2% of Private Health Spending (0.69% of Total Health Spending)

Addressing Hospital Concentration and Rising Consolidation in the United States

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Issue Summary: There have been scores of mergers in the trillion-dollar US hospital sector over the past few decades, leading the majority of geographic areas in the US to be dominated by one to three large hospital systems. Approximately 80% of hospital markets in the US are "highly concentrated," according to criteria set out in the joint US Department of Justice (DOJ)/ Federal Trade Commission (FTC) horizontal merger guidelines (DOJ and FTC 2010). There is a large body of evidence that clearly illustrates that many hospital mergers raise prices and that, more generally, concentrated markets are associated with higher prices and lower clinical quality. Simply put, the high degree of concentration in US hospital markets is increasing health spending and hindering quality in the hospital sector.

Policy Proposal: We recommend the following five policies:

1. Increase the antitrust enforcement budgets at the DOJ and FTC;
2. Amend the Federal Trade Commission Act to allow the FTC to take enforcement action against anti-competitive conduct by not-for-profit firms;
3. Introduce site-neutral billing in the Medicare program;
4. Strengthen antitrust enforcement laws; and
5. Introduce reporting requirements for small mergers.

Total Savings: The US hospital sector accounted for $1.2 trillion of spending in 2018. Hospital spending by the privately insured was approximately $500 billion in 2018. Small steps to increase competition could lead to large savings. In Cooper et al. (2019), for example, the authors estimate that a 10% decrease in hospital market concentration as measured by the Herfindahl-Hirschman Index (HHI) would lower hospital prices by one half of one percent. Likewise, blocking one anticompetitive large health system merger could prevent billions of dollars in increases in health spending. To give a sense of the potential savings, a 1% reduction in hospital spending among the privately insured alone would save $5 billion annually. A 5% reduction would save $25 billion annually (2% of total private health spending).

Related Literature and Evidence

Cooper, Zack, Stuart V. Craig, Martin Gaynor, and John Van Reenen. 2019. "The Price Ain't Right? Hospital Prices and Health Spending on the Privately Insured." *Quarterly Journal of Economics* 134 (1): 51–107.

Gaynor, Martin. 2020. "What to Do about Health-Care Markets? Policies to Make Health-Care Markets Work." *Brookings Institution*. Accessed Nov 30, 2020. https://www.brookings.edu/wp-content/uploads/2020/03/Gaynor_PP_FINAL.pdf.

Background and Overview

The US health system in general, and the US hospital sector in particular, are largely market-based. Both public and private payers rely on competition between hospitals to drive quality. Hospitals compete with one another over prices and quality in order to attract commercially insured patients and to be included in insurers' networks. Each year, hospitals and insurers negotiate over the structure and level of hospital payments. Unfortunately, mergers and acquisitions have led the US hospital sector to become concerningly concentrated, which is ultimately raising health spending and adversely impacting consumers.

The hospital sector is the largest driver of domestic health care spending. In 2018, the US hospital sector accounted for approximately a third of US health spending and 6% of gross domestic product (Centers for Medicare and Medicaid Services 2020), making it one of the largest sectors of the US economy. Moreover, patients must rely on the hospital sector when they are at their most vulnerable: during periods of acute illness, following major injuries, and during childbirth. As a result, having functioning hospital markets in the US is vital to the functioning of the health system.

