Accumulation, Autonomy, and Expectations

Three Essays on the Impact of U.S. Health Care Industry Consolidation

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Abstract

The U.S. health care industry in the 21st century has been characterized by consolidation. Consolidation, and the resulting increased market concentration, can result in the ability of health care entities to engage in monopolistic pricing behaviors. Consolidation has been found often not to benefit patients and consumers in terms of lower prices, and has mixed effects on health care quality. However, health care consolidation’s impacts on other outcomes, like access to health care and physician satisfaction, are largely unknown, but anecdotal evidence from communities where consolidation has occurred indicate that these impacts exist and are of concern. This dissertation aims to augment the existing evidence base on the consequences of and policy remedies for health care consolidation in three essays. The first essay uses secondary data to provide evidence on the impact of consolidation on physician social networks, the characteristics of which are associated with measurable outcomes such as costs and quality, as well as more distal outcomes like access to information and organizational effectiveness. The stability of shared patient networks increases significantly after acquisition of physician practices by another practice, which has potentially positive implications for organizational effectiveness. However, consistent and notable effects of consolidation on the size and strength of shared patient networks were not observed. The second essay uses case study methods to do a deep dive into a single market (Pittsburgh, Pennsylvania) that has experienced an intense, protracted period of consolidation to understand the breadth of the potential effects of cumulative consolidation events. The observed negative outcomes are largely attributable to three distinct pathways: the loss of physician autonomy when employed by large systems; the accumulation of information, resources, and power by large systems; and the high expectations to which large systems are held. The third essay explores alternative policy solutions for addressing consolidation and its negative consequences. Potentially impactful solutions are increased restrictions on allowable insurance contracting language and alteration of non-profit status requirements. Understanding these impacts of consolidation is critical, not just for policymakers and regulators, but also for health care purchasers, employees, taxpayers, and other stakeholders in communities that are experiencing or anticipating consolidation in their local health care markets so that they can prepare for or mitigate its negative consequences.
# Table of Contents

Abstract ........................................................................................................................................ iii
Figures ........................................................................................................................................ vii
Tables .......................................................................................................................................... ix
Acknowledgments ........................................................................................................................ xi
Abbreviations ................................................................................................................................. xiii

1. U.S. Health Care Industry Consolidation as a Policy Problem ................................................ 1
   U.S. Health Care Industry Consolidation Continues .................................................................. 1
   Why is the U.S. Health Care Industry Consolidating? .............................................................. 1
   Why is Health Care Consolidation a Policy Problem? ............................................................... 3
   The Health Care Consolidation Evidence Base is Strong in Some Areas ................................. 4
   The Health Care Consolidation Evidence Base is Weak in Many Areas ................................. 5
   Health Care Consolidation Has Consequences Beyond Price and Remedies Beyond Antitrust .... 5
      Essay 1: Effect of Practice Consolidation on Physician Shared Patient Network Size, Strength, and Stability ........................................................................................................... 6
      Essay 2: The Impact of Health Care Industry Consolidation in Pittsburgh, Pennsylvania: A Case Study .................................................................................................................. 7
   Conclusion and Future Research Directions ............................................................................. 8
References ..................................................................................................................................... 10

2. Effect of Practice Consolidation on Physician Shared Patient Network Size, Strength, and Stability ....................................................................................................................................... 12
   Abstract ...................................................................................................................................... 12
   Introduction .................................................................................................................................. 13
   Methods ...................................................................................................................................... 15
      Data ........................................................................................................................................ 15
      Econometric Model ................................................................................................................ 17
      Sensitivity Analyses ............................................................................................................... 17
   Results ........................................................................................................................................ 18
      Descriptive Characteristics of Consolidation Events ............................................................... 18
      Regression Results ............................................................................................................... 20
   Discussion ................................................................................................................................... 23
   Acknowledgments .................................................................................................................... 25
   Appendix A: Supplemental Network Size and Stability Data ................................................... 26
References ..................................................................................................................................... 37

3. The Impact of Health Care Industry Consolidation in Pittsburgh, Pennsylvania: A Case Study ....................................................................................................................................... 40
Abstract ...................................................................................................................... ............................ 40
Introduction ............................................................................................................................................ 41
Methods .................................................................................................................................................. 43
Interview Data Collection ..................................................................................................... ............. 43
Interview Data Analysis ..................................................................................................................... 44
Scholarly and Gray Literature Review Methods ................................................................................ 45
Secondary Data Analysis Methods ..................................................................................................... 45
Unit of Analysis .............................................................................................................. ................... 45
Background..................................................................................................................... ........................ 45
Pittsburgh’s Early Health Care History .............................................................................................. 46
Emergence of Pittsburgh’s Health Systems (1965-2012) .................................................................. 46
“The Divorce” (2013-present) ............................................................................................................ 48
Results .................................................................................................................................................... 49
Dynamics ............................................................................................................................................ 49
Outcomes ............................................................................................................................................ 52
Discussion ................................................................................................................................................ 67
Acknowledgments .................................................................................................................................. 71
Appendix B: Case Study Supplemental Methodological Details and Data ............................................ 72
References..................................................................................................................................... 76

4. Health Care Industry Consolidation: Remedies Beyond Antitrust.................................................. 78
Abstract ............................................................................................................................................ 78
Address the Outcomes, not the Phenomenon ..................................................................................... 79
Policy Options to Address Negative Outcomes of Health Care Consolidation...................................... 81
Restricting Allowable Contract Language ........................................................................................ 81
Strengthen Non-Profit Tax-Exempt Status Designation .................................................................... 82
Contracting Language and Non-Profit Status Can Counter Negative Effects of Consolidation ............ 83
Acknowledgments.................................................................................................................................. 85
References..................................................................................................................................... 86
Figures

Figure 1: Distributions of size (A), strength (B), and stability (C) measures for physicians in the analyzed sample................................................................. 19
Figure 2. Network log size coefficients ................................................................................................................. 21
Figure 3. Network log strength coefficients ............................................................................................................ 22
Figure 4. Network stability coefficients ................................................................................................................ 23
Appendix A Figure 1. Sensitivity analysis of network stability coefficients, constructed using all physicians, out-referral data ............................................................................. 26
Appendix A Figure 2. Sensitivity analysis of network log size coefficients, constructed using subgroup of specialist physicians................................................................................................ 27
Appendix A Figure 3. Sensitivity analysis of network log size coefficients, constructed using subgroup of specialist physicians, out-referral data ..................................................................... 28
Appendix A Figure 4. Sensitivity analysis of network stability coefficients, constructed using subgroup of primary care physicians .................................................................................................. 29
Appendix A Figure 5. Sensitivity analysis of network stability coefficients, constructed using subgroup of primary care physicians, out-referral data .......................................................... 30
Appendix A Figure 6. Sensitivity analysis of network stability coefficients, constructed using subgroup of specialist physicians ........................................................................................................ 31
Appendix A Figure 7: Sensitivity analysis of network stability coefficients, constructed using subgroup of specialist physicians, out-referral data ..................................................................... 32
Tables

Table 1. Physician-site observations exposed to a consolidation event during the study period . 18
Appendix A Table 1. Medical specializations in primary care, specialty subgroup analyses ...... 33
Appendix A Table 2. Estimates (b) and standard errors (se) of network log size for physicians
    exposed to consolidation events (health system ownership, hospital ownership, medical
    group ownership, practice-practice merger). ................................................................. 34
Appendix A Table 3. Estimates (b) and standard errors (se) of network log strength for
    physicians exposed to consolidation events (health system ownership, hospital ownership,
    medical group ownership, practice-practice merger). ..................................................... 35
Appendix A Table 4. Estimates (b) and standard errors (se) of network stability for physicians
    exposed to consolidation events (health system ownership, hospital ownership, medical
    group ownership, practice-practice merger). ................................................................. 36
Table 2. Stakeholder categories contacted and interviewed .................................................... 44
Table 3. Percent of physicians in Pittsburgh MSA in at least one consolidated practice .......... 61
Appendix B Table 1. Semi-structured interview protocol ....................................................... 72
Appendix B Table 2. Codebook for analyzing interview data ................................................. 73
Appendix B Table 3. Background on Pittsburgh MSA (2016) ................................................. 74
Appendix B Table 4. Background on UPMC and Allegheny Health Network (2017) .............. 75
Acknowledgments

Whenever I see these long, droning acknowledgment sections at the beginning of theses, they strike me as self-indulgent and trite. But now that I am here at the end, I understand that all of us who pursue a doctorate, the highest of educational achievements, must have at least a modicum of self-indulgence at this juncture. If not, we never would have been able to endure the psychic trauma of staring for months at a document that three other people, at most, will read. Now that I too have endured, I feel entitled to a self-indulgent and trite acknowledgments section. Besides, if my life never gets exciting enough to be deserving of a full-length memoir, this might be my only chance to put these sentiments, trite as they are, in print.

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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACA</td>
<td>Affordable Care Act</td>
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<tr>
<td>ACO</td>
<td>Accountable Care Organization</td>
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<tr>
<td>AGH</td>
<td>Allegheny General Hospital</td>
</tr>
<tr>
<td>AHERF</td>
<td>Allegheny Health, Education, and Research Foundation</td>
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<tr>
<td>AHN</td>
<td>Allegheny Health Network</td>
</tr>
<tr>
<td>AIAN</td>
<td>American Indian / Alaskan Native</td>
</tr>
<tr>
<td>API</td>
<td>Asian / Pacific Islander</td>
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<tr>
<td>ASH</td>
<td>Advanced Surgical Hospital</td>
</tr>
<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
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<tr>
<td>CMS</td>
<td>Center for Medicare and Medicaid Services</td>
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<td>DOJ</td>
<td>Department of Justice</td>
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<td>FTC</td>
<td>Federal Trade Commission</td>
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<td>HR</td>
<td>Human Resources</td>
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<tr>
<td>IPA</td>
<td>Independent Practice Association</td>
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<tr>
<td>IT</td>
<td>Information Technology</td>
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<tr>
<td>MSA</td>
<td>Metropolitan Statistical Area</td>
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<tr>
<td>NA</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>NPI</td>
<td>National Provider Identifier</td>
</tr>
<tr>
<td>PILOT</td>
<td>Payments in Lieu of Taxes</td>
</tr>
<tr>
<td>UPMC</td>
<td>University of Pittsburgh Medical Center</td>
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<tr>
<td>US</td>
<td>United States</td>
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<tr>
<td>WPAHS</td>
<td>West Penn Allegheny Health System</td>
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If you don't think health care is about power, you haven't been paying attention.

– Don Berwick
1. U.S. Health Care Industry Consolidation as a Policy Problem

U.S. Health Care Industry Consolidation Continues

The U.S. health care industry in the 21st century has been characterized by consolidation (Fulton, 2017). The two largest health insurers (United Health and Anthem) control 70% or more of the market in over half of local health insurance markets, and more than 1,500 hospital mergers have occurred over the last two decades (Gaynor, 2018). Hospitals are combining to create health systems and integrated delivery networks, with more than 70 yearly transactions since 2010 and over 100 yearly transactions since 2014 (Kaufman Hall, 2018). Physician practices are getting larger and are being acquired by integrated delivery systems; the proportion of physicians who own their own practice dropped below 50% for the first time in 2016 (Kane, 2017). Mergers between health care insurers and pharmacy benefit manager industry giants like Aetna and CVS, Cigna and Express Scripts have been announced. As of this writing, reports are emerging that big-box retailer Walmart is in talks to acquire health insurer Humana.

Health care consolidation is happening both horizontally (similar types of entities combining) and vertically (different types of entities combining). It is happening at the local, regional, and national levels. It affects urban, suburban, and rural communities. And most importantly, health care consolidation is evolving, as entities not traditionally associated with the health care industry, like Walmart, are starting to use consolidation as a means to enter it. These new entities have the potential to disrupt how health care is organized and delivered in the very near future.

Why is the U.S. Health Care Industry Consolidating?

The phenomenon of consolidation is not attributable to a single source; it can be a response to market forces, the policy environment, or both. Frequently, the reasons for an individual merger or acquisition touted by executives and spokespeople are often disputed by observers or empirical evidence. Commonly accepted motivations fall into a few basic categories: negotiating leverage, payment policy, access to capital, economies of scale, quality improvement, capturing referrals, and dearth of policy remedies.

*Negotiating Leverage*

Because the U.S. health care system is carved up into entities (such as hospitals and insurers) that negotiate with each other rather than directly with individual patients, achieving scale is often the best way to improve negotiating leverage. Health systems form and increase in size to negotiate more favorable rates with insurers, and insurers merge and consolidate to gain leverage over provider reimbursement rates. Often, consolidating entities can grow large to become a “must-have” based on size alone for other players or vendors in a local market, allowing them to
act as monopolists in the market for services or products, or potential labor or service monopsonies.

Payment Policy

Although health care in the United States is mostly delivered in the private sector, nearly half is paid for by state (Medicaid) and federal (Medicare) governments. Government payment policies have an outsized impact on the structure of health care markets. For example, Medicare for many years would reimburse physicians differently for the same service provided in outpatient and inpatient settings. The 340B drug discount program also allowed hospitals serving a disproportionate share of low-income and uninsured populations to purchase drugs at lower prices. Both of these programs ultimately incentivized acquisition of physician practices and outpatient facilities by inpatient facilities. Current Medicare payment schemes related to value-based payment systems appear to incentivize the creation of large, integrated delivery systems as a means of improving care coordination and population health management. Though the policy does not necessarily require shared ownership of integrating entities, shared ownership is often seen as a way to align incentives and ensure integration.

Access to Capital

Today’s health care environment requires large capital investments in technologies, such as electronic medical records systems and imaging equipment. Large systems are more easily able to obtain the capital required for these investments than smaller individual entities. Similarly, physician practice acquisition by hospitals and health systems has helped physicians cope with the cash outlay of the high costs of medical malpractice insurance and other large upfront costs for independent practices.

Administrative and Compliance Costs

One of the most commonly cited reasons for the excessive health care costs in the U.S. is the cost of administrative overhead, including billing and regulatory compliance. One way that these costs can be reduced is if they are spread over a larger base of operations. While this can certainly be effective in reducing costs to a point, with large increases in entity size, administrative scale must increase. The cost savings achieved may or may not accrue to consumers.

Quality Improvement

A related idea is that consolidation will increase volume, and there is a well-known relationship between health care volume and quality. Large systems may also be able to devote more resources to quality improvement efforts. Adoption of electronic medical records can also be a means to improve quality.
Capturing Referrals

Large health care systems are capital-intensive, and at the end of the day, they need to be making enough money to ensure their continued existence. Large systems need to make sure their beds are full and staff utilized appropriately. One way to do this is to form a large system to capture these referrals. These large systems then try to reduce referrals of patients to providers or facilities outside the system, commonly referred to as “leakage.”

Dearth of Policy Remedies

The final reason for health care consolidation is that it is not easily stopped. Stopping proposed consolidation requires antitrust regulators to win a case in court that convincingly demonstrates that the consolidation would harm health care consumers. However, the regulators do not have the ability to review or prosecute every proposed transaction. Further, many transactions “fly under the radar” because they do not meet the dollar threshold that requires them to seek regulatory approval. Others are not seen as anticompetitive takeovers, and instead are seen as the least objectionable option to save an entity that would otherwise shut down. Over time, these events change how the U.S. health care system functions.

Why is Health Care Consolidation a Policy Problem?

Policy problems are often defined in terms of market failure. Health care, even when paid for and delivered privately, concerns policy makers because provision of health care introduces many market failures, such as asymmetric information, moral hazard, and monopoly power. Patients experience the effects of asymmetric information, as clinicians and administrators have better information about the appropriateness and quality of care provided than patients do. Payers feel the effects of moral hazard, as insurance market structures and public policies distort the costs faced by patients of certain types of care. And increasing market concentration, whether through the consolidation of existing entities or their failure and closure, allows for a small number of large firms to control prices more than they could in a more competitive market.

Concentration results from the merger and acquisition of health care entities. As noted previously, mergers and acquisitions are generally divided into two types: “horizontal” and “vertical.” Horizontal consolidation takes place when two entities of the same type combine into a single entity. Horizontal consolidation can promote efficiencies through economies of scale and scope, by reducing duplicative services, and by facilitating investment. However, horizontal consolidation is generally recognized to enhance the market power of firms, resulting in increased prices to consumers. In contrast, vertical consolidation occurs when two entities of different types combine into a single entity. From a theoretical economic perspective, vertical consolidation is good for consumers, because it can create efficiencies by aligning incentives that allow for better care coordination and investments that improve quality or efficiency. However, there are also theoretical circumstances under which vertical consolidation can harm consumers,
such as when it restricts rivals’ access to inputs like labor or technology, or eliminates
competition among providers that were previously independent (Gaynor, 2011). Both types of
consolidation can result in the ability of these newly consolidated entities to engage in
monopolistic pricing behaviors.

This exertion of monopolistic pricing power has historically been the motivation for
government intervention with respect to consolidation of health care related entities. Prices and
premiums are a key component of the main policy remedy of consolidation: antitrust
enforcement. To prevent a merger or acquisition, antitrust regulators such as the Federal Trade
Commission (FTC) and Department of Justice (DOJ), must establish that the merger or
acquisition will cause harm to consumers due to an unreasonable increase in market
concentration. The effects of increased market concentration on health care prices and premiums
are well established.

The Health Care Consolidation Evidence Base is Strong in Some Areas

The evidence base on health care industry consolidation tends to focus on a limited set of
outcomes that result from a small number of possible consolidation scenarios. Simple scenarios
include the acquisition of hospitals by a health system, or the merger of two physician practices.
More complex arrangements include payer-provider integration. In addition to transactions that
create new ownership arrangements, many gray areas exist in terms of formal and informal
consolidated arrangements. These can include joint ventures or joint operating agreements
(“virtual mergers”) to accommodate new care or payment models like accountable care
organizations (ACOs). These different forms of consolidation and integration are likely to have
different consequences.

