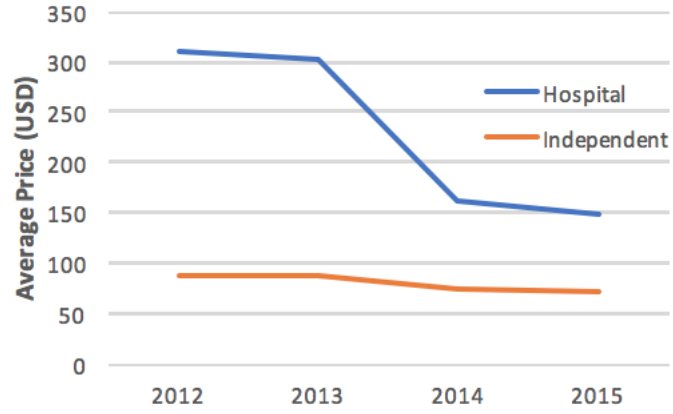
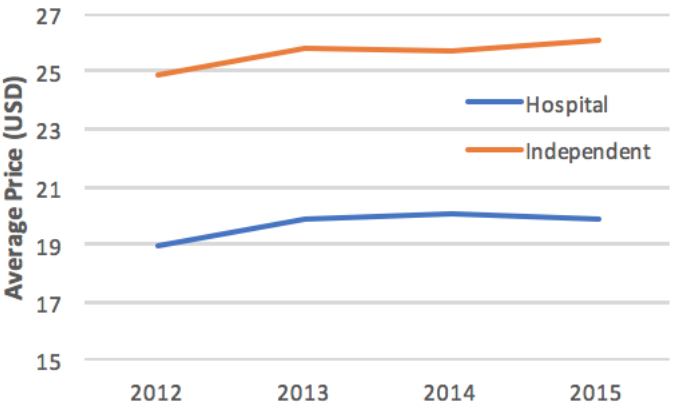


Chart 3: Hospital Vs. Independent Flu Vaccine Adminstration Price



One possible reason, therefore, could pertain to Medicare reimbursement strategy. Although no provider alone has the ability to negotiate prices with Medicare like they do with private insurers, it is reasonable to think that Medicare might provide larger payments to those that support a larger consumer base. This is particularly true for a service with larger margins, like MRI scans, which would allow Medicare to offer the local market rate to large hospitals, but skimp out on similarly reimbursing private practitioners, who provide for relatively fewer Medicare patients than the hospital.

This reimbursement pattern would provide the financial backing to those most critical to the program's patients and also provide cost saving opportunities in the case of those that are less significant players. This would also explain why independent physicians had such higher standard deviations for high cost services than hospitals, as practices can range widely in market share and thus also the number of Medicare patients under care.

For low cost services like vaccine administration, though, there is a smaller range for reimbursement, resulting in more similarity in pricing. Another factor involved with low cost service pricing are the costs that the provider incurs. As services like administering vaccines is fairly subject to economies of scale and as a small practitioner is likely less efficient than a consolidated hospital group, the cost of the service will theoretically be higher for the practitioner than the hospital. Therefore, the hospital is capable of receiving a lower price than its counterpart.

A final plausible source of high cost service (particularly MRI) price discrepancies between hospitals and practitioners could be regulation surrounding certificate of need (CON) laws. CON laws regarding MRIs in particular require an application demonstrating proof of necessity. Although the regulation is designed to prevent providers from passing costs onto consumers as they invest in more expensive equipment, hospitals are more likely to have greater "proof of necessity" for new MRI machines than small practices due to higher demand (Perry 2017). As this suggests that the law could apply to them to a lesser degree, it is possible that hospitals incur greater costs than practices do involving MRI acquisition, resulting in a higher chance of greater reimbursement. In his paper *Certificate of Need Regulation and Hospital Behavior: Evidence from MRIs in North Carolina*, Bryan Perry follows similar logic. While admitting that, "CON prevents hospitals from passing on additional fixed costs to patients

through higher prices", he states that despite Medicare being a dominant price-setter, "these factors do not rule out that CON limitations restrict competitive forces beneficial to other patients.

CONCLUSION

This paper sought to better understand the relationship between prices of similar services offered by independent physicians and hospitals. While it was initially the belief that consolidation in the hospital market has driven prices higher than their smaller competitors, empirical evidence has suggested that the answer is more complicated. Results from Medicare reimbursement data in Massachusetts revealed that generalizations cannot be made about the relationship as a whole, but rather between particular services offered. While high cost services displayed expected results reflecting the competitive balance between hospitals and private practices, lower costs services were less predictable. It was hypothesized that reasons for these discrepancies may include Medicare reimbursement behavior, specific cost structures pertaining to the two different categories, and CON regulations, although the answer to this problem is outside of the scope of this paper.

REFERENCES

Cutler, David M, and Fiona Morton. "Hospitals, Market Share, and Consolidation." American Medical Association, vol. 310, no. 18, 13 Nov. 2013, pp. 1964–1970.

Longman, Phillip. "How Big Medicine Can Ruin Medicare for All." Washington Monthly, 13 Nov. 2017, washingtonmonthly.com/magazine/novemberdecember-2017/how-big-medicine-can-ruin-medicare-for-all/.

Medicare Provider Utilization and Payment Data: Physician and Other Supplier Data, cms.gov, 28 Feb. 2017, data.cms.gov/Medicare-Physician-Supplier/Medicare-Physician-and-Other-Supplier-National-Pro/p3uv-6dv4.

"National Health Expenditures 2016 Highlights." Centers for Medicare and Medicaid Services. 2016.

Perry, Bryan J. "Certificate of Need Regulation and Hospital Behavior: Evidence from MRIs in North Carolina." Massachusetts Institute of Technology, 2017.

United States, Congress, "National Ambulatory Medical Care Survey." National Ambulatory Medical Care Survey, 2015.