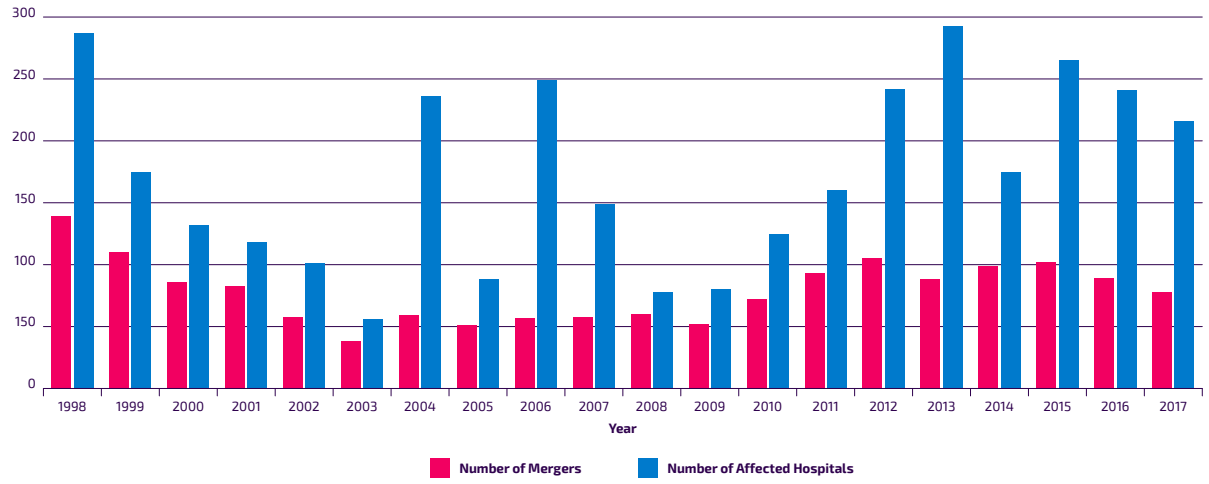
Unfortunately, there is ample evidence that the markets that underpin the US hospital sector are broken. Over the last 30 years, a wave of hospital mergers in the US has substantially increased market concentration (Gaynor 2020). Our calculations indicate that, at present, more than 80% of hospital markets in the US are "highly concentrated," based on criteria set out in the DOJ/FTC horizontal merger guidelines (DOJ and FTC 2010). Hospitals are also increasingly buying physician practices—a concerning trend with the potential to further insulate hospitals from competition and harm competition among physician practices as well (Dranove and Ody 2019).

Collectively, the lack of competition in the hospital sector is harming US consumers. As we describe, there is clear evidence that hospital consolidation in the US has raised prices, that hospital concentration can reduce clinical quality, and that when hospitals acquire physician groups, it limits patient choice.In this brief, we highlight the key changes that have occurred in US hospital markets over the last 20 years. We describe the consequences of these changes. We then describe key policy interventions that could improve the functioning of hospital markets in the US and conclude by quantifying the potential savings from these sorts of pro-competitive policies.

Hospital Mergers

Over the 20 years from 1998 to 2017, as illustrated in Figure 1, there were nearly 1,600 hospital mergers involving thousands of hospitals (Gaynor 2020). As Cooper et al. (2019) note, as a result, during the 2000s, a majority of hospitals have either been directly involved in a merger or have been a neighbor to a merger. Many of the mergers that have occurred have been between close competitors (Cooper et al. 2019, Dafny et al. 2020).

Figure 1: Number of Hospital Mergers, 1998–2017



Source: American Hospital Association, 2018

The academic evidence on the effect of hospital mergers is clear and consistent. The literature suggests that mergers between hospitals that are important alternatives for consumers raise prices. A number of studies have examined individual hospital mergers and found price increases of greater than 20% (e.g., Town and Vistnes 2001, Krishnan 2001, Vita and Sacher 2001, Gaynor and Vogt 2003, Capps et al. 2003, Capps and Dranove 2004, Dafny 2009, Thompson 2011, Tenn 2011, Gowrisankaran et al. 2015). The FTC has conducted a series of merger retrospectives. These analyses have found price increases of 20% to 50% (Haas-Wilson and Garmon 2011, Tenn 2011, Thompson 2011). There has also been work analyzing "cross-market mergers" of hospitals that are not geographically proximate competitors (Dafny, Ho, and Lee 2019, Lewis and Pflum 2017). These studies have observed cross-market merger effects that raised prices between 10% and 17%.

There is significant research evidence that lack of hospital competition compromises the quality of care. Recently, a large retrospective found that hospital mergers did not lead to increases in hospital quality (Dafny et al. 2020). Other research finds that patient health outcomes are significantly worse in more concentrated markets, where hospitals face less potential competition (Kessler and McClellan 2000). Moreover, there is little evidence to indicate that hospital mergers lead to cost savings. A recent study

found some evidence of cost efficiencies due to hospital mergers but found them to be less than 5% (e.g., Craig et al. 2018).

Hospital Market Concentration

Mergers and hospital closures have led to large increases in hospital market concentration in the US during the last 20 years. In 2017, the average hospital HHI—a measure of market concentration—was 5,092. It is notable that the DOJ and FTC view markets with an HHI over 2,500 as highly concentrated (DOJ and FTC 2010).[1] According to our calculations, approximately 80% of hospital markets in the US have an HHI above 2,500.