The most common types of studies in the consolidation literature focus on changes in health
care prices and costs after the horizontal consolidation of hospitals or changes in health insurance
premiums after the horizontal consolidation of health insurers. There is strong, consistent
evidence that hospital prices increase after consolidation, and some evidence that growth in
prices increases. The effects are most pronounced in markets that are already relatively
concentrated (Gaynor and Town, 2012). Mergers between insurers increases their leverage over
health care providers, which can reduce hospital prices (Moriya, Vogt and Gaynor, 2010;
Scheffler and Arnold, 2017), as well as physician employment and earnings (Dafny, Duggan and
Ramanarayanan, 2009). However, these benefits do not accrue to consumers and patients, as
insurer concentration is positively associated with insurance premiums (Dafny, Duggan and
Ramanarayanan, 2009; Dafny, Gruber and Ody, 2014). Horizontal consolidation of physician
practices is often associated with higher prices (Sun and Baker, 2015; Baker et al., 2014; Austin
and Baker, 2015; Dunn and Shapiro, 2013; Dunn and Shapiro, 2014). There is evidence that
vertical consolidation of physician practices with hospitals and health systems does not reduce
and often increases prices and expenditures (Baker, Bundorf and Kessler, 2014; Cuellar and
Gertler, 2006; Kocher and Sahni, 2011; Ciliberto and Dranove, 2006; Neprash et al., 2015; Robinson and Miller, 2014; Madison, 2004). Thus, the evidence base shows that consolidation typically does not benefit patients and consumers in terms of lower prices. However, if these arrangements increased quality significantly, price increases might be acceptable. Available evidence indicates that consolidation has mixed effects on health care quality (Gaynor, 2006), but there is far less evidence related to quality than price.

**The Health Care Consolidation Evidence Base is Weak in Many Areas**

There are many areas in which the evidence base on the impacts of health care consolidation is weak. First, evidence on the circumstances under which vertical mergers can be harmful to patients and consumers from a price perspective is still not well known; the evidence base on vertical mergers needs to be improved to be usable by antitrust enforcement agencies.\(^1\) Evidence on how health care quality is impacted is starting to emerge, but is still relatively sparse compared to price impacts. Its impact on other health care related outcomes like physician behavior, patient satisfaction, and access to care are unknown. Other potential outcomes, especially outcomes on the surrounding community outside the health care system, like employment and tax revenues, have rarely been discussed. Lastly, few alternative remedies for health care consolidation beyond antitrust enforcement have been discussed.

**Health Care Consolidation Has Consequences Beyond Price and Remedies Beyond Antitrust**

Although the price impacts of health care consolidation are the main mechanism for triggering antitrust review and potential enforcement, prices and premiums are not the only important impacts of health care consolidation. Health care consolidation changes the organization of both health care entities and health care markets. As previously mentioned in the discussion of the causes of consolidation, many motivations for consolidation revolve around the ability of health care entities to take advantage of the economies of scale, through efficiency in administration and compliance, ability to access capital, or investment in quality improvement. However, this scale also comes with some diseconomies, as coordinating the different parts of large organizations increases in complexity (Burns, Bradley and Weiner, 2011). The processes and functions of these organizations have to change accordingly, and these changes can impact patient care and the work environment for clinicians and support staff.

Second, health care consolidation changes the organization of health care markets. The rise of prices and premiums in the aftermath of consolidation is not innate; it happens because the balance of power in the market has changed. Consolidated health care entities have greater

\(^1\) Personal communication with Federal Trade Commissioner.
negotiation and pricing leverage over other market players. However, this balance of power can affect other outcomes; price is just the easiest outcome to measure. Consolidation’s impacts on other non-price outcomes are largely unknown, but anecdotal evidence from communities where consolidation has occurred indicate that these impacts exist and are of concern. This dissertation aims to augment the existing evidence base on how increasing scale of health care entities has consequences beyond price, and how these consequences can be addressed outside the realm of antitrust enforcement in three essays.

The first essay uses secondary data to provide evidence on the impacts of vertical mergers on physician shared patient networks. The second uses case study methods to do a deep dive into a single market (Pittsburgh, Pennsylvania) that has experienced an intense, protracted period of consolidation to understand the breadth of the potential effects of cumulative consolidation events. The third essay explores alternative policy solutions for addressing consolidation and its negative consequences. Together, these essays use a variety of methodologies (econometrics, case study, and policy analysis) to explore the consequences of and potential solutions to this phenomenon. The essays in this dissertation were approved by RAND’s Human Subjects Protection Committee, study number 2017-0104.

**Essay 1: Effect of Practice Consolidation on Physician Shared Patient Network Size, Strength, and Stability**

The first essay explores how consolidation changes how physicians interact with each other. Previous studies have demonstrated that consolidated ownership arrangements are changing individual referral relationships between physicians. Physicians regularly communicate with other physicians about their shared patients, so these consolidation events can ultimately change the set of physicians with whom they interact. The relationships that are created through these interactions form a kind of social network.

Physician social networks are important on both the individual and aggregate levels. At the individual level, physician networks are a key mechanism by which referrals are made. At the aggregate level, the size, strength, and stability of these networks have implications for costs and quality. The professional and social networks of physicians are critical for transmitting knowledge and information about new innovations and treatments (Lublóy, 2014; Valente, 1996); and large networks are more advantageous than smaller networks for this. High patient overlap among physicians (indicating “stronger” network ties) is associated with lower costs (Pollack et al., 2013) and higher quality (Hollingsworth et al., 2016). Lastly, high network stability in health care systems has been associated with organizational effectiveness, in terms of allowing for “the time to work out problems and agree on a division of labor regarding who should do what…[and] the time to learn how to govern” (Milward and Provan, 2000).

To understand how consolidation changes physician networks, I combine data on physicians, practice consolidations, and shared patient relationship data. I use an event study approach to observe how the size, strength, and stability of physician networks change after two types of
vertical consolidation (acquisition of a practice by either a health system or a hospital) and two types of horizontal consolidation (practices combine with either a medical group or another practice) to examine how networks of physicians change over 2009-2014. This study is novel in several ways. It is the first exploration of how social networks of physicians are impacted by health care consolidation. It separately examines four different types of consolidation. And lastly, it considers the social networks of all physicians, not just subspecialties of primary care physicians or specialists.

I hypothesized that vertical consolidation of specialists would result in smaller, stronger, and more stable networks, but that horizontal consolidation would not matter much for these outcomes. However, this is not what we observed. The results indicate that shared patient network stability increases significantly after acquisition of practices by another practice. These effects were robust to sensitivity analyses. I did not observe consistent or obvious effects of consolidation on the size and strength of shared patient networks. Thus, practice consolidation can increase the stability of physician networks, which may have positive implications for organizational effectiveness.

Essay 2: The Impact of Health Care Industry Consolidation in Pittsburgh, Pennsylvania: A Case Study

The second essay dives deeply into a single health care market (Pittsburgh, Pennsylvania) to explore the cumulative effects of 30 years of health care consolidation. Most previous work of this type focuses on the implications of consolidation inside health care systems. This study aims to take a broad view of the implications for consolidation as they affect the local health care market; health care systems; health care stakeholders such as clinicians, employees, and patients; and the general public.

I use a mix of stakeholder interviews, document review, and secondary data analysis to understand the range of these impacts. This study is noteworthy in several ways. Its unit of analysis is the entire local health care market, rather than a single health system. It captures the perspectives of people who are largely ignored in other studies of health care systems, including a large number of stakeholders who span the boundary between health care systems and the general public, such as advocates, professional and civic association representatives, government, and media. Although causality cannot be established from this study, that was not the aim; the aim is to expand our conception of what the outcomes of consolidation can be and stimulate future research directions.

According to stakeholders, consolidation has had mixed outcomes in Pittsburgh. There have been positive effects, such as the formation and support of non-profit organizations, opportunities for research and economic growth, and more informed health care consumers. There have also been negative outcomes, such as difficulties accessing care for uninsured populations, reduced accountability and transparency, and increased leverage over the labor force. There are also outcomes that are neither clearly positive nor negative, such as changes in
geographic access to care and debates over what tax-exempt organizations can be expected to do. Many of the observed outcomes can be linked to three pathways that are likely to be observed anywhere this phenomenon occurs: employment by large systems reduces physician autonomy; large systems amass disproportionate amounts of information, resources, and power; and large systems are similarly held to disproportionately high standards and expectations. These pathways are likely to be present in highly consolidated health care markets, but will combine with local contextual factors differently to produce different outcomes. Lastly, this case study shows that consolidation is not monotonic; the balance of power can shift over time and open up new opportunities for competition to emerge.


The final essay focuses on potential policy options for addressing health care consolidation and its negative consequences. Currently, many observers look at consolidation as a phenomenon to be prevented, but this is difficult to do in practice. Since we are already feeling the negative effects of consolidation, stakeholders and policy makers need to consider other means to address its negative consequences directly.

This essay reviews existing policy proposals and presents two potentially impactful policy options for addressing consolidation and its consequences. These policy proposals include increased restrictions on allowable insurance contracting language and increased standards for achieving or maintaining non-profit status. Prohibited contract clauses could include steering and tiering, gag clauses, most-favored nation provisions, and even employment contract language like non-compete and arbitration clauses. These could be implemented through state or federal legislation, conduct remedies, or other means. Altering non-profit status requirements could include minimum standards for purely charitable activities, converting community benefits into tax credits, or otherwise creating special rules for hospital non-profits.

**Conclusion and Future Research Directions**

The business and policy environments for health care in the U.S. are changing rapidly. A group of large health care systems, including Intermountain Healthcare and the U.S. Department of Veterans Affairs, is coming together to form a new, non-profit generic drug manufacturer; Berkshire Hathaway, Amazon, and JP Morgan are starting a health care venture. On the government side, many policies that incentivized consolidation, such as the 340B drug discount program and the Medicare facility fee are being discontinued or weakened. How these new types of firms and new policies will affect the tide of consolidation in the U.S. remains to be seen.

This dissertation is a first pass at exploring novel consequences and remedies for consolidation in the U.S. health care industry. Future research is needed on these consequences,
as there is surprisingly little evidence available on anything other than the price outcomes of horizontal mergers. This lack of an evidence base is a major barrier to both antitrust enforcement and the implementation of other types of policy remedies. Antitrust enforcers would benefit from better evidence on how vertical mergers can harm consumers and better methods for predicting how health care quality is affected by different types of mergers and acquisitions. The case study of consolidation in Pittsburgh shows the pathways by which consolidation can impede access to care, exert control over health care system employees, and affect the local economy and tax base. Further research should investigate whether the impacts reported anecdotally are detectable systematically. Understanding these impacts will provide important information, not just for policymakers and regulators, but also for communities that are experiencing or anticipating consolidation in their local health care markets so that they can prepare for or mitigate its negative consequences.
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2. Effect of Practice Consolidation on Physician Shared Patient Network Size, Strength, and Stability

Abstract


Data Sources/Study Setting: Medicare Shared Patient Patterns (30-day) and SK&A Physician Database practice affiliation data (2009-2014). Physicians were linked via National Provider Identifier.

Study Design: We used a dynamic difference-in-differences (event study) design to determine how two types of vertical consolidation (hospital and health system practice acquisition) and two types of horizontal consolidation (medical group membership and practice-practice mergers) affects individual shared patient network size (number of individual physicians with whom a physician shares patients within 30 days), strength (average number of shared patients within those relationships), and stability (percent of shared patient relationships that persist in the current and prior year). We control for physician fixed effects and geographic market (metropolitan statistical area).

Data Collection/Extraction Methods: The SK&A Physician Database was used to identify practice consolidation events via changes in listed health system, hospital, and medical group affiliation information and appearance/disappearance of listed practice affiliations. Measures of physician network size, strength, and stability were generated from Medicare claims data.

Principal Findings: Shared patient network stability increases significantly after acquisition of practices by horizontal practice-practice mergers and these effects were robust to sensitivity analyses. Shared patient network size and strength are not obviously influenced by practice consolidation events.

Conclusions: Practice consolidation can increase the stability of physician networks, which may have positive implications for organizational effectiveness.
Introduction

The proportion of U.S. physicians who own their practice dropped below 50 percent for the first time in 2016 (Kane, 2017; Burns, Goldsmith and Sen, 2013), and between 2013 and 2015, the share of physician groups with at least 100 physicians increased by 20% (Muhlestein and Smith, 2016). This shift of physicians toward employment in larger practices (horizontal consolidation) and practices owned by hospitals and health systems (vertical consolidation) is a growing area of concern for insurers, regulators, and consumers (Kirchhoff, 2013; Gaynor, 2014; Ginsburg and Pawlson, 2014). In contrast to horizontal mergers of hospitals, the relatively small and piecemeal nature of physician practice mergers and acquisitions rarely triggers regulatory thresholds, so it continues, unchecked by regulators (Capps, Dranove and Ody, 2017; Kleiner, Ludwinski and White, 2016). Previous studies have shown that practice consolidation increases costs rather than delivering the efficiency or quality benefits; it has been shown to increase prices and expenditures (Baker, Bundorf and Kessler, 2014; Schneider et al., 2008), and has ambiguous effects on health care quality (Gaynor, 2006). However, consolidation has effects on outcomes beyond prices and quality. An open question is how health care consolidation affects the opportunities physicians for interaction with each other via social networks.

Changes in the social networks of health care workers are important to understand because they are associated with worker satisfaction, behaviors, knowledge transfer, and performance (Tasselli, 2014), as well as important quality and safety outcomes, such as care coordination (Cunningham et al., 2012). The variance of the characteristics of physician networks may at least partially account for high geographic variation in health care more broadly (Landon et al., 2012). For example, high patient overlap among physicians (indicating “stronger” network ties) is associated with lower costs (Pollack et al., 2013) and higher quality (Hollingsworth et al., 2016). This implies that stronger networks might be more advantageous from a cost and quality perspective. Beyond cost and quality implications, networks also reflect the ways in which knowledge and information is exchanged. For example, information about new innovations and treatments is diffused through the professional and social networks of physicians (Lublóy, 2014; Valente, 1996). Connections between individuals in different groups are critical for bridging “structural holes” in the flow of information (Burt, 2004) and foundational work in social networks has demonstrated that so-called “weak” ties between individuals are crucial for transmitting information (Granovetter, 1977). This implies that large, diffuse networks might be advantageous in terms of the ability of physicians to gain access to important information, which is critical for providing state-of-the-art care for patients. Lastly, high network stability in has been associated with organizational effectiveness, in terms of allowing for “the time to work out problems and agree on a division of labor regarding who should do what...[and] the time to learn how to govern” (Milward and Provan, 2000; Johnston and Romzek, 2008). Patients being cared for by multiple physicians within a course of treatment or in managing a complex condition might most strongly experience the effects of disruption in physician networks due to
consolidation. Disruptions to these networks might result in reduced care continuity or quality for patients.

Furthermore, physician social networks are a critical component of physician referrals. Physician referrals are important to understand because they heavily influence the type, timing, quality, cost, and convenience of the care that patients ultimately receive. Physicians entering consolidated practice arrangements might start referring patients to physicians other than their most preferred physicians, who may be of uncertain or lower quality, or to specialists other than the ones they are accustomed to seeing. Physician referrals result from a complex decision process that includes the patient’s preferences and insurance coverage, as well as the physician’s personal and professional relationships and affiliations with other physicians, practices, groups, hospitals, and health systems. Changes in practice ownership and affiliation under consolidated arrangements are often accompanied by changes in the types of insurance coverage accepted and/or new referral incentives for physicians (Richards, Nikpay and Graves, 2016; Ho and Pakes, 2014). Previous studies have shown that both of these changes can influence physicians’ referral patterns. Hospital acquisitions have been shown to increase the volume of referrals from the acquired hospital to hospitals already owned by the acquirer (Nakamura, 2010; Nakamura, Capps and Dranove, 2007). Hospital ownership of a physician practice has been found to dramatically increase the probability that the practice’s patients ultimately choose the owning hospital for care (Baker, Bundorf and Kessler, 2016). The acquisition of multi-speciality clinic systems by integrated delivery systems has been observed to shift inpatient admissions and diagnostic imaging services toward the acquiring entity’s facilities and away from those used historically (Carlin, Feldman and Dowd, 2015). Acquisition of primary care physicians has been shown to increase referrals to specialists employed by the acquirer while referrals to specialists employed by competitors fall (Walden, 2016). These studies demonstrate that consolidated ownership arrangements are changing individual referral relationships between physicians, which changes the set of physicians they interact with, and this in turn changes their social networks.

These changes matter both on the individual and aggregate levels. Whether physician networks become stronger or weaker, larger or smaller, are disrupted or stabilize, they have implications that reach beyond the care that individual patients receive based on the choice of provider. Increases or reductions in the interaction and connections between individual physicians have broader implications for health care costs and quality, as well as how new information is exchanged. Understanding whether and how physician networks change before and after vertical and horizontal consolidation will allow for better prediction of the outcomes of proposed physician practice mergers and acquisitions and help institutional leaders and policymakers mitigate the negative effects of the likely changes to these networks.

To examine these questions, this paper combines two U.S. datasets, the SK&A Physician Dataset and Medicare Shared Patient Patterns (30-day) Dataset, to consider whether vertical consolidation (acquisition of a practice by a health system or hospital) and horizontal consolidation (acquisition of a practice by a medical group or another practice) among physician
practices changes the overall nature of existing networks of specialty physicians. This paper uses an event study approach to examine changes to individual shared patient network size (number of individual physicians with whom a physician shares patients within 30 days), strength (average number of shared patients within those physician relationships), and stability (percent of shared patient relationships that persist in the current and prior year) in the years before and after each type of consolidation studied (health system, hospital, medical group, or practice merger). This study explores the effects of different types of acquisitions and mergers from a social networks perspective to understand how these networks change.

We hypothesized that vertical consolidation of specialists would result in smaller, stronger, and more stable networks, but that horizontal consolidation would not matter as much for these outcomes, but this is not what we observed. Practice-practice mergers resulted in more stable shared patient networks, but this was the only consistently statistically significant effect. Changes in the size and strength of shared patient networks of physicians were not observed except in the in-referral network stability of health system acquisitions of practices, but this effect was not observed in sensitivity analyses of the same network constructed of out-referrals, or primary care and specialist subgroups. This implies that physician practice acquisition has the potential to improve organizational effectiveness as referral networks become more stable over time.

Methods

Data

Physician Practice Data

Physicians and practices were identified using yearly SK&A physician databases (2009-2014), a marketing dataset for office-based physicians covering approximately 75% all office-based practicing physicians in the United States (Baker, Bundorf and Kessler, 2016). Each observation represents a physician-site, which is an individual physician at a single practice site (individual physicians may appear at multiple sites in the dataset). Although this dataset has not been used extensively in research compared to similar sources of physician data such as the American Medical Association Masterfile or Community Tracking Study (Gresenz, Auerbach and Duarte, 2013), more recent studies have used this data to examine the effects of health care consolidation on Medicaid acceptance (Richards, Nikpay and Graves, 2016) and cancer spending (Conti, Landrum and Jacobson, 2016) due to the inclusion of ownership and affiliation information for practice sites.

Practice Consolidation Data

Each type of consolidation event was analyzed separately, even in cases in which physicians were exposed to multiple types of consolidation. We used SK&A indicators of practice site
ownership information across years to determine whether a practice site’s hospital, health system, or medical group ownership changed from missing in one year to non-missing in the following year. We considered a non-missing ownership affiliation in the year of interest and a missing ownership affiliation in the prior year to be a “consolidation event”. This method was used to detect two types of vertical consolidation: ownership by either a hospital or a health system (health systems may include multiple care sites, including hospitals, clinics, practices, and other health care providing entities). We also used this method to detect one type of horizontal consolidation: a practice site being acquired by a medical group (medical groups include multiple physician group practices that may share records, administrative functions, and other resources). Observations in which practices had a “missing” affiliation in a single year but were owned by the same organization in both the prior and subsequent year were considered an error and ownership information in that year was considered to be the same as the surrounding years.

We also detected a second type of horizontal consolidation: merger or acquisition of a practice with or by another practice. To do this, we determined the last occurrence of individual practice sites in the dataset. If the practice site no longer appears in the dataset in 2013 or earlier and physicians associated with that practice appear as members of another practice in either the same year or the year after the practice disappears from the dataset, the first year of the appearance of the physician in the new practice is considered the year of a practice-practice consolidation event. Although this method could pick up spurious non-merger events (e.g., a practice dissolves and each physician independently joins a different practice), these scenarios can still be considered consolidation since the dissolution of a practice ultimately increases practice concentration, even if it is not reflective of a merger transaction.

Shared Patient Network Data

Shared patient networks were identified using the Centers for Medicare and Medicaid Services (CMS) Physician Shared Patient Patterns 30-day data set (2009-2014) and linked to SK&A data using the National Provider Identifier (NPI). The CMS Physician Shared Patient Patterns is a network data set generated from claims data to determine whether pairs of physicians have a “shared patient in time.” For pairs of providers (“Provider 1” and “Provider 2”), the dataset includes the number of times Provider 1 and then Provider 2 filed a claim for an individual patient dated within 30 days in a calendar year. Shared Medicare patients have been shown to be a strong proxy for real physician relationships (Barnett et al., 2011). To protect patient privacy, physicians must share at least 11 patients for a relationship between them to appear in the dataset, which results in underestimation of the true size of these networks (Zand et al., 2017).

Using these data, we constructed three measures for each specialist physician in each year that characterize the size, strength, and stability of the physician’s network. First, we define ln(size) as the natural logarithm of the size of the network. Network size is defined as the number
of individual physicians that have shared patients with the physician of interest over a 30-day period within a given calendar year (known in social network analysis as indegree). We use the natural logarithm of size to account for its strictly positive, skewed distribution and to ease the interpretation of regression coefficients. Second, we define ln(strength) as the natural logarithm of the strength of the network for physician i in year t. Network strength is the average number of individual patients that are shared within the shared patient relationships observed for the size measure (known in social network analysis as weighted indegree). Again, we use the natural logarithm of strength to account for its strictly positive, skewed distribution and to ease the interpretation of regression coefficients. Finally, we define stability as the proportion of shared patient relationships between the specialist and another physician in the current year that also existed in the previous year.

**Econometric Model**

To estimate the effect of consolidation on physician networks, we use a dynamic difference-in-differences (event study) approach. We estimate the following regression model:

\[
y_{ijt} = \sum_{\tau=-5}^{\tau=-2} \beta_{j\tau} 1(experienced) j + \sum_{\tau=0}^{\tau=4} \beta_{j\tau} 1(experienced) j + \sum_{t=2010}^{t=2014} \gamma_t D_t + X_i + Z_{it} + \epsilon_{ijt}
\]

where \(y_{ijt}\) is one of three outcomes of interest (ln(size), ln(strength), stability), \(i\) is the individual physician, \(j\) is one of four types of consolidation events, \(\tau\) is the time period relative to the consolidation event, \(\beta_{j\tau}\) are the coefficients of interest (effect of consolidation of type \(j\) on \(Y\) at time period \(\tau\)), \(\gamma_t\) are coefficients for the year dummies (\(D_t\)), \(X_i\) is physician-site fixed effects, and \(Z_{it}\) is physician \(i\)'s location (metropolitan statistical area [MSA]) at time \(t\).

Consolidation events are normalized to occur in time period \(\tau = 0\). Because stability outcomes are created comparing current year relationships to previous year relationships, outcomes do not exist for the year 2009, so \(\tau = -5\) and \(t = 2014\) are omitted in the stability models due to collinearity.

**Sensitivity Analyses**

The three measures considered (size, strength, and stability) are constructed from relationships that have a directional element. These shared patient relationships are constructed from claims data that may or may not reflect referrals between physicians. These measures can be constructed from both “in-referrals” and “out-referrals.” In the main analysis, measures are constructed from “in-referrals.” This means physicians’ network measures are based on the providers that saw the patient before the physician of interest. In the sensitivity analysis, we also consider “out-referral” measures, in which network measurers are based on the providers that saw the patient after the physician of interest. The extent to which these data represent referrals from physicians to other physicians or simply shared patients over time is unclear.

In addition to the analyses conducted on all physicians, subgroup analyses were conducted on two subgroups. The first consists of adult primary care providers and the second of physician
specialists. The specialist group excludes surgeons, pathologists, radiologists, anesthesiologists, and other non-specialist practitioners. Both group classifications are listed in Appendix Table 1.

Results

Descriptive Characteristics of Consolidation Events

Physician-sites were observed 2009-2014 (Table 1). Health system acquisitions were the most common consolidation event type, followed by medical group acquisitions, and hospital acquisitions. Practice-practice mergers were the least commonly experienced event. Most physician-sites never experienced a consolidation event during the study period; in any given year, 6%-13% of physicians were exposed to any kind of consolidation event. Of those physicians, 9%-13% were exposed to multiple types of consolidation (e.g., a non-missing hospital and medical group ownership affiliation appeared in the same year). Of the physician-sites experiencing consolidation, 63% were vertical consolidations and 37% were horizontal consolidations.

Table 1. Physician-site observations exposed to a consolidation event during the study period

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Observations</th>
<th>Health system Events</th>
<th>Hospital events</th>
<th>Medical group events</th>
<th>Practice-practice events</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>751,141</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>2010</td>
<td>796,204</td>
<td>20,096</td>
<td>28,265</td>
<td>28,722</td>
<td>16,826</td>
</tr>
<tr>
<td>2011</td>
<td>846,268</td>
<td>67,527</td>
<td>27,886</td>
<td>6,310</td>
<td>16,303</td>
</tr>
<tr>
<td>2012</td>
<td>886,619</td>
<td>33,013</td>
<td>26,695</td>
<td>37,827</td>
<td>14,404</td>
</tr>
<tr>
<td>2013</td>
<td>896,587</td>
<td>31,721</td>
<td>29,455</td>
<td>32,034</td>
<td>11,665</td>
</tr>
<tr>
<td>2014</td>
<td>768,887</td>
<td>20,930</td>
<td>13,617</td>
<td>12,713</td>
<td>4,333</td>
</tr>
<tr>
<td>Total</td>
<td>4,945,706</td>
<td>173,287</td>
<td>125,918</td>
<td>117,606</td>
<td>63,531</td>
</tr>
</tbody>
</table>

NOTE: Consolidation events are detected by comparing affiliation information for the current year to the previous year, so the first year of data is omitted (*).

The mean (standard deviation) network size, strength, and stability measures for physicians exposed to any type of consolidation event were 81 (119), 32 (11), and 0.70 (0.22), respectively. In other words, the average physician observed had shared patients with 81 individual physicians in a given year, the number of shared patients in these relationships was 32 on average, and in any given year about 70% of the physicians who shared patients within 30 days in that year also did so in the previous year. For physicians not exposed to any consolidation events over the study period, these values were very similar: 79 (122), 31 (11), and 0.71 (0.21).

Distributions of network size, strength, and stability are shown in Figure 1. Network size and strength are right-skewed. Stability was left-skewed and was constrained to a range between zero and one since it is a proportion; but there are a large number of values clustered at 0, 0.5, and 1.
Figure 1: Distributions of size (A), strength (B), and stability (C) measures for physicians in the analyzed sample.

Panel A: Distribution of network size measure. 744 outliers >1000 of 1,219,946 observations are omitted.

Panel B: Distribution of network strength measure. 1,776 outliers >100 of 1,219,946 observations are omitted.

Panel C: Distribution of network stability measure. 1,083,810 observations.
Regression Results

Figures 2, 3, and 4 show the log size or size beta coefficients and 95% confidence intervals for the effect of consolidation on the outcomes of interest in the years relative to the reference year (the year before consolidation event) and up to five years prior and four years after. Results without a discernible effect do not differ significantly from the zero line. Deviations above or below the zero line prior to the event indicate a violation of the null pre-trends assumption for event studies. Deviations significantly above or below the zero line after the event when the null pre-trends assumption holds were the outcomes of interest.

The confidence intervals in these graphs are generally wider in the years further away from the event because the estimates are composed of far fewer observations (e.g., effect estimates four years after the event are only composed of observations in which the event occurred in 2010, while estimates of the effect in the year after the event are composed of observations in which the event occurred in 2010, 2011, 2012, or 2013).

Network Size

Consolidation appears to have little meaningful effect on the size of physician networks (Figure 2). The assumption of null pre-trends appears to hold except for some marginally significant pre-trends in medical group affiliations (Figure 2C). Full regression results are shown in Appendix A Table 2. In the subgroup analysis of specialists, practice-practice mergers appear to decrease the size of physician networks by about 5%-10%; this effect was similar in both the in-referral and out-referral network constructions (Appendix A Figures 2D and 3D).
Network Strength

Consolidation appears to have little meaningful effect on the strength of physician networks (Figure 3). The assumption of null pre-trends appears to be violated in the case of the acquisition of practices by hospitals (Figure 3B) so the subsequent significant decrease in strength was disregarded. Consolidation appears to increase the strength of physician networks in the case of practice-practice mergers, but these effects are small (representing less than a single patient on average) and are not sustained. Full regression results are shown in Appendix A Table 3.
Network Stability

Consolidation does appear to have a meaningful impact on the stability of physician networks (Figure 4). The assumption of null pre-trends appears to hold in all four consolidation types. Horizontal practice-practice consolidations produce a statistically significant and sustained increase in the stability of referral networks (Figure 4D). Regression results are shown in Appendix A Table 4.

This result also holds in the sensitivity analysis of networks constructed using out-referral relationships (Appendix A Figure 1D). The general trend of these results is observable but not statistically significant in subgroups of primary care physicians (Appendix Figures 4D and 5D); a small statistically significant effect occurs in the first couple years in the out-referral network but is not sustained. The effect is strong in both the in-referral and out-referral networks of specialty physicians (Appendix A Figures 6D and 7D). Consolidation appears to increase the stability of physician networks after a health system acquisition of a practice (Figure 6A).
However, this result does not appear in networks constructed of out-referral relationships, nor subgroups of primary care or specialty physicians.

**Figure 4. Network stability coefficients**

![Network stability coefficients graphs](image)


**Discussion**

Increasing integration and concentration of physician practices is generally associated with increased prices (Capps, Dranove and Ody, 2015; Baker et al., 2014; Dunn and Shapiro, 2014) and mixed impacts on quality (Scott et al., 2017; Eisenberg, 2014; Weeks et al., 2010; Gaynor, 2006). However, little is known about how the increasing integration and concentration of physician practices impacts physician networks. Characteristics of physician networks are both associated with important cost and quality outcomes, and are also indicative of how information flows among physicians and variability in health care emerges more broadly.

This paper sheds light on how consolidation of physician practices affects the networks of physicians. The most notable result of this study is that practice-practice consolidations appears
to increase the stability of physician networks. This may be indicative of the motivation for consolidation: acquired physicians take up excess capacity that other physicians in that practice were unable to accommodate without increasing their practice size. Reduced “churn” among relationships likely enables physicians to get to know each other better over time and reduce the transaction costs of the creation of new referral relationships, which include the time and effort it takes to effectively and efficiently interact with other care providers. If this is true, this may be a mechanism by which consolidation can result in lower costs and higher quality for patients.

A decrease in size was observed for the specialty physician subgroup after practice-practice mergers. However, for the most part, our results indicate that the size and strength of physician networks are not obviously affected by consolidation events. This could be because consolidations occur between entities where physicians already have relationships with each other. It might also be due to the limitations of these data. The physician networks examined were constructed from Medicare patients. If the mechanism by which disruptions to physician networks occur is related to changes in what health plans are accepted by the acquiring entity, these data may not show this effect, as fee-for-service Medicare is widely accepted. However, these changes could appear as spillover effects, as relationships are “costly” in the sense that most people can only maintain a limited number of social relationships. Future work should examine if these results hold in data generated from commercially insured populations.

This study is subject to several other limitations. To protect patient privacy, the shared patient data omits weak relationships between physicians with fewer than 11 shared patients, which may lead to an underestimation of the size of networks and overestimation of the strength of these networks. However, unless consolidation events have a differential effect on “weak” referral relationships, this is unlikely to skew our results since this study is primarily concerned with trends over time. Such effects are to be expected and may change over time. Finally, the outcomes for the time periods most distant from the event (e.g. 5 years before and 4 years after) are composed of far fewer observations than those calculated for years immediately surrounding the event), since only one year of consolidation events contributed to the data on at the end of the sample period. Future work should continue to examine if these trends persist.

Despite these limitations, the long-term trend away from small, physician-owned practices and toward either employment by health systems and larger practice sizes shows no signs of slowing. Most previous work on the effects of health care consolidation has focused on the price impacts of hospital consolidation. However, research remains limited on how health care consolidation among other types of entities, especially vertical consolidation between practices and hospitals or health systems, affects other domains. Health care consolidation accompanies numerous changes to the environments in which health care workers do their jobs, and these workers are likely to change their behavior to adapt to the constraints and incentives of their new environment. Whether these behaviors enhance or detract from health care quality, safety, and efficiency is critical to understand as consolidated physician arrangements will shape the structure of the U.S. health care system for the foreseeable future.
Acknowledgments

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Appendix A: Supplemental Network Size and Stability Data

Appendix A Figure 1. Sensitivity analysis of network stability coefficients, constructed using all physicians, out-referral data

Appendix A Figure 2. Sensitivity analysis of network log size coefficients, constructed using subgroup of specialist physicians

Appendix A Figure 3. Sensitivity analysis of network log size coefficients, constructed using subgroup of specialist physicians, out-referral data

Appendix A Figure 4. Sensitivity analysis of network stability coefficients, constructed using subgroup of primary care physicians

Appendix A Figure 5. Sensitivity analysis of network stability coefficients, constructed using subgroup of primary care physicians, out-referral data

Appendix A Figure 6. Sensitivity analysis of network stability coefficients, constructed using subgroup of specialist physicians

Appendix A Figure 7: Sensitivity analysis of network stability coefficients, constructed using subgroup of specialist physicians, out-referral data

### Appendix A Table 1. Medical specializations in primary care, specialty subgroup analyses

<table>
<thead>
<tr>
<th>Primary Care</th>
<th>Specialty Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Practitioner</td>
<td>Addiction Medicine</td>
</tr>
<tr>
<td>General Practitioner</td>
<td>Allergist</td>
</tr>
<tr>
<td>Internal Medicine/Pediatrics</td>
<td>Allergist/Immunologist</td>
</tr>
<tr>
<td>Internist</td>
<td>Bariatrician</td>
</tr>
<tr>
<td>Osteopathic Physician</td>
<td>Cardiovascular Disease</td>
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<td></td>
<td>Critical Care Specialist</td>
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<tr>
<td></td>
<td>Dermatologist</td>
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<tr>
<td></td>
<td>Diabetes Specialist</td>
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<tr>
<td></td>
<td>Endocrinology &amp; Metabolism</td>
</tr>
<tr>
<td></td>
<td>Epileptologist</td>
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<tr>
<td></td>
<td>Gastroenterologist</td>
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<tr>
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<td>Genetics Specialist</td>
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<td>Geriatrician</td>
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<td>Hepatologist</td>
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<td></td>
<td>Immunologist</td>
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<td>Infectious Disease Specialist</td>
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<td>Neurologist</td>
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<td>Obstetrician/Gynecologist</td>
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<td>Ophthalmologist</td>
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<tr>
<td></td>
<td>Orthopedic Foot &amp; Ankle</td>
</tr>
<tr>
<td></td>
<td>Otolaryngologist</td>
</tr>
<tr>
<td></td>
<td>Pain Management Specialist</td>
</tr>
<tr>
<td></td>
<td>Physical Medicine/Rehab Spec</td>
</tr>
<tr>
<td></td>
<td>Podiatrist</td>
</tr>
<tr>
<td></td>
<td>Psychiatrist</td>
</tr>
<tr>
<td></td>
<td>Psychologist</td>
</tr>
<tr>
<td></td>
<td>Pulmonary Critical Care</td>
</tr>
<tr>
<td></td>
<td>Pulmonologist</td>
</tr>
<tr>
<td></td>
<td>Radiation Oncologist</td>
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<tr>
<td></td>
<td>Reproductive Endocrinology</td>
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<tr>
<td></td>
<td>Rheumatologist</td>
</tr>
<tr>
<td></td>
<td>Sleep Medicine</td>
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<tr>
<td></td>
<td>Sport Medicine Specialist</td>
</tr>
<tr>
<td></td>
<td>Urologist</td>
</tr>
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</table>
Appendix A Table 2. Estimates (b) and standard errors (se) of network log size for physicians exposed to consolidation events (health system ownership, hospital ownership, medical group ownership, practice-practice merger).