There is a large body of literature assessing the relationship between hospital concentration, provider prices, hospital/insurer contract structure, and provider quality. Cooper et al. (2019), for example, find that hospital prices are higher in more concentrated markets. Cooper et al. (2019) also find that, for hospitals in more concentrated markets, prices paid are generally a percentage of the charges billed rather than based on more prospective payment models that can drive efficiency. Perhaps most worryingly, Kessler and McClellan (2000) study the relationship between concentration and quality for Medicare beneficiaries (where reimbursements are regulated). They find that risk-adjusted one-year mortality for heart attack patients is substantially higher in more concentrated hospital markets.

Vertical Integration between Hospitals and Physicians

There has been a steady increase in vertical integration between hospitals and physicians in the US. For example, from 2002 to 2008, Baker et al. (2014) estimate that the share of physician practices in the US owned by hospitals more than doubled. There is a growing body of literature illustrating that physicians within hospital-owned practices are more likely to refer their patients for hospital-based care (Cooper et al. 2019, Baker et al. 2016, Brot-Goldberg and de Vaan 2018). This has the potential to decrease patient choice, decrease the competitive pressure facing hospitals, and raise provider prices. Indeed, Cooper et al. (2019) find that patients referred for imaging studies receive significantly higher-priced MRI scans when they are referred by a vertically integrated physician. In addition, Capps, Dranove, and Ody (2018) find that hospital acquisitions of physician practices led to significant increases in prices for physician services. In effect, when hospitals buy physician practices, it has the effect of limiting patients' choice sets, further insulating hospitals from competition, and harming competition among physician practices.

Policies to Increase Competition in the US Hospital Sector

There are five concrete policy steps that can be taken to expose hospitals to more competition. Each recommendation, if adopted, could result in increased consumer choice and decreased health spending.

Recommendation 1—Increase Funding for the Antitrust Enforcement Agencies: The federal antitrust agencies (the Antitrust Division of the DOJ and the FTC) need more resources. From 2010 to 2016, the number of mergers reported to the federal government increased by over 57%, while inflation-adjusted funding for the enforcement agencies fell by over 12% (Gaynor 2020).

If we expect the antitrust enforcement agencies to do more in health care without reducing their efforts in the rest of the economy, then they will need more resources. Unsurprisingly, given that enforcement budgets have not increased, the number of enforcement actions has stayed relatively constant, while mergers have risen dramatically. Increasing the DOJ/FTC enforcement budget is one of the most effective things we can do to strengthen antitrust enforcement in health care.

The scale of funding increases necessary is small relative to the potential benefit to consumers. Elsewhere, one of us has advocated for increasing funding for federal antitrust enforcement by $157 million annually (Gaynor 2020). This type of investment would raise the DOJ and FTC merger enforcement budget by 33% (Gaynor 2020).

Recommendation 2—Amend the Federal Trade Commission Act to Allow the FTC to Take Enforcement Action against Anticompetitive Conduct by Not-for-Profit Firms: At present, the FTC is not authorized to take enforcement action against anticompetitive behavior by nonprofit firms (Gaynor 2020). This is problematic because the majority of hospitals in the US are nonprofit (American Hospital Association 2020). Removing this restriction on the FTC's enforcement abilities would enable it to target a wider range of conduct that is harming consumer welfare.

Recommendation 3—Introduce Site-Neutral Billing in the Medicare Program: Medicare payment policies have inadvertently led hospitals to acquire physician practices (Dranove et al. 2019). In an effort to cover hospitals' costs for delivering care, the Medicare program gave higher reimbursements to care delivered in hospitals than for the same care delivered in physician offices. This led hospitals to acquire physician practices. Dranove and Ody (2019) estimate that in cardiology, these higher reimbursements led to a 20% increase in vertical integration.