<table>
<thead>
<tr>
<th>Size</th>
<th>Health system b/se</th>
<th>Hospital b/s</th>
<th>Medical Group b/se</th>
<th>Practice-practice b/se</th>
</tr>
</thead>
<tbody>
<tr>
<td>-5 years</td>
<td>-0.014 0.037</td>
<td>0.007 0.041</td>
<td>-0.112* 0.057</td>
<td>0.026 0.030</td>
</tr>
<tr>
<td>-4 years</td>
<td>-0.018 0.028</td>
<td>0.006 0.031</td>
<td>-0.087* 0.042</td>
<td>0.017 0.016</td>
</tr>
<tr>
<td>-3 years</td>
<td>-0.014 0.018</td>
<td>0.010 0.020</td>
<td>-0.057* 0.028</td>
<td>0.004 0.011</td>
</tr>
<tr>
<td>-2 years</td>
<td>-0.009 0.009</td>
<td>0.007 0.010</td>
<td>-0.025 0.028</td>
<td>-0.009 0.007</td>
</tr>
<tr>
<td>Event year</td>
<td>0.013 0.010</td>
<td>0.002 0.010</td>
<td>0.024 0.014</td>
<td>-0.020** 0.007</td>
</tr>
<tr>
<td>+1 years</td>
<td>0.025 0.018</td>
<td>0.005 0.020</td>
<td>0.014 0.028</td>
<td>-0.005 0.012</td>
</tr>
<tr>
<td>+2 years</td>
<td>0.039 0.027</td>
<td>0.007 0.030</td>
<td>0.073 0.042</td>
<td>-0.008 0.016</td>
</tr>
<tr>
<td>+3 years</td>
<td>0.054 0.036</td>
<td>0.017 0.040</td>
<td>0.104 0.056</td>
<td>-0.019 0.020</td>
</tr>
<tr>
<td>+4 years</td>
<td>0.061 0.046</td>
<td>0.020 0.051</td>
<td>0.117 0.070</td>
<td>-0.035 0.024</td>
</tr>
<tr>
<td>2010</td>
<td>-0.033*** 0.009</td>
<td>-0.028** 0.010</td>
<td>-0.049*** 0.014</td>
<td>-0.027** 0.006</td>
</tr>
<tr>
<td>2011</td>
<td>-0.051** 0.018</td>
<td>-0.035 0.020</td>
<td>-0.086** 0.028</td>
<td>-0.032*** 0.013</td>
</tr>
<tr>
<td>2012</td>
<td>-0.075** 0.027</td>
<td>-0.045 0.030</td>
<td>-0.121** 0.042</td>
<td>-0.035** 0.013</td>
</tr>
<tr>
<td>2013</td>
<td>-0.110** 0.037</td>
<td>-0.075 0.040</td>
<td>-0.171** 0.056</td>
<td>-0.052** 0.016</td>
</tr>
<tr>
<td>2014</td>
<td>-0.159*** 0.046</td>
<td>-0.121* 0.051</td>
<td>-0.229** 0.070</td>
<td>-0.086*** 0.020</td>
</tr>
</tbody>
</table>

NOTE: * p<0.05, ** p<0.01, *** p<0.001
### Appendix A Table 3. Estimates (b) and standard errors (se) of network log strength for physicians exposed to consolidation events (health system ownership, hospital ownership, medical group ownership, practice-practice merger).

<table>
<thead>
<tr>
<th>Size</th>
<th>Health system b/se</th>
<th>Hospital b/s</th>
<th>Medical Group b/se</th>
<th>Practice-practice b/se</th>
</tr>
</thead>
<tbody>
<tr>
<td>-5 years</td>
<td>0.017 0.013</td>
<td>0.045** 0.015</td>
<td>0.021 0.020</td>
<td>-0.003 0.011</td>
</tr>
<tr>
<td>-4 years</td>
<td>0.010 0.010</td>
<td>0.035** 0.011</td>
<td>0.013 0.015</td>
<td>0.000 0.006</td>
</tr>
<tr>
<td>-3 years</td>
<td>0.005 0.007</td>
<td>0.022** 0.007</td>
<td>0.009 0.010</td>
<td>-0.003 0.004</td>
</tr>
<tr>
<td>-2 years</td>
<td>0.002 0.003</td>
<td>0.011*** 0.004</td>
<td>0.005 0.005</td>
<td>0.002 0.002</td>
</tr>
<tr>
<td>Event year</td>
<td>0.000 0.003</td>
<td>-0.008* 0.004</td>
<td>-0.002 0.005</td>
<td>0.005 0.003</td>
</tr>
<tr>
<td>+1 years</td>
<td>-0.003 0.007</td>
<td>-0.017* 0.007</td>
<td>-0.004 0.010</td>
<td>0.012** 0.004</td>
</tr>
<tr>
<td>+2 years</td>
<td>-0.001 0.010</td>
<td>-0.026* 0.011</td>
<td>-0.006 0.015</td>
<td>0.014* 0.006</td>
</tr>
<tr>
<td>+3 years</td>
<td>-0.001 0.013</td>
<td>-0.036* 0.015</td>
<td>-0.009 0.020</td>
<td>0.015* 0.007</td>
</tr>
<tr>
<td>+4 years</td>
<td>0.004 0.017</td>
<td>0.042* 0.018</td>
<td>-0.015 0.025</td>
<td>0.015 0.009</td>
</tr>
<tr>
<td>2010</td>
<td>-0.005 0.003</td>
<td>0.001 0.004</td>
<td>-0.000 0.005</td>
<td>-0.008*** 0.002</td>
</tr>
<tr>
<td>2011</td>
<td>-0.004 0.007</td>
<td>0.012 0.007</td>
<td>0.003 0.010</td>
<td>-0.006* 0.003</td>
</tr>
<tr>
<td>2012</td>
<td>-0.001 0.010</td>
<td>0.025* 0.011</td>
<td>0.007 0.015</td>
<td>-0.008 0.004</td>
</tr>
<tr>
<td>2013</td>
<td>-0.003 0.013</td>
<td>0.032* 0.015</td>
<td>0.009 0.020</td>
<td>-0.012* 0.006</td>
</tr>
<tr>
<td>2014</td>
<td>-0.010 0.016</td>
<td>0.034 0.018</td>
<td>0.009 0.025</td>
<td>-0.018* 0.007</td>
</tr>
</tbody>
</table>

NOTE: * p<0.05, ** p<0.01, *** p<0.001
Appendix A Table 4. Estimates (b) and standard errors (se) of network stability for physicians exposed to consolidation events (health system ownership, hospital ownership, medical group ownership, practice-practice merger).

<table>
<thead>
<tr>
<th>Size</th>
<th>Health system b/se</th>
<th>Hospital b/se</th>
<th>Medical Group b/se</th>
<th>Practice-practice b/se</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4 years</td>
<td>-0.020 0.017 0.027 0.004</td>
<td>0.013 0.015 0.021 0.012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-3 years</td>
<td>-0.016 0.008 0.021 0.004</td>
<td>0.009 0.010 0.014 0.006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-2 years</td>
<td>-0.009 0.006 0.008 -0.008*</td>
<td>0.004 0.005 0.007 0.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Event year</td>
<td>0.009* -0.002 -0.004 0.005</td>
<td>0.004 0.005 0.007 0.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+1 years</td>
<td>0.024** 0.003 -0.009 0.041***</td>
<td>0.009 0.010 0.014 0.006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+2 years</td>
<td>0.034** 0.006 -0.019 0.047***</td>
<td>0.013 0.015 0.021 0.008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+3 years</td>
<td>0.045** 0.005 -0.031 0.041***</td>
<td>0.017 0.019 0.028 0.010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+4 years</td>
<td>0.063** 0.005 -0.044 0.031*</td>
<td>0.022 0.024 0.035 0.012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>-0.012 -0.063** -0.088** -0.044***</td>
<td>0.017 0.019 0.028 0.009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>-0.018 -0.058*** -0.078*** -0.042***</td>
<td>0.013 0.015 0.021 0.007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>-0.009 -0.038*** -0.049*** -0.027***</td>
<td>0.009 0.010 0.014 0.005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>-0.006 -0.019*** -0.026*** -0.015***</td>
<td>0.005 0.005 0.007 0.003</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: * p<0.05, ** p<0.01, *** p<0.001
References


http://circoutcomes.ahajournals.org/content/circvqo/9/6/641.full.pdf


http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3579968/


http://content.healthaffairs.org/content/29/5/991.full.pdf

Abstract

Health care industry consolidation has reshaped health care delivery systems and the communities they inhabit. While the effects of insurer, hospital, and practice consolidation on costs have been explored, the range of its impacts on other factors are largely unknown. This exploratory study on the cumulative effects of health care consolidation in Pittsburgh, Pennsylvania, uses stakeholder interviews, document review, and secondary data analysis to understand the range of these impacts. Positive outcomes included formation and support of non-profit organizations, opportunities for research and economic growth, and more informed health care consumers. Negative outcomes included difficulties accessing care for uninsured populations, reduced accountability and transparency, and control over the labor force. Ambiguous outcomes include changes in geographic access to care and debates over what is expected of tax-exempt organizations. Many of the observed outcomes can be linked to three pathways that are likely to be observed anywhere this phenomenon occurs: employment by large systems reduces physician autonomy; large systems amass disproportionate amounts of information, resources, and power; and large systems are similarly held to disproportionately high standards and expectations. We also observed that consolidation is not monotonic; health care environments that appear excessively consolidated can still be still vulnerable and contestable.
Introduction

In 2006, the flagship hospital of the Pittsburgh Mercy Health System, one of the three major health systems in Pittsburgh at the time, was in financial trouble. For many years, Pittsburgh’s religious hospitals, especially its Catholic hospitals, have in many circumstances served the role of public hospital, serving all comers regardless of ability to pay, but by this point Mercy was only remaining hospital owned and operated by a religious group in the area, the others having been closed or acquired. For the past few years, Mercy Hospital’s costs had exceeded revenue by more than $10 million, with liabilities totaling $70 million. The board of the Pittsburgh Mercy Health System (which encompassed Mercy Hospital and its community-based behavioral and special needs services throughout the region), asked their parent corporation, Catholic Health East, for more than $60 million to invest in physicians and equipment (Brignano, 2009). Included in this was $16 million to renovate the emergency department to entice patients to go there, rather than other nearby hospitals. However, Catholic Health East declined this request. Facing these debts and needing investment to avoid potential closure, Pittsburgh Mercy Health System and Catholic Health East transferred ownership of the their 535-bed hospital to UPMC (formerly known as University of Pittsburgh Medical Center) in a $120 million merger deal in 2008. With the merger, UPMC now held over half of the hospital market in Allegheny County. Although the Pennsylvania Attorney General stipulated that existing health plan contracts and pricing must be extended for eight years, the Federal Trade Commission reviewed but did not challenge the acquisition.

This story is familiar to health care industry observers across the United States. The acquisition of Mercy Hospital in Pittsburgh is just one example of a trend toward consolidation of health care entities in the United States that has been steadily occurring over the last three decades. Attempts to understand the phenomenon of health care consolidation have taken a relatively narrow view of both the process and the outcomes, often focusing on the effect of one type of consolidation on health care costs. However, costs and quality are not the only important impacts of health care consolidation. The range of the impacts of many consolidation events over time on other factors, such as access to care, health care workers, and the local economy and citizenry are largely unknown, and warrant further study.

This case study explores the ways in which consolidation has impacted the people and institutions in a single community. First, I discuss the unique perspective and contributions of this study. I then describe my interview methodology, stakeholder sampling frame, and analytical methods. Next, I present a brief background on health care consolidation and its policy relevance, as well as a summary of Pittsburgh’s health care history, with special attention to consolidation beginning in the 1990s and the events of the last five years. Subsequently, I describe the dynamics of health care consolidation, especially the national and local incentives for consolidation, and I highlight some unique features of Pittsburgh’s local context. Following that, I explore the community outcomes of consolidation, as perceived and reported by
stakeholders. Effects on the health care market, health systems, health care industry workers and customers, and the public are discussed. Finally, I conclude by discussing three major pathways by which health care consolidation results in these outcomes or others, including the loss of physician autonomy when employed by large systems; the accumulation of information, resources, and power by large systems; and the increasingly high standards to which larger systems are held. These pathways are likely to be observed in any community in which health care consolidation occurs.

Pittsburgh is an interesting subject for this case study because Pittsburgh is often cited as a region that has experienced a long and intense period of health care consolidation (Silverman, 2012). Previous scholarly work has discussed aspects of Pittsburgh’s health care consolidation in the context of a vehicle for urban renewal (Day, 2016; Simpson, 2015), disputes over tax revenues (Simpson, 2016), and as an example of both health care industry successes (Levine et al., 2008; Olson et al., 2014) and failures (Burns et al., 2000). While a single case can never be fully representative, the industry and population of Pittsburgh, a mid-size metropolis with a well-defined health care market, is probably more comparable to many cities and towns in America than other consolidation hotspots like San Francisco or Boston. Lastly, Pittsburgh has a relatively well-defined health care market. The closest health care markets with a full range of services like Cleveland or Philadelphia are at least a couple hours away by car, and smaller towns and cities might not have the full range of tertiary and quaternary health services available in Pittsburgh.

The main contribution of this case study is that it explores a wide range of potential outcomes of health system consolidation as a single community, Pittsburgh, Pennsylvania, has experienced it. Other case studies of consolidation have been useful for understanding its impacts. A case study of a non-profit hospital acquisition in Santa Cruz, California, demonstrated how consolidations that are too small in valuation to meet their reporting thresholds can still be harmful from an antitrust perspective. Other case studies have considered the cumulative impact of numerous consolidations in a single community, but they have focused on outcomes inside the walls of health care delivery systems. A previous case study of a single community, Minneapolis-St. Paul, generated insights about the motivations, challenges, and results of practice acquisition by integrated delivery systems, and explored outcomes explored focused on care delivery, costs, and quality (Christianson, Carlin and Warrick, 2014). A study of the impacts of consolidations and closures of obstetric units in Philadelphia explored the challenges faced by units that remained challenges and strategies they employed to adapt to these changes (Lorch et al., 2014). The present study provides a unique contribution in its consideration of impacts outside the walls of health care system, such as the workforce, tax revenues, and the local economy, as well as boundary-spanning impacts, such as the effect of consolidation on other local foundations, governance and accountability, and access to care.

The acquisition of Mercy Hospital by UPMC provides examples of some of these potential impacts. One is that mergers and consolidation often result in the creation and support of other non-profit foundations; UPMC made a $100 million contribution to the Sisters of Mercy to
continue to run community-based behavioral health and social service programs through the Pittsburgh Mercy Health System and their foundation, McAuley Ministries. Another is that community representation on boards is reduced. Immediately after the UPMC acquisition, Mercy Hospital’s board was divided in half, with half remaining with UPMC Mercy and half with the Pittsburgh Mercy Health System, but by 2011, UPMC had restructured its hospital boards, creating a 24-member “super board,” eliminating their individual boards including Mercy’s board. Another possible impact is on the shifting missions of acquired entities, and whether acquisitions of financially struggling but mission-driven systems can and do maintain their sense of mission. In the terms of the agreement between UPMC and Mercy, Mercy would retain its Catholic character and values via a sponsorship of the hospital by the Diocese of Pittsburgh; however, some stakeholders I interviewed expressed that they did not believe they were able to serve vulnerable populations regardless of ability to pay in the same ways that they did a decade ago.

A key takeaway from this case study is that overall, consolidation has both positive and negative consequences. Positive outcomes included formation and support of non-profit organizations, opportunities for research and economic growth, and more informed health care consumers. Negative outcomes included difficulties accessing care for uninsured populations, reduced accountability and transparency, and exertion of control over the labor force by large systems. Ambiguous outcomes include changes in geographic access to care and debates over what is expected of tax-exempt organizations. Many of the observed outcomes can be linked to three pathways that are likely to be observed anywhere this phenomenon occurs: employment by large systems reduces physician autonomy; large systems amass disproportionate amounts of information, resources, and power; and large systems are similarly held to disproportionately high standards and expectations. We also observed that consolidation is not monotonic; health care environments that appear excessively consolidated can still be still vulnerable and contestable.

**Methods**

*Interview Data Collection*

I conducted 20 semi-structured interviews with experts and stakeholders familiar with health care in Pittsburgh. The set of interviewees was created by both purposive and snowball sampling; some targets were identified and selected to provide representativeness across stakeholder groups such as patient and community advocates, industry representatives, government and civic leadership, and media members. Other interviewees were selected by recommendations of local media and academic sources as well as other interviewees.

I contacted 32 interview targets. Twelve people declined to be interviewed or did not respond in time to be interviewed for this study. I conducted 20 semi-structured interviews (Table 1)
between March 2017 and September 2017. Interviews were approximately 30-60 minutes. Nineteen interviews were conducted in person, and one was conducted by phone.

<table>
<thead>
<tr>
<th>Table 2. Stakeholder categories contacted and interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category Contacted (Interviewed)</td>
</tr>
<tr>
<td>Patient, labor, community advocates</td>
</tr>
<tr>
<td>Health care leadership</td>
</tr>
<tr>
<td>Professional, business, or civic association leaders</td>
</tr>
<tr>
<td>Government</td>
</tr>
<tr>
<td>Media</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

Participants were not compensated. Participants provided oral consent for participation and for the interview to be audio recorded on condition of confidentiality. The interview followed a semi-structured interview protocol (see Appendix A). Participants were asked about their experience and role related to Pittsburgh’s health care industry, their perception of what has changed in the city with respect to the organization of health care entities, the impacts they and their organization have experienced that they perceive to be related to health care industry consolidation, and what they perceive to be the positive and negative impacts of health care consolidation.

**Interview Data Analysis**

Recordings were transcribed by a third-party transcription service and verified for accuracy. Transcriptions were loaded into qualitative analysis software (Atlas.TI). A simple codebook was developed (see Appendix B) to mark quotations as being related to the “dynamics” of health care consolidation (why it is happening and what factors are important to consider when thinking about this phenomenon) and the perceived “outcomes” of health care consolidation. A single qualitative coder applied these codes to all interview transcripts. Each quoted section was printed. Two qualitative coders independently pile sorted quotations within each code into subcodes. The two coders then compared the subcodes generated and discussed how the subcodes aligned. For dynamics, the first coder grouped quotes into 31 subcodes and the second coder grouped quotes into 28 codes. Strong alignment was found; only five subcodes identified by the first coder and four codes identified by the second coder did not have analogous codes. For outcomes, the coders identified 31 and 32 subcodes and did not have strong alignment on 2 subcodes apiece, respectively. Disagreements were resolved by consensus. Lastly, one coder grouped the subcodes into broader themes that correspond to the sections discussed in the dynamics and outcomes sections.
Scholarly and Gray Literature Review Methods

A search for scholarly articles containing “Pittsburgh” and “consolidation” were searched using Google Scholar. Newspaper articles containing “Pittsburgh” and “consolidation” in major newspapers were searched using ProQuest. Books, pamphlets, and files related to UPMC, UPMC Health Plan, Highmark, Allegheny Health Network, and individual hospitals and health plans hosted in the Detre Archives at the Heinz History Center in Pittsburgh were also examined.

Secondary Data Analysis Methods

Sources of secondary data include the SK&A Physician Dataset, the Pittsburgh Regional Alliance, and the Pennsylvania Health Care Cost Containment Council. Descriptive statistics were analyzed with Stata 14 SE (College Station, TX) or web interface if available.

Unit of Analysis

For the purposes of this study, I considered “the greater Pittsburgh region” to be loosely defined as the Pittsburgh Metropolitan Statistical Area, which includes the City of Pittsburgh, its surrounding suburbs in Allegheny County, the less populous six “ring counties” (Butler, Armstrong, Westmoreland, Fayette, Washington, and Beaver), and slivers of West Virginia and Ohio. This area constitutes a large portion of the relevant market region for tertiary health care services in southwestern Pennsylvania; areas further afield blur into health care markets in Erie, State College, Cleveland, and Washington, D.C. The market is considered to be relatively well-defined (Silverman, 2012).

Background

Health care consolidation, that is, the merging and/or acquisition of health care related entities, is happening locally, regionally, and nationally; and it is touching urban, suburban, and rural communities. This consolidation is a growing area of concern among regulators, policymakers, and consumers because it is generally recognized to result in higher prices and premiums, while its effect on the ability of consolidated systems to achieve its touted benefits, such as administrative efficiency and improved quality resulting from economies of scale and better care coordination, is mixed (Gaynor, 2018). Health care consolidation is generally divided into two types: “horizontal” and “vertical.” Horizontal consolidation takes place when two health care related entities of the same type combine into a single entity, such as a two hospitals, practices, or insurers. Vertical consolidation occurs when two health care related entities of different types combine into a single entity, such as a hospital and a practice or a health system and an insurer. Both horizontal and vertical consolidation can eventually result in markets that are highly concentrated; that is, a reduced number of entities to choose from. As of 2016, many health care markets (by metropolitan statistical area) were considered highly concentrated (90%
for hospitals, 65% for specialists, 39% for primary care physicians, and 57% for insurers) (Fulton, 2017).

In this case study, health care consolidation is considered broadly, but in the context of Pittsburgh generally refers to the creation of health systems that include inpatient and outpatient facilities that are integrated with an insurance product; the health system UPMC has an affiliated insurance product, UPMC Health Plan, while insurer Highmark owns the Allegheny Health Network provider system. These entities have only emerged in the last three decades of Pittsburgh’s health care history.

**Pittsburgh’s Early Health Care History**

Pittsburghers take pride in their local health care history. The first wave of general hospitals to be built in the United States were built by ethnic and religious groups, particularly by committees of women in those communities, to provide care for the poor and mentally ill as well as employment of physicians who shared their ethnicity and religion. The mid- to late 1800s and early 1900s in Pittsburgh saw the establishment of hospitals for specific parochial groups (Mercy Hospital, Presbyterian Hospital, Montefiore Hospital), hospitals created to serve one gender (Magee-Womens Hospital), or specializing in specific body parts (Eye and Ear Hospital) (Pittsburgh Hospital Service Association, 1959). Government-sponsored hospitals were also established around this time.

By the mid-1950s, most of the hospitals that exist in the Pittsburgh area today had been established, but the payment environment was changing. Previously, health care was paid for out of pocket or provided without charge; hospitals were beneficiaries of charitable giving, particularly hospitals supported by religious groups. However, people struggled to pay their hospital bills during the Great Depression, and hospital administrators started looking for more consistent sources of payment. Blue Cross and Blue Shield of Western Pennsylvania had been established in the 1930s. Unions, such as United Steelworkers, started to negotiate with their employers on health coverage after the Supreme Court ruled that it fell under conditions of employment, and businesses eventually came to the conclusion that by relieving people of the anxiety of medical costs and encouraging them to seek care earlier, their workers would be more productive (Albert, 1987). With the advent of employer-sponsored health insurance and the establishment of Medicare and Medicaid in 1965, many more people had access to health care through insurance.

**Emergence of Pittsburgh’s Health Systems (1965-2012)**

The University of Pittsburgh’s medical school had affiliations with many local hospitals, but in 1965 they created the University Health Center, an alliance between four hospitals and a psychiatric clinic centered in the neighborhood of Oakland, Pittsburgh’s university district (Jewish Healthcare Foundation, 1992). This loose alliance was the beginning of the conglomeration of hospitals that eventually became the University of Pittsburgh Medical Center.
(now known solely by its initialism UPMC); over time the financial and clinical integration of the Oakland hospitals increased. However, the consolidation of hospitals in Pittsburgh as we think of it today began in 1989 with the purchase of Montefiore Hospital by UPMC (Jewish Healthcare Foundation, 1992). This was the third acquisition of a non-profit hospital by another non-profit hospital in the United States. It set off a wave of hospital and practice acquisitions by UPMC.

In the late 1980s and early 1990s, another hospital alliance was forming, centered around Allegheny General Hospital (AGH) (Brignano, 1998) and its Allegheny Health, Education, and Research Foundation (AHERF), formed in 1983 (Burns et al., 2000). Although UPMC and Allegheny General had partnered in the past, they were unable to come to an agreement for a closer, long-term relationship and Allegheny General began to pursue outside options to become a large academic medical center, aiming to become a statewide integrated delivery system by expanding rapidly into both Pittsburgh and Philadelphia, eventually obtaining 14 hospitals and 2 medical schools (Burns, 2000). However, AHERF suffered from mismanagement, culminating in a $1.3 billion bankruptcy in 1998, the biggest non-profit health care bankruptcy in the nation at that point. The operations in Philadelphia were sold off, and the remaining hospitals aligned with the Western Pennsylvania Health System, eventually forming the West Penn Allegheny Health System (WPAHS).

Concurrently with the rise of UPMC and fall of AHERF, Blue Cross of Western Pennsylvania and Pennsylvania Blue Shield merged to create Highmark in 1996. Highmark was essentially a monopoly provider of insurance in the region, holding over 70% of the local insurance market for decades. Highmark and UPMC got along for many years, but their cozy relationship began to fall apart in the mid to late 1990s and the dominant insurer and dominant provider system began to view each other alternately as partners and competitors, setting off tit-for-tat deals, lawsuits, and public relations battles. UPMC began to offer its own insurance product, UPMC Health Plan, in 1996, and the following year they spun off all clinical operations from the University of Pittsburgh, making fixed financial contributions to the School of Medicine and maintaining some shared governance. In 1996, Highmark created a low-cost plan with AGH as its flagship facility, while also loaning UPMC $233 million to buy Children’s Hospital after trying to block the deal, claiming that would give UPMC a monopoly in pediatrics. Highmark also bankrolled $125 million to the remains of AHERF to combine with WPAHS (Gaynor, 2002a; Gaynor, 2002b).

This started the era of massive changes in the local health care system, as the health system acquirers realized they did not need all the hospitals they now possessed. By this point, the systems were acting more like for-profit corporations than charitable institutions (Day, 2016). WPAHS closed its flagship hospital, West Penn, only to reopen it a few years later. UPMC closed Braddock Hospital, claiming low occupancy, though critics have claimed that it had high occupancy in unprofitable beds, including detoxification and behavioral health (Rujumba, 2009). WPAHS tried to legally force UPMC to keep Braddock open to keep them from building another
hospital nearby that would directly compete with one of their hospitals (Fabregas, 2009), and when that did not work, opened an urgent care site in Braddock. Unflappable, UPMC opened its new hospital anyway, as well opening or assuming control of facilities in Europe, Asia, and the Middle East (Day, 2016).

WPAHS, owing to the mismanagement of AHERF in the 1990s and competitive pressure from UPMC, was still struggling, especially compared to the strength of UPMC. Knowing that the failure of this health system would leave only one health system remaining in the region, the Highmark chief executive was quoted as saying “The community knew what was at stake if West Penn did not survive” (Toland and Twedt, 2013). In an unorthodox transaction of an insurer purchasing a health system, Highmark bought WPAHS in 2013, thus creating the integrated health care delivery system now known as Allegheny Health Network (AHN). The state put some strict conditions on the deal in terms of allowable contract terms, information sharing, and capital requirements. When the deal was announced, it was clear that Highmark hoped to come to an agreement with UPMC to ensure in-network access for its members, but UPMC maintained that members should prepare for the expiration of the contract that enabled Highmark members to have in-network access to UPMC facilities at the end of 2014 (Toland and Twedt, 2013).

“The Divorce” (2013-present)

This began the modern era of what many Pittsburghers refer to as “the battle” or “the divorce,” where there was one insurer and one must-have provider network, and now there were now two semi-integrated payer-provider networks. One stakeholder said, “I’ll go to national meetings and talk to my colleagues about things that were happening Pittsburgh and they’d just stare, like, that’s really weird.” When UPMC and Highmark eventually did fail to come to a contract to ensure in-network access to UPMC facilities to Highmark members, patients were up in arms. Outcry was so intense that the Pennsylvania state government stepped in and brokered a consent decree that guaranteed in-network access for Highmark members with certain conditions (such as being in the middle of a course of cancer treatment) and at certain facilities designated as “community assets” because they represented unique services in the region. These included UPMC’s inpatient psychiatry clinic (Western Psychiatric Institute and Clinic), the Hillman Cancer Center (a comprehensive cancer center), and Children’s Hospital. An earlier version of the consent decree was set to expire in 2019, but UPMC and Highmark came to an agreement through 2024 that guarantees access for Highmark members at some UPMC hospitals; although notably Hillman Cancer Center was excluded from the extension (Mamula, 2018).

Today, the immediate aftermath of the divorce is over and patients have mostly adjusted to the new state of the world. UPMC is the region’s largest employer, and both the number and percent of jobs they provide exceed the number and percent of employment ever provided by the steel industry. In 2008, they installed a $750,000 light-up sign with their logo on the top of their headquarters, which happened to be in the tallest building in Pittsburgh, the U.S. Steel building.
When the building was built in 1970, a quarter of Pittsburgh’s jobs were in manufacturing and 6.5% were health care (Fitzpatrick, 2008). Recently, only 7.3% of the workforce is employed by the manufacturing industry, and more than twice that many are employed in health care (Pittsburgh Regional Alliance, 2016). Both AHN and UPMC are continuing to expand their systems into other health care markets, including Erie and central Pennsylvania. The Pittsburgh region still has a number of small regional systems and independent hospitals (Excela, Heritage, Butler, St. Clair, Washington, Mon Valley, Indiana), but most have or are looking for ways to affiliate or share services with each other or other national systems.

Results

Dynamics

The next section explores what stakeholder interviewees perceive as the reasons why health system consolidation occurred in the region.

National Incentives for Consolidation

Stakeholders cited many reasons for why consolidation occurred in Pittsburgh that are in sync with stories of consolidation that have played out all around the country. As one stakeholder summed up: “All around the country, locally, the big guys were looking to buy and the smaller guys were happy to sell.” Stakeholders identified the costs of reporting and dealing with complex payment policy changes as well as increasing liability insurance costs, especially for specialists, as major reasons physician practices were willing to being acquired. Hospitals’ willingness to be acquired was generally attributed to the need to make capital investments in the face of decreasing financial viability of small hospitals. As one stakeholder put it, “The conversation around the table of those non-aligned, independent hospital CEOs was that, ‘… Am I big enough? Am I large enough?’” According to this stakeholder, small hospitals with fewer than $1.5B to $2B in assets are starting to believe that the answer is no.

Hospital systems and health systems were similarly trying to make acquisitions achieve scale to increase access to capital and justify costly technological investments. Stakeholders identified capturing referrals and the ability to offer specialty services as reasons hospitals and health systems wanted to acquire physicians. Other system incentives discussed were the need for academic medical centers to subsidize research and teaching. Several stakeholders reiterated the need for hospital and health systems to do everything possible to seek savings and improve margins; many reiterated some version of the idea that without positive margins, these organizations cannot accomplish their missions, especially now that health care is largely delivered by professionals and funded through insurance and entitlements rather than delivered by volunteers who were funded by charitable donations and out-of-pocket payments. Lastly, stakeholders noted that care models are changing to provide care outside of the costly hospital
setting and that patients were looking for care, including specialty services, to be offered closer to home.

Local Incentives for Consolidation

In contrast to the story of national hospital consolidation, which was originally driven by for-profit, national hospital systems acquiring hospitals in other markets, the consolidation in Pittsburgh that started in the 1990s was “sort of an outlier” by being driven by a local non-profit health system, UPMC. One stakeholder expressed a different perspective, characterizing the consolidation not as one player reacting to another, but Highmark and UPMC as two of many players pursuing very different business models, with UPMC pursuing high-end research and prestige-driven care delivery, and Highmark supporting AHN to ensure regional competition that focuses on patient care. According to this stakeholder, the actions of UPMC and Highmark thus represent their pursuit of these models rather than true conflict between them.

Other local factors that stakeholders cited as contributing to health care consolidation included the stagnant population; providers needed to compete in a market that is not growing. One stakeholder also cited a 1996 law in Pennsylvania, Act 55, that significantly loosened the requirements for achieving non-profit designation.

Local Contextual Factors

Interviewees pointed out numerous ways in which Pittsburgh’s local context differs from other cities’ health care markets in a way that seemed likely to influence how consolidation played out, how people perceived it, and how its impacts were felt.

Historically High Levels of Insurance Coverage

Historically, the region had high levels of insurance coverage, overwhelmingly dominated by Highmark, which was born out of the previous dominant insurer, Blue Cross/Blue Shield. This coverage was nearly universally accepted.

Low For-Profit Penetration, No Remaining Independent Religious Providers, No Public Hospitals

For-profit health care providers have not gained a significant share of the market in Allegheny County. In addition, there is no public hospital or county hospital, as in many major markets. The only remaining faith-based acute care provider, Mercy Hospital was integrated with UPMC (Scarpino, 2013).

City Overbuilt and Health System Over-Bedded for Population

The greater Pittsburgh region is currently home to approximately 2.3 million people, about half of whom reside in Allegheny County, which includes the City of Pittsburgh. Prior to this period Pittsburgh had been considered a major U.S. city; the population of the City of Pittsburgh peaked at 676,000 in 1950 and has since declined by more than half. In recent years, the region’s total population has stagnated; more residents are moving in than moving away, but net
migration and births are approximately equal to the death rate (Pittsburgh Regional Alliance, 2016; Rotstein, 2018). Pittsburgh is generally overbuilt for its population in terms of housing, churches, and schools. Its health system has been considered “over-bedded” for a long time (Jewish Healthcare Foundation, 1993) and stakeholders consider it over-bedded today. The health systems appear to engage in facility “arms races” to replace old buildings and compete geographically; new facilities are being built for these purposes rather than because of capacity constraints.

Aging Population with Long Memories and Low Transience

Pittsburgh has an older population (Pittsburgh Regional Alliance, 2016) and low levels of transience; people have long memories of local health care institutions compared to places with higher levels of transience. This is especially important in health care, because almost everyone has personal experience with local health care institutions, and these memories are tied to major events in family histories such as birth and death. Moreover, Pittsburghers take pride in their local health care history, including the development of the polio vaccine and advances in organ transplants. For many, changes in these institutions feel extremely personal.

Region Divided into Lots of Small Units

Allegheny County contains 129 independent municipalities, boroughs, and townships in addition to the City of Pittsburgh. Approximately 25% of Allegheny’s population resides in the City of Pittsburgh, which is composed of 90 distinct neighborhoods. This large number of distinct neighborhoods and municipalities arises from the three rivers and an overall hilly topography, which creates many natural borders between neighborhoods. Thus, Pittsburghers are accustomed to a segmented landscape with local neighborhood amenities, including health care, as it can be difficult to move between different areas without owning a vehicle.