Recommendation 4—Strengthen Antitrust Enforcement Laws: Another important way to increase competition among hospitals is to enact legislation that strengthens existing antitrust laws (Baer et al. 2020). For instance, legislation could change the standard required to show competitive harm or shift the burden of proof to defendants. Current standards require plaintiffs to show "likely harm to competition" (DOJ and FTC 2010). This is a fairly exacting standard, particularly as administered by the courts, and the DOJ and FTC often have trouble meeting it (and sometimes choose not to bring some cases at all). Amending the standard to require that plaintiffs demonstrate "appreciable risk to competition" would still require substantial evidence to win a case but would strengthen the agencies' hand in enforcement. In addition, if plaintiffs show evidence to support a presumption of harm to competition, then the burden of proof should shift to defendants—they bear the responsibility of rebutting those claims. This contrasts with the status quo, in which plaintiffs typically bear the burden of establishing harms to competition. Reform in this area is also one of the most effective things that can be done to strengthen antitrust enforcement in health care (and in general).

Recommendation 5—Introduce Reporting Requirements for Small Mergers and Acquisitions: All mergers should have reporting requirements. At present, deals under $50 million do not have reporting requirements (15 US Code § 18a). However, this means that many of the transactions in which hospitals acquire physician groups escape antitrust scrutiny. The antitrust agencies should be empowered to create a streamlined reporting process for smaller transactions. Requiring parties in small transactions to report in a simple, streamlined way will enable the agencies to track the many small transactions in health care involving physician practices (both horizontal and vertical) that at present are not reported.

Potential Savings

The US hospital sector accounted for $1.2 trillion of spending in 2018. Hospital spending by the privately insured was approximately $500 billion in 2018 (Center for Medicare and Medicaid Services 2018). Small steps to increase competition could lead to large savings. In Cooper et al. (2019), for example, the authors estimate that a 10% decrease in hospital HHI would lower hospital prices by half a percent. Likewise, blocking one large health system merger could prevent billions of dollars in increases in health spending. To give a sense of the potential savings, a 1% reduction in hospital spending among the privately insured alone would save $5 billion annually. A 5% reduction would save $25 billion annually (2% of total private health spending).

Footnotes

1. HHIs are constructed by summing the squares of the market shares of each competitor in a market. So a market with four equal-sized competitors that each had a fourth of the market would have an HHI of 2,500.

References

American Hospital Association. 2016. "Trendwatch Chartbook 2016: Organizational Trends, Chart 2.9: Announced Hospital Mergers and Acquisitions, 1998–2015." *American Hospital Association*, Chicago, IL.

American Hospital Association. 2018. "Trendwatch Chartbook 2018: Organizational Trends, Chart 2.9: Announced Hospital Mergers and Acquisitions, 2005–2017." *American Hospital Association*, Chicago, IL.

American Hospital Association. 2020. "Fast Facts on US Hospitals." *American Hospital Association*, Chicago, IL.

Baer, Bill, Jonathan B. Baker, Michael Kades, Fiona Scott Morton, Nancy L. Rose, Carl Shapiro, and Tim Wu. 2020. "Restoring competition in the United States: A vision for antitrust enforcement for the next administration and Congress." *Washington Center for Equitable Growth*. https://equitablegrowth.org/research-paper/restoring-competition-in-the-united-states/?longform=true.

Baker, Laurence, M. Kate Bundorf, and Daniel Kessler. 2014. "Vertical Integration: Hospital Ownership of Physician Practices Is Associated with Higher Prices and Spending." *Health Affairs*, 33 (5): 756–763.

Baker, L. C., M. K. Bundorf, and D. P. Kessler. 2016. "The Effect of Hospital/Physician Integration on Hospital Choice." *Journal of Health Economics* 50, 1–8.

Brot-Goldberg, Zarek and Mathijs de Vaan. 2018. "Intermediation and Vertical Integration in the Market for Surgeons." Unpublished manuscript, University of California, Berkeley, CA.

Capps, Cory S. and David Dranove. 2004. "Hospital Consolidation and Negotiated PPO Prices." *Health Affairs* 23 (2): 175–81.

Capps, Cory S., David Dranove, and Mark Satterthwaite. 2003. "Competition and Market Power in Option Demand Markets." *RAND Journal of Economics* 34 (4): 737–63.

Capps, Cory S., David Dranove, and Christopher Ody. 2018. "The Effect of Hospital Acquisitions of Physician Practices on Prices and Spending." *Journal of Health Economics* 59 (May): 139–152.

Centers for Medicare and Medicaid Services. 2018. "National Health Expenditures 2018 Highlights." *Centers for Medicare and Medicaid Services*. Accessed Nov 30, 2020. https://www.cms.gov/files/document/highlights.pdf.

Center for Medicare and Medicaid Services. 2020. "NHE Fact Sheet." *Centers for Medicare and Medicaid Services*. Accessed Nov 30, 2020.https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet.

Cooper, Zack, Stuart V. Craig, Martin Gaynor, and John Van Reenen. 2019. "The Price Ain't Right? Hospital Prices and Health Spending on the Privately Insured." *Quarterly Journal of Economics* 134 (1): 51–107.

Cooper, Zack, Michael Chernew, Eugene Larsen-Hallock, and Fiona Scott Morton. 2018. "Are Health Care Services Shoppable? Evidence from the Consumption of Lower Limb MRI Scans." *NBER*, Working Paper #24869.

Craig, Stuart, Matthew Grennan, and Ashley Swanson. 2018. "Mergers and Marginal Costs: New Evidence on Hospital Buyer Power." *NBER*, Working Paper #24926.

Dafny, Leemore. 2009. "Estimation and Identification of Merger Effects: An Application to Hospital Mergers." *Journal of Law and Economics* 52 (3): 523–50.

Dafny, Leemore, Nancy Beaulieu, Bruce Landon, Jesse Dalton, Ifedayo Kuye, and J. Michael McWilliams. 2020. "Changes in Quality of Care after Hospital Mergers and Acquisitions." *New England Journal of Medicine* 384, 51–59.

Dafny, Leemore, Kate Ho, Robin Lee. 2019. "The price effects of cross-market mergers: theory and evidence from the hospital industry." *The RAND Journal of Economics*, 50 (2): 289–325.

Dranove, David and Christopher Ody. 2019. "Employed for Higher Pay? How Medicare Payment Rules Affect Hospital Employment of Physicians." *American Economic Journal: Economic Policy* 11 (4): 249–271.

Gaynor, Martin. 2020. "What to Do about Health-Care Markets? Policies to Make Health-Care Markets Work." *Brookings Institution*. Accessed Nov 30, 2020. https://www.brookings.edu/wp-content/uploads/2020/03/Gaynor_PP_FINAL.pdf.

Gaynor, Martin and William Vogt. 2003. "Competition among Hospitals." *The RAND Journal of Economics* 34 (4): 764–785.

Gowrisankaran, Gautam, Aviv Nevo, and Robert Town. 2015. "Mergers When Prices Are Negotiated: Evidence from the Hospital Industry." *American Economic Review* 105 (1): 172–203.

Haas-Wilson, Deborah and Christopher Garmon. 2011. "Hospital Mergers and Competitive Effects: Two Retrospective Analyses." *International Journal of the Economics of Business* 18 (1): 17–32.

Hart-Scott-Rodino Antitrust Improvements Act of 1976, 15 U.S. Code § 18a. Accessed Dec 1, 2020. https://uscode.house.gov/view.xhtml?req=granuleid%3AUSC-prelim-title15-section18a&edition=prelim.

Kessler, Daniel P. and Mark B. McClellan. 2000. "Is Hospital Competition Socially Wasteful?" *Quarterly Journal of Economics* 115 (2): 577–615.

Krishnan, Ranjani. 2001. "Market Restructuring and Pricing in the Hospital Industry." *Journal of Health Economics* 20: 213–37.

Lewis, Matthew S. and Kevin E. Pflum. 2017. "Hospital Systems and Bargaining Power: Evidence from Out-of-Market Acquisitions." *The RAND Journal of Economics* 48 (3) 579–610.

Tenn, Steven. 2011. "The Price Effects of Hospital Mergers: A Case Study of the Sutter-Summit Transaction." *International Journal of the Economics of Business* 18 (1): 65–82.

Thompson, Aileen. 2011. "The Effect of Hospital Mergers on Inpatient Prices: A Case Study of the New Hanover–Cape Fear Transaction." *International Journal of the Economics of Business*, 18 (1): 91–101.

Town, Robert J. and Gregory Vistnes. 2001. "Hospital Competition in HMO Networks." *Journal of Health Economics* 20 (5): 733–52.

U.S. Department of Justice and the Federal Trade Commission. 2010. "Horizontal Merger Guidelines." *Department of Justice*.

Vita, Michael G. and Seth Sacher. 2001. "The Competitive Effects of Not-for-Profit Hospital Mergers: A Case Study." *Journal of Industrial Economics* 49 (1): 63–84.