Public Places High Value on Philanthropy

Pittsburgh at one time had lots of industrial titans who created large foundations to distribute their wealth to worthy causes in the city. Pittsburgh still has an extremely large foundation presence compared to individual charitable giving (Lord, 2017). Pittsburghers place a high value on philanthropy and have become accustomed to receiving a lot from institutions that purport to exist for the public good.

Strong Personalities of Health Care Leadership

Many believe the consolidation in Pittsburgh was driven by a small number of individuals at UPMC, especially chief executive Jeffrey Romoff. His leadership was acknowledged by stakeholders to be disruptive and visionary – “One thing about Jeff, he is leading: he’s keeping his eye on the horizon. He knows where the world is going” – while consolidation by other players, including AHERF, and now Highmark and AHN, has been more reactionary. Some stakeholders blamed the consolidation on the outsized ambitions of UPMC’s leadership,
especially Romoff: “It’s astonishing to me the extent to which this has all been driven by a personality at the top, and then warring factions within. This is about a couple of individuals with a lot of power.” Others were more reluctant to place blame on a single individual: “It’s important for people to understand that it really isn’t personal…[it’s not like] if it was somebody other than Jeffrey Romoff this would not be happening. It’s just how stuff works…big and giant acts like big and giant…don’t waste your time talking about Jeffrey Romoff.”

Outcomes

Stakeholders described the ways in which health care industry consolidation has ultimately affected their organizations and the people they serve. These outcomes are organized by level. First is the overall market for health insurance and care services, which includes the previously studied impacts of competition, costs, quality, and access. Next, outcomes affecting the accountability and transparency of health care systems are explored, including governance and power. Then, impacts on health care industry stakeholders are discussed, including small systems and vendors, insurance purchasers, clinicians, service workers, and patients. Lastly, impacts on public stakeholders including taxpayers and local economy are presented.

Health Care Market Impacts

Impacts on Competition for Health Insurance and Health Care Services

Ultimately, the existence of two major insurer-provider systems in Pittsburgh resulted in two siloed health care systems. Patients had to learn how to navigate a system in which patients with insurance plans affiliated with either system could not easily or inexpensively use the alternate system, which was a substantial change after many years of relatively warm relationships between insurers and providers. One interviewee reported, “When I was growing up, you had an insurance card, you can go anywhere [for health care]. And it’s still frustrating to me because [Pittsburghers] feel like if you have an insurance card, you should be able to go anywhere.” This feature of Pittsburgh’s system was acknowledged to be uncommon and “sort of backwards” but also pointed out as normal in other markets: “Philadelphia by contrast, I mean I think they have like five different health systems and everybody gets along.”

However, now that the systems have become siloed and compete, people fear a return to a single system. Some stakeholders expressed worry that the future might hold a UPMC monopoly in the region, since the strength of Pittsburgh’s two systems is not perceived to be equal; UPMC’s strategic and financial position appears to be much stronger than Allegheny Health Network and Highmark’s. The failure of AHN might would have implications for the whole region: “I think you need to preserve that option [AHN] in the community to provide a sense of competition. Not having a choice isn’t good for employers or consumers, or frankly for physicians.” Some stakeholders expressed willingness to support AHN if only to provide a counter to UPMC.
However, Pittsburgh’s health system consolidation has encouraged and enhanced competition in health insurance. For many years, many employers purchased Blue Cross Blue Shield plans like Highmark for their employees and agreed to not offer other plans in exchange for favorable rates; these plans held so much of the market and that national insurers never thought that entering the market could be profitable. However, now that Highmark no longer holds such a large majority of the market, “for the first time ever you got Aetna, Cigna, United Healthcare starting to get a foothold in the market and applying more pressure for competition, which is a good thing.” Additionally, service improved: “I do believe it made the insurance companies more responsive to the people who were purchasing the insurance.”

Moreover, blocking Highmark members from many UPMC facilities has forced Highmark and AHN to invest and improve their own offerings: “Highmark stepped up and said, ‘We heard you, these are places where we are weak, we’re going to strengthen them.’ And they have taken time to do that.” According to another stakeholder, “Highmark has put a lot of money in there, they’re building a whole cancer center. They are partnering and tried to get enhancements in those areas.”

**Impacts on Prices, Costs, and Efficiencies**

Many stakeholders identified one of the major benefits of health care consolidation as enabling health systems to remain economically viable by taking advantage of economies of scale, building cash reserves, obtaining access to capital, and exerting pricing leverage. Although much of the theoretical and empirical literature indicates that consolidation increase prices, stakeholders differed on both whether this had occurred and the metrics they used to evaluate it. According to one interviewee:

> If you think about the exchanges and look at the impact of consolidation or the exchanges, Pittsburgh prices have been some of the lowest in the country certainly based on the Dartmouth Atlas… we’ve been able to offer insurance rates that have been very competitive nationally and some of that has to be due to consolidation. The question from a regulatory standpoint is if there are benefits from having all these entities under one roof. To what extent does that benefit inure to the payer, which in large part for some populations is the Medicaid program? And whether that benefits the patients in terms of not only their insurance premium, but co-pays and deductibles?

Insurance premiums were a key area identified as being lowered by the entry of national insurers: “By opening up [UPMC’s] system to all these national insurers there’s been a downward pressure on healthcare insurance premiums, which is true. The growth has slowed.” Local estimates of premium growth could not be obtained, but this phenomenon has been broadly observed across the U.S. over the last decade (Claxton et al., 2017).

However, many stakeholders expressed beliefs that large systems become too driven by achieving economic efficiencies:
If you go and you sit down with these executives in these large consolidated entities, their view is, ‘We understand we are non-profit, and we understand our mission, but if we don’t have a positive ROI [return on investment]…no margin, no mission.’ Then the argument on the other side is, ‘Well, when the margin becomes your mission, you’ve lost your ability to really be looking at this as a nonprofit.’ And so the negative dynamic is that this competition between these two systems has driven them to be so profit- and bottom-line oriented that…you don’t see this real ethic of being integrated in to a community-based health approach, with prevention…If you look at their report on community benefit, it looks great, and they’ve invested in all of this, and they’re partnering with all these organizations…I think to a large extent the Pittsburgh entities do that, but at some level, when profit is driving everything, your pricing strategy, your move from volume to value is going to be a lot slower because you really don’t want to take a lot of financial risk because you want to maintain your competitive edge.

Stakeholders also questioned whether there was a natural ending point for consolidation, when it no longer provided benefits. According to one stakeholder, “I think there is a such a thing that’s becoming too large and too hard to manage, your administrative costs grow disproportionally to manage the facilities.” This stakeholder continued, “I think there is some truth, but you hit that point of diminishing returns where that curve flattens out. And then, just by nature of being big, it becomes more expensive to run.”

**Impacts on Health Care Quality**

Stakeholders widely differed in their perceptions of Pittsburgh’s baseline health care quality, with some claiming that, “If you are going to get sick, Pittsburgh is probably not a bad place to be sick.” Another took a more equivocating stance, saying that “there are pockets of excellence.” On the other side, one interviewee claimed, “It sucks! I mean, we’re terrible! St. Clair is the only hospital here that ever makes the Truven list of best hospitals, and that’s really discouraging.” According to the Pennsylvania Health Care Cost Containment Council, hospitals in Western Pennsylvania have higher risk-adjusted rates of mortality and readmissions for many conditions than might be otherwise expected, though these rates are improving (Pennsylvania Health Care Cost Containment Council, 2017).

The role of consolidation in improving health care quality was a matter of debate: “Maybe this is being extremely cynical - I have to believe that [consolidation] drives up cost without improving quality. Maybe I’m wrong.” According to a non-profit executive, “So what we’ve got is consolidation. The prices are mediocre, which is good, but so is the quality. And I rather would spend a little more on worthy things and improve the quality.” Others disagreed: “I don’t think quality of service in any way, shape or form has been lost in Pittsburgh because of it…it frees up dollars to invest in the right areas of research, the right hiring of doctors, the right expansion of critical infrastructure.” Another stakeholder pointed out that “You can improve outcomes by reducing variation, by reducing cost and creating uniformity through scale and consolidation.”
Stakeholders pointed out that the creation of large systems, especially those that extend beyond greater Pittsburgh, to improve their ability to implement data systems and conduct research. This has the potential to not only improve health but also improve quality using data across many sites:

> From a research perspective, it’s been very positive…it’s been very helpful to have populations that aren’t just urban populations because really the power of research is generalizability. One of the problems that we always have in Pittsburgh was this old white population who was not really generalizable except for another old white areas in the Rust Belt…from the system standpoint it potentially has led to some real efficiencies…from an IT [information technology] standpoint of consolidation of some of the IT functions, when you’re dealing with these large vendors like Epic and Cerner.

However, stakeholders identified a focus on research as one reason that quality might suffer: “There is a disconnect between the glamour of this sort of high profile research work and actual patient care.” Stakeholder’s identified UPMC’s focus on research as a potential liability, noting that UPMC facilities command a price premium compared to AHN: “You could say that it’s because of the research, that it’s because of the residents and all that, but if you could show outcomes just as good [at a non-UPMC facility], someone is going to say, ‘[Research] is somebody else's problem to fund.’”

**Impacts on Health Care Access**

Several stakeholders involved with vulnerable populations identified a few scenarios in which health system consolidation has resulted in reduced access to health care for economic reasons. Federal and state laws and programs that mandate and support emergency and life-sustaining care, in addition to the expansion of Medicaid and health insurance exchanges created through the Affordable Care Act, largely have ensured that many vulnerable patients have access to critical health care services. Safety net providers such as Federally Qualified Health Centers in the region provide primary and basic health care for the uninsured and uninsurable (usually due to immigration status). Nevertheless, for these uninsured populations, specialty services, non-emergency, and non-life-sustaining care, such as screening colonoscopies and orthopedic surgeries, have become much more difficult for care coordinators who work with these populations to obtain in recent years. According to one care coordinator:

> There are a lot of really wonderful dedicated clinicians within both systems who want the best for their patients and really want to do good…I’ve made phone calls trying to get patients care, tests, cardiology, colonoscopies, with doctors I know, and the doctor has said, ‘Yes, I’m totally dedicated to this,’ and then have to call me back and say, ‘But I can’t.’…they’ve had to ask the next level up, and up, until they’re not allowed. They’re not allowed to discount service. They’re not allowed to take care of patients who don’t have insurance. The patient will have to pay X thousand dollars up front and then they could do it.
Access to interpretation for non-English speaking patients has been a challenge in large systems, and advocacy by care coordinators is made more difficult in a large system because it is harder to determine who is empowered to make decisions. Although the situation has improved over time, interviewees claimed that at points, “We have literally had these big systems call us and say, ‘well, you’re sending your own interpreter with this patient, right? Because we can’t provide interpretation.’ At which point we point out that federal law requires them to provide interpretation and that we find a way to pay for it, surely they can.” Another said, “A lot of what my team has to do is fight through the layers. Is it the person answering the phone who’s saying this? And then we move on to the office manager, move on to whoever’s above them [to see] if they’re still saying no…we still don’t really have any system here that allows non-English speaking patients to access care on their own without someone really fighting for them.”

Geographic access to care has been improved for many patients, as the formation of large systems has allowed them to invest in more outpatient care settings that are more integrated in the neighborhoods where people live, rather than only being clustered in the city: “There is a lot more satellites, community offices than there were before, so I can get chest X-ray in probably five places in Mount Lebanon versus used to having to go to Oakland, I mean that’s been different and I think that’s been a good point.”

Geographic access has been reduced in other ways. The division of Pittsburgh’s health care into two siloed systems has made it so the closest hospital for many patients may no longer be in-network. This impacts UPMC and Highmark plan members differentially, since UPMC and AHN facilities are not evenly distributed; most UPMC specialty clinics and hospitals are clustered in the city, while AHN facilities are more distributed through the city and in less urban areas. Additionally, even as the large systems have acquired new hospitals, they have often closed these hospitals within a few years, while opening facilities or making plans to open new facilities that compete geographically with existing facilities: “When UPMC built the UPMC East, people were really angry because a half a mile down the road is another hospital [Forbes]…in McKeesport, they closed the hospital there, and the people…were told they could go to UPMC East or they could come in to Mercy.” People without cars using these facilities then experienced new barriers to care by having to take public transit or use other means to get to new facilities. The newly built facilities tend to be in wealthier communities than the closures: “Even if you are nonprofit, if you are thinking like a for-profit, you don’t put facilities in the communities that can’t generate the visits to pay for them. There is a real need still for probably government support to put clinics into those communities, because by and large the systems are not going to do it, if they don’t have to.” The closure of the hospital in economically distressed town of Braddock was fought against by the community, but was ultimately done, with important implications for behavioral health access: “We lost a big inpatient unit and drug and alcohol unit when Braddock closed. We lost what we refer to in case management as a lot of beds, and that was rough on the mental health system.” Similarly, UPMC South Side was converted to an outpatient and urgent care center, which reduced access to acute care services in a neighborhood
that, while urban, is somewhat geographically isolated due to its riverfront location at the bottom of a steep escarpment. Elderly residents accustomed to having their own hospital have had to adjust accordingly.

Impact on Accountability and Transparency of Large Health Systems

*Impacts on Health System Governance*

Stakeholders identified ways in which the creation of two major health systems has resulted in a loss of identity and mission: I think sometimes when you expand and expand and expand, you lose sight of what you are really there to do. I think it’s an inherent danger.” One way is that consolidation has ultimately resulted in the loss of independent faith-based health care providers. Even with sponsorship of the diocese, “Mercy, when it was still an independent Catholic hospital, was very mission-driven…they did a lot refugee health care…they would say it hasn’t changed but it has changed, it’s part of [the UPMC system now.” This loss of identity may also play out in employees’ sense of ownership: “Do you think anyone on the third the night shift at [UPMC] Pinnacle, gives a damn [the UPMC chief executive] Jeff Romoff wants them to wash their hands? Do you think they even care that there is a penalty? It’s not their penalty. The penalty is the system’s…they don’t even like the system that is telling them to ‘Be good or they’ll lose money.’”

Larger health systems can also become less accountable and transparent; one stakeholder lamented, “I would like to see more governance…they buy this one up then buy that one up, they grow and they grow and they grow. Well that’s all fine and dandy, but in the final analysis, are they really serving the public to the best of their ability?” One stakeholder has found UPMC to be “very unresponsive. There is no way to get response out of this organization.”

Consolidation fundamentally changes the structure of governing boards. Several stakeholders commented about the fact that UPMC hospitals used to have their own boards, but now they are all governed by the same “super-board.” One stakeholder remarked: “These are nonprofit entities. How do they select their governing boards? What is the check on management?…If you are in the position where the CEO [chief executive officer] largely influences who comes on the board, they are going pick people who support what they are doing. Is there really a community voice? And just having a slotted community representative isn’t sufficient.” Another observed: “[UPMC] contracted the board…the board used to be a big thing and had a labor guy on it and had a community guy on it…the board now is a pretty insular group of people.”

In addition to contraction on the board side, duplication is also reduced on the management side. While this produces cost savings, the turnover results in loss of institutional knowledge and personal relationships that several stakeholders remarked on as being very important for getting things done in Pittsburgh. As one interviewee said: “It’s forcing some relationships that take years to build…it’s not been easy and it’s still evolving for our organization because we’ve had the history and those relationships…it’s been a lot of disruption in relationships too.”
Impacts on Health System Power

The massive size of the dominant health systems has been perceived to give them outsized influence over payers. Excluding Highmark members at UPMC facilities was a huge blow to Highmark; from 2014 to 2018, UPMC Health Plan increased its market share in Western Pennsylvania from 21% to 31%, while Highmark dropped from 36% to 23% (UPMC, 2017). The government has also been subject to the growing dominance of providers. One stakeholder identified government payers as losing negotiating power in the face of these providers: “From the point of view of what is happening to provider power in Pennsylvania and their ability to bargain with the Medicaid program…[the government] increasingly cannot live without the provider.” Private insurers also have had trouble countering the dominance of the provider systems, especially during health contract negotiations. Stakeholders lamented they could not steer patients to lower cost or higher quality facilities by making it more costly for patients to go to certain facilities, essentially creating the equivalent of a drug formulary for facilities: “You [can] not get a contract with any UPMC hospital unless you agree not to tier.” However, since both UPMC and AHN have associated health plans, others saw this as an opportunity to align incentives: “If the health plans become more dominant than the provider part of the system, I think you’ll get better behavior.”

Dominance of these systems has also played out in the media. UPMC has a reputation for being extremely “sensitive to anything they consider negative coverage.” They have engaged in some unconventional tactics to counter this. For example, at one point they refused to sell the only major daily print newspaper in the region, the Pittsburgh Post-Gazette at their hospital gift shops due to their perception of unfair press coverage. However, journalists struggle to cover either of the major health care entities in the city, because as major employer and economic engines in the region, apart from union organizers and their sympathizers, few are willing to say anything publicly against them. According to one journalist, “Local consultants and attorneys…I’ll call them and ask them what strikes me as a fairly neutral question, but they have some contract with one or the other network, so they can’t talk or they don’t want to talk or they have an obvious conflict. It’s hard to find independent voices.”

UPMC’s reputation for vindictiveness extends beyond local media. One stakeholder mentioned that at one point there had been a “secret meeting of heads of organizations that had criticized UPMC and who had been threatened with non-existence as a result.” One stakeholder blamed their ability to act this way on their ability to sustain a large legal department: “How many attorneys work for UPMC? I don’t know but it enables them to engage in forms of warfare that you just wouldn’t ever think that a hospital system would be engaged in.” This even extends to their own practices:

That gynecological practice that…said that they were going to both work for UPMC and…[AHN]…UPMC was there the next morning and had chains on the doors…you had patients in there, ninth month of pregnancy going to have their
appointments…their gynecologists are gone, they can’t find them, there’s no number that says, “Did you have an appointment? Call here.” It’s swift retribution and it’s unfeeling retribution, that’s not the kind of thing you can do in a community hospital. You don’t have the resources for that shit, right?

The dominance and competition between these systems is apparent though the large amount of billboard, print, radio, and television advertising for health care in Pittsburgh; you can encounter ads from both systems of every kind on a trip from the airport to Downtown. For a long time, UPMC dominated provider advertising: “So for a long time, Presby, all of the UPMC hospitals had advertising budgets, so you knew where you got the quality care because of advertising. AHN never had money.” However, both systems have highly visible ad campaigns now; the amount of ads is striking: “If I could have a tenth of their advertising budget I could probably cure cancer, because they have deluged Western Pennsylvania with their ads.” One interviewee related a comment from a physician who had left the area who worked at UPMC: “He said, ‘I have never worked in a setting…where there were so many really talented, good people, so dedicated to patient care…but, I have also never worked for an employer, who is so intent on telling you how good they were and how lucky you were to be there.’” Another stakeholder complained that the advertising does not reflect actual quality: “It’s so easy for providers to make their case on a billboard. It’s not where they should be making their case.”

One interesting observation is that the dominance of these systems results in a reduced need to collaborate with other systems for the good of the community or even for the organization. Health care industry groups in consolidating markets fear that the big systems will eventually choose to go it alone. This has happened in other systems; in Arizona, “The three major systems…decided that together or on their own…that they could address their lobbying and government relations needs and they pulled out of the Arizona Hospital Association.” This reduces the ability of independent hospitals to get their needs considered by government. Similarly, institutions with few competitors are less likely to collaborate on quality initiatives (Farley et al., 2009). In 1997, a group of health care focused leaders started a quality improvement collaborative (the Regional Health Initiative). While it made some gains in reducing hospital acquired infections and improving processes in local hospitals (Elster, 2015), its progress was eventually stymied by the local hospital systems, and some blamed UPMC specifically. According to one stakeholder:

Nobody wants to show their data before the guy will share his data, like that’s right like, if we’re going to have an honest conversation about hospital acquired infections or whatever… we put aside the fact that we are competitors or and operate in the public’s interest…UPMC said, we’re not doing that, we’re not sharing our data…it will show that our outcomes aren’t better than anybody else’s, but the public doesn’t believe that and so like our whole ability essentially to dominate the market and to take patients from you is like the myth of UPMC’s tremendous care, so we’re not going to participate.”
Impacts on Health Care Industry Players

**Impacts on Small Health Care Providers and Vendors**

Consolidation in health care begets further consolidation. As one stakeholder put it: “I think for the community hospitals that are still independent, the concern is that they are going to be put in a position of having a choose to go with one or the other, but they won’t be able to retain their independence.” Furthermore, health care industry begets consolidation among vendors as well. According to one stakeholder, “It has affected vendors downstream and upstream…any business partner of a…freestanding hospital, is subject to lose that business when an acquisition occurs.” Large systems do not want to contract with individual small vendors, so vendors must consolidate to retain their business as their clients consolidate.

**Impacts on Health Insurance Purchasers**

Large employers are often responsible for purchasing health insurance on behalf of their employees, and sometimes retirees. The consolidation and subsequent siloing of Pittsburgh’s major insurance options was difficult for employers because it generated a lot of confusion for employees about what facilities and doctors were actually covered under the new arrangements. According to one stakeholder, “[It] affected a lot of people because people got confused. They didn’t know who would take their hospitalization and whether they had to change or not, because they wanted to stay with their existing doctor or go to their community hospital that they’ve always gone to, continue with their therapist, that type of thing.” Stakeholders familiar with employers and purchasing groups indicated that educational campaigns on the part of employers helped, and cited this temporary confusion as ultimately a positive outcome: “I think it made for more educated patients or consumers of customers…they became more educated about their services.”

**Impacts on Clinicians**

Clinicians have been heavily impacted by the changes in the structure of Pittsburgh’s health care ecosystem, especially physicians who are now employed by one of the two major systems. In Pittsburgh over 2009 to 2014, the percent of physicians employed by health systems and hospitals has continued to increase, while medical group membership has declined (Table 3).

One way this has played out is that it reduced how much physicians can be involved in other things. One remarked, “It’s definitely different…the majority of them are employed now, they have less control over their schedule…the system doesn’t care about that…I have physicians who…said, we don’t get our schedule for the next month until like the 25th of the month before, so I can’t even tell you if I'm unavailable on the 14th until that. I’m looking at these very well-trained people, that have people’s lives in their hands and they are not even getting a schedule. I mean, are you retail clerks? This is insulting, frankly.”
In addition to a lack of control over their schedules, clinicians, especially physicians, experience a different set of incentives now that many of them are directly employed by large institutions:

There has been weakening with the employment of medical staff. When you had independent medical staffs in the hospital, if they disagreed with what administration was doing, they told them, ‘this is not good for patient care, and we are not going to do it, we are not going to support you on this.’ If you are employed, if they are signing your paycheck and you disagree, what are your options? How independent is a medical staff if 90% of the physicians are employed? They can’t afford to disagree and say, “No, we shouldn’t do that” that’s not the right way to do it.”

Independence of medical staff is important for their own motivation, and consolidated arrangements can reduce productivity and morale:

There’s a strong argument to be made they don’t [need to employ the doctors], that as soon as they own [the doctors], their productivity goes down…their morale goes down to the floor. And something kind of not good happens. There’s no doubt everyone now, wherever I go is talking about physician suicide, physician depression…I’m not looking at the data, but I think it’s worth checking. I don’t think the physicians are loving this…[consolidation] kind of took away their autonomy, whatever is left, artificial intelligence will take away.

Independence of medical staff is also critical for patient safety, because “trying to create cultures of openness and honesty within healthcare institutions…what makes patient sick is the fear of caregivers andadministrators…you cannot really have healthy health care institutions where the workers live in terror.”

Moreover, the employment of physicians by large systems contributes to the access problems discussed previously: “Specialists who are willing to do pro bono or reduced rates that often
exist more in the private sector than in the two-system health care systems that exist in the city of Pittsburgh…because anything within a system has to follow all of the system’s procedures, and most of the billing is done within the system.”

Multiple stakeholders reported that they had heard about ways health care systems encourage or pressure physicians to refer patients within their system, such as scoring physicians based on their referral “leakage” or calling them to ask why patients were referred outside their system. According to one stakeholder, this has “built a wall in terms of clinical referrals that I don’t think a lot of physicians are comfortable with.”

As the structure of the employment market of physicians has trended toward a labor monopsony, clinicians are being subjected to terms in employment contracts that favor the employer over the employee. Multiple stakeholders mentioned the non-compete employment agreements physicians now must agree to: “There are very draconian non-competes, and people get driven out of town. I actually know a number of people who had to leave the area.” Similarly, physicians in Pittsburgh who are employed by the system are reluctant to speak to the media: “The number of independent physicians out there who I can call and have an objective opinion or perspective is very limited. People don’t want to say something that’s going to offend their employer.”

**Impacts on Health Care Service Workers**

Consolidation allows firms to reduce their workforce, and according to interviewees, consolidation in personnel has touched everyone from executives to service workers. However, one interesting outcome of consolidation has been that the trend toward labor monopsony, with a small number of large systems employing a large number of service workers, results in these employers becoming targets for unionization efforts. These efforts have warranted investment of effort from national unions and been supported by local government officials. These efforts have produced improved wages and working conditions due to community and government pressure even when unionization efforts have failed. Although efforts to unionize workers at UPMC have not succeeded, UPMC did agree to a $15/hour minimum wage for its employees. As one government official stated: “I think my involvement and others much higher than me slowly pushed UPMC to the decision to go to a $15 an hour minimum. I think that was a lot of political involvement and community pressure but city council and city government were very much involved with that…where [AHN] did reach union agreements, we were very involved in celebrating that and supporting. It says a lot when workers are being very – doing risky things, whether it’s getting arrested or it’s risking their jobs or whatever it is, knowing that the city and powerful forces and local government are behind you is empowering.”
Impacts on Patients

Stakeholders expressed concern that physician employment makes them less responsive to patients: “I mean physicians see themselves as being advocates for patients, but once they’re employed I have to wonder, okay, how much of their allegiance is now to this health system as opposed to the patient.”

The creation of these large systems and acquisition of practices has also resulted in a less personal doctor-patient relationship: “It has disrupted some relationships that are very important, especially for some of the seniors who almost use their doctors as counselors, they walk in there and the front office person knows their name and will know to get them in…[now] you have to go through 412-DOCTORS [the centralized appointment call center for AHN].” One stakeholder experienced frustration with treatment of patients in the large systems: “It’s frustrating because it inhibits what is best for individual patients and there’s a lot of money flowing through these systems…patients are often treated like dirt by the big systems…it’s hard to partner with these monolithic systems.” However, this story is not borne out according to patient satisfaction surveys. UPMC, AHN, and small system hospitals have wide variation in their patient satisfaction ratings but similar ratings overall according to Medicare Hospital Compare. However, some of the largest hospitals for each of the large systems (UPMC Mercy, UPMC Presbyterian Shadyside, and Allegheny General) underperform compared to many other hospitals in the area with only 1 or 2 stars.

The siloing of the two systems also resulted in a reduced set of choices in physician relationships. Previously, physicians “liked that the patients came in, because they thought they were a good doctor and they liked them, and now it’s going to be -- it’s still going to matter, but it matters within the network you belong to.” It also created fear that at any point physician relationships could be severed. One stakeholder relayed a story of a cancer patient whose treatment “sustained her for many more years than any of us expected, but lived in constant fear that that was going to be pulled out from under her…she died a few years ago. Had this happened more recently I believed she would have been much more restricted where she could have gotten treatment.”

However, the patient experience has been somewhat enhanced due to the ability of the large systems to adopt newer, outpatient-focused care models. For example, “These mergers and consolidations have brought about more ambulatory care sites, the ‘wellness pavilion.’” Another said, “So, even though the hospital system in the beginning was just buying up more hospital systems now they’re looking and saying, “Well, now we have this hospital system we just acquired, let’s take some of those things out of there and put it in some more outpatient surgeries.” The value of the ability of these systems to pursue new care models was summarized by another person: “All the trends in payment and in treatment are to do as much outpatient as possible…it’s a desire to have like a mini-hospital in the community with the physician offices there…it’s closer to the community, it’s less expensive…that is probably the model for care going forward at least for the next decade.”
Impacts on the Public and Local Economy

Impacts on Taxpayers

One of the outcomes of the siloing of the two major health systems in Pittsburgh was that facilities that had previously been viewed as “community assets” since they were built by religious groups and charitable foundations and maintained by charitable donations, now belonged to one non-profit corporation or the other with huge cash reserves. In particular, three facilities owned by UPMC came under scrutiny: a cancer center, an inpatient psychiatric hospital, and the children’s hospital. Although promoting competition might seem like a solution, for some services and facilities, stakeholders claim that there just is not enough volume in the region to justify certain investments: “Nobody is going to build another big Children's hospital. We don't have the volume at this point. We don't have the volume for a behavioral health hospital...same thing with oncology. Those systems seek some things but then there are some specialty things that it's just it's not a good business model to have. You can't sustain them because you don’t have enough volume.” Many stakeholders expressed satisfaction that the consent decree preserved access to these three institutions for Highmark members. According to one, “Looking at mostly Hillman Cancer, Western Psych, and Children's Hospital, they were all standalone at one point in time, but UPMC has gobbled them up and that's fine. They can help them stay viable. We are fine with that. But they need to remain community assets. So, we will continue to battle for that moving forward.” As UPMC and Highmark have continued to sue each other over violating the terms of the consent decree, this continues to be a prominent issue as the consent decree is about to expire: “So in probably the next year or two we will start to ramp up and see where we are and then we will begin the march to push that. To be honest I don't think that we will get a lot of pushback. UPMC may not even give us a fight. But we will have to make sure that we're prepared.”

Another area in which health care consolidation has affected Pittsburgh is building resentment over the non-profit tax status of huge revenue-generating enterprises that are large employers and property owners. Some have argued that the community benefit provisions of non-profit status laws should be strengthened or applied more stringently, because, “I think that if you look at the for-profit activities of these non-profits you will probably find that they’re well in excess of the statutory limits on how much for-profit activity that they can engage in. Some of these for-profit activities end up being investments in companies that get sold or companies that go public and when you get that kind of multiplier effect on the for-profit activities and that they’ve got to well exceed the threshold that have been set from a statutory standpoint.” Others have claimed that these “exceptional” non-profits should provide monetary support to local government to compensate for the services they are using without supporting through direct taxation because they are fundamentally different from other non-profits:

When you’re looking at the Squirrel Hill Health Center, National Council of Jewish Women, or the food bank or whoever, they’re scraping by...UPMC,
Highmark, Pitt, Carnegie Mellon and I’ll throw in Duquesne and others…they’re massive landowners in prime real estate in Oakland, downtown, these are most valuable lands between Philadelphia and Chicago probably. So to take up that much land and not do something for it is very different than some small non-profit on an eighth of an acre in the suburb, somewhere, whatever, that is not the same thing. And revenue, I guess, their net positive annual figures. It’s a different ballgame.

One of the suggested middle-ground policies would be to have these organizations make Payments in Lieu of Taxes (PILOTs), a concept that goes back to 1990s in Pittsburgh (Simpson, 2016). At various points, the city government has successfully implemented them, closed door discussions between these systems and the city have been going on since 2015 (Lord, 2017). They have been anticipated to produce a “pretty significant payment in lieu of taxes announcement”, but no such announcement has yet been made. One stakeholder argued against this kind of ad hoc policy response:

What I don’t like and I think this is an inappropriate regulatory response is this idea of Payment in Lieu of Taxes agreement, these PILOTs, because that’s just basically…bribery is what it is, or extortion, but it doesn’t create a level playing field, it doesn’t create a good regulatory standard, it allows the hospitals to put up relatively small amounts of money and for long-term agreements to not pay taxes so I think there just has to be some system in place to ensure that there is a level of reinvestment in to these communities. That lack of [reinvestment] has allowed these systems both here to amass huge reserves which allows them to do a number of things.

Other types of contributions to the community that might be viewed as a PILOT have been made, like a $100 million contribution from UPMC to the Pittsburgh Promise, a scholarship fund for any four-year attendee and graduate of Pittsburgh Public Schools that in part serves to incentivize attending the City’s public schools throughout high school. One stakeholder thought that this contribution gave UPMC too much power: “UPMC has this Pittsburgh Promise thing, right? So, does that… What kind of leverage does that give them over the City?”

However, the debate over how much non-profit groups should contribute to tax coffers has spilled over and has worried other non-profit groups. One non-profit administrator said: “We don’t happen to own property, but because of UPMC’s non-profit status on the impact that has on revenues for the City of Pittsburgh, there, there are efforts underway, that are ongoing efforts to change the way non-profits are treated that potentially could sweep all of the rest of us up in it…how can I say this? They’re not contributing their fair share, but we don’t want to be treated as a for-profit.”

On the other hand, while some have criticized these institutions for not paying their fair share in taxes, many of the consolidations have supported community health efforts in other ways, including the formation of local foundations; the sale of Montefiore created the Jewish Healthcare Foundation and McAuley Ministries was formed from the sale of Mercy Hospital. One stakeholder remarked: “these are foundations that are pretty good to us… that wouldn’t have
[happened] if they didn’t consolidate these things.” Another was more skeptical of the long-term viability of these foundations: “Billions of dollars went to a foundation that the hospital was then able to form and go back and support the community…. That’s a wonderful, wonderful side effect, but money is limited, that’s going to exhaust.”

Impacts on the Local and Regional Economy

Consolidation has broad effects on the local and regional economy in terms of employment. Consolidation is being used to try to reduce administrative costs: “You don't want to take cost out of the system at the bedside… you're consolidating HR [human resources], patient accounts, patient access all those non-revenue-generating back office functions that are consolidated, IT. And by consolidating them you may be eliminating jobs from the community.” Similarly, the closure or changing use of facilities due to consolidation can have devastating local impacts. As one stakeholder said about the closure of West Penn hospital, which was acquired by AHN and has since reopened after significant public pressure: “The much more profound impact was the impact on the local business district. Taking away those many employees who eat and drink and use the local shops, kind of the emotional loss to a neighborhood like Bloomfield, about the heart of their community and the biggest employer being ripped out of their neighborhood.” Another stakeholder pointed out that “It’s also really kind of the part of the social fabric of the community to have its own hospital, and when those hospitals close down, it really wreaks havoc and has a big impact on the community.”

However, on the other hand, numerous stakeholders referenced the contribution of the consolidated systems to the city’s economic revitalization: “So, I was in high school and then really away from Pittsburgh during the absolute collapse of the steel industry…but was certainly aware of it and the devastating impact that that had on our region’s economy and the population, and…really saw up close, the resurgence that started because of the hospital systems and the universities. So, I see the good in that.” Stakeholders expressed gratitude and hope that the strength of the health system and universities in the region had and would continue translate into more industry and job growth: “I think it’s going to shift, hopefully, into a little bit more job growth within the private sector… whether that’s autonomous vehicles, it’s biotech, it’s pharma, it’s hardware or software, but that entire economy would not be here if it weren’t for the ‘ed and med’ anchors.” Another stakeholder acknowledged the role of the health systems, especially UPMC, of contributing to the research enterprise at the local universities: “They contribute significantly to the research enterprise, back to the tune, maybe $500 million a year in terms of community benefit and fueling the research mission of our institutions so I think that’s the vitality and viability of these organizations through this consolidation.”

This research enterprise supported by the health systems is large and is investing in innovative technologies. Although recent reports indicate that Pittsburgh could be doing much better to commercialize scientific advancements made at their universities and health systems
(Andes et al., 2017), one stakeholder said that that one of the positive outcomes of consolidation was the ability of these large consolidated systems to “engage in these for-profit activities, invest in a whole lot of different things, whether it would be technology development, they become very viable partners with organizations like Oracle or IBM or Google or other organizations that are very interested in health IT, and they can do a lot of experimentation about how to do a better job of connecting hospitals and hospital discharge.”

Discussion

This case study of health care system consolidation in Pittsburgh, Pennsylvania, shows that this phenomenon has consequences beyond the cost and quality of health care, and these consequences can be felt outside the walls of health care systems. Outcomes resulting from consolidation are a product of both the phenomenon of consolidation itself and the context in which the phenomenon occurs. Thus, while we might observe similar phenomena in other cities, the observed outcomes might be very different.

Overall, the experience of consolidation in Pittsburgh has been mixed. Many of the changes that interviewed stakeholders attributed to consolidation can be traced to three root sources. First, consolidated health systems can reduce the autonomy of physicians. Second, consolidated health systems accumulate information, resources, and ultimately power. And lastly, stakeholders hold consolidated health systems to a higher standard. These three pathways accompany consolidation as a phenomenon, though they may result in different outcomes in other contexts.

The consolidation of hospitals and practices results in more physicians being directly employed by large systems with large executive teams, administrative infrastructure, and decision hierarchies. These large systems can influence positive change, such as reducing variation in and raising standards for quality. Moreover, many physicians prefer a direct employment model for many reasons, such as reducing risk in compensation and spending less time on-call. However, physician employment may have variable effects on physician autonomy. Clinical autonomy of physicians and the role of physician in governance and decision making in large integrated systems will depend on the organizational culture of that institution. Nonetheless, by virtue of being employed, physicians do not have the same kind of authority that they might have if they were self-employed. As we saw in Pittsburgh, this can make it difficult to access certain types of care since physicians cannot discount services, makes it difficult for physicians to participate in civic or community organizations since they do not determine their own schedules, and has created a chilling effect in local media because they cannot be critical of their employer. Consolidation of health systems also allows them to accumulate information, resources, and power to an extent not possible as individual entities. This too can be used in a positive way: large systems can learn from their data, make investments in new technologies and facilities, and make a single decision that can positively impact many employees, patients, or other
stakeholders. At the same time, this concentration of information, resources, and power can be wielded as a weapon. In Pittsburgh, we have seen that the accumulation of data creates incentives to not share it, the accumulation of resources has many wondering why these organizations are tax-exempt, and the accumulation of power from the sheer size of these entities and lack of employment alternatives results in a workforce that fears its employers.

As health systems consolidate, they are held to a higher standard than the individual hospitals and practices they comprise ever were before, the way a large employer in any region might be expected to contribute keeping the local economy going. Health systems might be held to even higher standards than an automobile manufacturer or steel mill because of the way they straddle the line between massive, profit-seeking business enterprise and public good. Further, expectations of these entities might be raised because people are less sure of their motives, as people feel less personally connected to something that is part of a large system than they did a single institution. Additionally, the collapse of the steel industry in Pittsburgh during the 1980s not only caused major economic distress, urban blight, and population decline (Day, 2016), also resulted in an identity crisis – what was Pittsburgh without steel? The region has latched on to the idea of itself as a health care and technology center of innovation as its identification with the steel industry has been reduced to history and iconography. The high expectations placed on major employers, especially when these employers constitute a major aspect of regional identity, lead many to believe that health care organizations are economic stimulus or jobs programs and that they need to behave accordingly. Additionally, these high expectations come with an expectation that the community will have access to the benefits generated by these institutions.

Pittsburgh is an interesting case because in some ways, Pittsburgh’s system was very backward compared to other markets since insurance competition was so low for so long. However, this lack of insurance competition likely stimulated the relatively early adoption of provider consolidation in the area, as UPMC acquired hospitals and practices to get more leverage over the major insurer as a “must-have” facility and provider group. However, Pittsburgh’s experience shows that consolidation is not a runaway train to a fully consolidated health care system or a privately owned single-payer monopoly. The divorce between Highmark and UPMC made it possible for national insurers to gain a foothold in the market, which had not happened previously. At the same time, the impending possibility that Highmark members will not have permanent access to facilities deemed “community assets” under the consent decree has motivated them to make investments in and bolster their cancer care programs, which should be good for patients. Further, purchasers and consumers know that if AHN fails, UPMC will essentially be a provider monopoly, so and they are willing to make purchasing decisions to try to sustain those markets. And both systems are still vulnerable to outside threats, such as Advanced Surgical Hospital (ASH) in Washington, Pennsylvania. ASH is a new independent for-profit hospital in the area that has the highest quality rankings and specializes in a small number of procedures. These are indications that consolidation as a phenomenon is not monotonic.
It is unclear to what extent Pittsburgh’s consolidation experience was driven by market forces and policy uncertainty compared to individual leadership and vision. What if Jeffrey Romoff had become an executive at Allegheny General Hospital or Highmark, or never showed up at all? Pittsburgh might not have been such an early adopter of hospital and health system acquisition, but there is no way that Pittsburgh’s health system as it existed in 1990 could have continued to the present based on the experience of other U.S. cities – no city has been untouched by this phenomenon, although it looks different in other places.

This heterogeneity in health care markets potentially creates more confusion than clarity in terms of what a well-functioning health system looks like. It often seems like lawmakers and regulators in the U.S. do not have a clear policy goal for how health care markets are structured, unlike the policy goals of lowering health care costs or improving health care quality, which everyone seems united around. Lawmakers and regulators seem torn between numerous competing ideals include having several viable health care choices for patients, having appropriate capacity to prevent overuse of tests and treatments, and having sufficient integration to promote coordination and accountability. The massive number and wide scope of laws and regulations that federal and state governments have created demonstrate the ways in which different ideals have gained favor at different periods in our history.

As lawmakers and regulators are currently trying to reshape the U.S. health care system to reward value instead of volume, the health care industry has faced uncertainty in terms of both the policy environment and potential disruptive innovations in care delivery. The response to this uncertainty appears to be increasing scale such that even if the policy environment changes or a disruptor comes along, the entity would be large enough to be able to make necessary investments to react successfully, influence the policy process, or invest in innovation themselves.

Health care market consolidation is not necessarily negative; reshaping of the health care market is probably necessary to some extent to realign mismatched incentives between providers and payers. The danger emerges when these entities become so powerful that they can dictate the terms on which anyone else – patients, payers, or employees – must interact with them, and these groups have no recourse because there is nowhere else to go.

As this exploratory study represents a case of a single geographic region, the outcomes described cannot be strictly causally interpreted. Furthermore, consolidation’s effects are not unique to health care, as this phenomenon is occurring in many other areas of the economy. According to one government official:

Everything in this country is consolidated. It’s reality. We’re closing libraries, we’re closing schools, we’re closing Catholic churches, we’re closing synagogues, things are closing. That’s going to happen, demographics shift. The world’s changed and I think too many places are making a mistake of fighting it versus – not necessarily embracing – but just accepting reality, and planning ahead for that.
Health care markets are also changing rapidly in many other ways in addition to consolidation, such as through coverage expansion in the Affordable Care Act, payment reforms, trends away from inpatient care, increased support for behavioral health, changing care needs of an increasingly obese and aging population. Studying the impact of health care consolidation may help to both prevent future consolidation or at least prevent the negative outcomes of consolidation, and this study may serve as a jumping off point for several lines of research, including how communities are making up for tax revenues or whether and in what circumstances physicians can maintain autonomy as employees of large systems. As the trend toward consolidation appears to not be slowing, many opportunities to learn remain.
Acknowledgments

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### Appendix B Table 1. Semi-structured interview protocol

<table>
<thead>
<tr>
<th>Topic</th>
<th>Questions and probes</th>
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<tbody>
<tr>
<td>Information about your organization</td>
<td>• Can you tell me about yourself?</td>
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<tr>
<td></td>
<td>• Can you tell me about your organization?</td>
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<tr>
<td></td>
<td>• Your role, length of time in role</td>
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<td></td>
<td>• Who you serve</td>
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<td></td>
<td>• Partners or other groups you work with</td>
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<td>Overall context</td>
<td>• Can you tell me the story of health care consolidation in Pittsburgh from your perspective?</td>
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<tr>
<td></td>
<td>• What stakeholder groups did</td>
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<td>• What your employees/partners did</td>
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<td></td>
<td>• What the people you serve did</td>
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<tr>
<td>Experienced impacts</td>
<td>• How has health care consolidation affected your organization?</td>
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<td></td>
<td>• Your organization</td>
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<td>• Your staff</td>
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<td></td>
<td>• Your group served</td>
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<tr>
<td>What are lessons learned?</td>
<td>• What worked?</td>
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<td></td>
<td>• What hasn’t worked?</td>
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<td></td>
<td>• What would you do differently in the future?</td>
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<td>Wrap up</td>
<td>• Any closing thoughts?</td>
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<tr>
<td></td>
<td>• Who else should I talk to?</td>
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<td></td>
<td>• Can I follow up in the future?</td>
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### Appendix B Table 2. Codebook for analyzing interview data.

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<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Examples</th>
</tr>
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| Dynamics | Sections coded “Dynamics” relate to the underlying dynamics that drive either consolidation or the outcomes and effects of consolidation. It may refer to relationships, motivations, economic forces, beliefs, or capabilities of people or institutions. | “Specialties were driven to become employed because of health professional liability insurance costs. They were increasing 30% to 50% to 60% a year depending on the specialty, and they had no predictability to them, they weren’t able to budget them”  
“Specialties were driven to become employed because of health professional liability insurance costs. They were increasing 30% to 50% to 60% a year depending on the specialty, and they had no predictability to them, they weren’t able to budget them“  
“It’s definitely different, because they are - the majority of them are employed now, they have less control over their schedule, I think they have less time to be involved in other things.”  
“So I don’t think the physicians are loving this. The ruling absolutely thing -- kind of took away their autonomy, whatever is left, artificial intelligence will take away”  
“The conversation around the table of those non-aligned, independent hospital CEOs was that, “Do I have… Am I big enough? Am I large enough?” That's what it's all about, “Am I big enough?”“  
“One would be I think would be that if you have hospitals and you have medical staffs who are part of hospitals in the community setting or a rural setting, and you now affiliate with one major system or another. And the question is what is the pattern of referrals? So, if you and I are neurologists in Dubois and we have a subset of our population that requires neurosurgery we may have trained with or may have had a long-term relationship with Dr. X at Allegheny General. But if we’re now part of the UPMC Health System those referrals are going to Dr. Y at UPMC. It’s not to say one better than the other it’s simply to say that there were longstanding referral relationships that could be affected by consolidation.” |
| Outcomes | Sections coded “Outcomes” relate to outcomes and effects perceived to be due to consolidation | “I never – aside from everyone talking about opioids, I've never encountered so much conversation wherever I go about physician suicide.”  
“The value their assets were converted into grant making foundations. So I’m guessing it just seemed like a good idea about the laws of cy-près. So we had to do something that fit with a law and making a grant making organization was a good idea.”  
“One would be I think would be that if you have hospitals and you have medical staffs who are part of hospitals in the community setting or a rural setting, and you now affiliate with one major system or another. And the question is what is the pattern of referrals? So, if you and I are neurologists in Dubois and we have a subset of our population that requires neurosurgery we may have trained with or may have had a long-term relationship with Dr. X at Allegheny General. But if we’re now part of the UPMC Health System those referrals are going to Dr. Y at UPMC. It’s not to say one better than the other it’s simply to say that there were longstanding referral relationships that could be affected by consolidation.” |
## Appendix B Table 3. Background on Pittsburgh MSA (2016)

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Pittsburgh MSA</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population</strong></td>
<td>2.3 million</td>
<td>323 million</td>
</tr>
<tr>
<td><strong>Age distribution</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 5 years: 5%</td>
<td></td>
<td>Under 5 years: 6%</td>
</tr>
<tr>
<td>5-19 years: 16%</td>
<td></td>
<td>5-19 years: 19%</td>
</tr>
<tr>
<td>20-44: 30%</td>
<td></td>
<td>20-44: 33%</td>
</tr>
<tr>
<td>45-64: 29%</td>
<td></td>
<td>45-64: 26%</td>
</tr>
<tr>
<td>65+: 19%</td>
<td></td>
<td>65+: 15%</td>
</tr>
<tr>
<td><strong>Race/ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White: 86%</td>
<td></td>
<td>White: 73%</td>
</tr>
<tr>
<td>Black: 8%</td>
<td></td>
<td>Black: 13%</td>
</tr>
<tr>
<td>AIAN: &lt;1%</td>
<td></td>
<td>AIAN: 1%</td>
</tr>
<tr>
<td>API: 2%</td>
<td></td>
<td>API: 6%</td>
</tr>
<tr>
<td>Other: &lt;1%</td>
<td></td>
<td>Other: 5%</td>
</tr>
<tr>
<td>Two or more races: 2%</td>
<td></td>
<td>Two or more races: 3%</td>
</tr>
<tr>
<td>Hispanic/Latino, any race: 2%</td>
<td></td>
<td>Hispanic/Latino, any race: 18%</td>
</tr>
<tr>
<td><strong>National origin</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Born in state of residence: 81%</td>
<td></td>
<td>Born in state of residence: 58%</td>
</tr>
<tr>
<td>Born in other US or abroad to Americans: 16%</td>
<td></td>
<td>Born in other US or abroad to Americans: 29%</td>
</tr>
<tr>
<td>Foreign-born, naturalized: 2%</td>
<td></td>
<td>Foreign-born, naturalized: 7%</td>
</tr>
<tr>
<td>Noncitizen: 2%</td>
<td></td>
<td>Noncitizen: 7%</td>
</tr>
<tr>
<td><strong>Household income</strong></td>
<td>Median: $56,063</td>
<td>Median: $71,062</td>
</tr>
<tr>
<td>Mean: $75,705</td>
<td>Mean: $95,353</td>
<td></td>
</tr>
<tr>
<td><strong>In labor force</strong></td>
<td>52%</td>
<td>50%</td>
</tr>
<tr>
<td><strong>Unemployment</strong></td>
<td>5.3%</td>
<td>5.8%</td>
</tr>
<tr>
<td><strong>Insurance coverage</strong></td>
<td>Insured private: 76%</td>
<td>Insured private: 67%</td>
</tr>
<tr>
<td></td>
<td>Insured public: 35%</td>
<td>Insured public: 35%</td>
</tr>
<tr>
<td></td>
<td>No insurance: 4%</td>
<td>No insurance: 8%</td>
</tr>
</tbody>
</table>

**SOURCES:** http://proximityone.com/situation&outlook_reports.htm  
**NOTE:** AIAN (American Indian or Alaska Native), API (Asian or Pacific Islander)
Appendix B Table 4. Background on UPMC and Allegheny Health Network (2017)

<table>
<thead>
<tr>
<th>Demographics</th>
<th>UPMC</th>
<th>AHN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>39</td>
<td>8</td>
</tr>
<tr>
<td>Beds</td>
<td>7,552</td>
<td>2,000</td>
</tr>
<tr>
<td>Associated health plan</td>
<td>UPMC Health Plan</td>
<td>Highmark Health</td>
</tr>
<tr>
<td>Total members</td>
<td>3.4 million</td>
<td>4.6 million</td>
</tr>
<tr>
<td>Employees</td>
<td>80,000</td>
<td>19,000</td>
</tr>
<tr>
<td>Operating revenues</td>
<td>$15.6 billion</td>
<td>$3.1 billion</td>
</tr>
<tr>
<td>Operating margin</td>
<td>1.6%</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

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Pittsburgh Regional Alliance, "Facts, figures & data to help businesses find their place in the 10-county Pittsburgh region," 2016. As of April 30: https://www.pittsburghregion.org/data/


———, "'We will gladly join you in partnership in Harrisburg or we will see you in court’: the growth of large not-for-profits and consequences of the ‘eds and meds’ renaissance in the new Pittsburgh," *Journal of Urban History*, Vol. 42, No. 2, 2016, pp. 306-322.


4. Health Care Industry Consolidation: Remedies Beyond Antitrust

Abstract

Health care industry consolidation has experienced significant consolidation and the increased leverage gained by health systems in concentrated health care markets allow small numbers of large entities to both increase prices and to compel insurers and potential employees to agree to unfavorable contractual terms more than they would be able to in a competitive market. Potential solutions to these problems can and must be enacted by players beyond antitrust enforcement agencies. This work aims to review potential solutions to address health care consolidation and its downstream consequences actionable by state and federal lawmakers. One promising approach includes restricting insurance contracts to prohibit steering and tiering, gag clauses, or most-favored nation provisions. Another potential method is to strengthen rules around non-profit status, such as making community benefits into tax credits or restricting the ability of employers to enforce non-compete agreements. If anticompetitive consolidation cannot be prevented, stakeholders and policy makers need to consider other means to address its negative consequences.
Address the Outcomes, not the Phenomenon

The U.S. health care system has experienced significant consolidation over the last three decades and this consolidation is not slowing. The cumulative effect of individual mergers and acquisitions has slowly changed health care markets over time. Hospitals, insurers, and physician practices are merging to form large integrated systems (Fulton, 2017; Gaynor, Ho and J. Town, 2015). Typical regions in the United States have 3-5 consolidated health systems and a small set of facilities and providers outside of those systems (Cutler and Morton, 2013). These systems are fundamentally different from the assortment of independent players that existed previously. Highly concentrated markets allow for a small number of large entities to compel insurers and potential employees to agree to unfavorable contractual terms more than they would be able to in a competitive market. These behaviors, which are facilitated by increased leverage of health systems in concentrated health care markets, can negatively impact patients through increases in prices and premiums without accompanying improvements in quality of care (Gaynor, 2018). Furthermore, they can harm employees by increasing concentration in the labor market (Naidu, Posner and Weyl, 2018), which makes it easier for health systems to dictate terms of employment in their favor.

Options for addressing these negative outcomes of health care industry consolidation are limited. The main mechanism for halting further consolidation is antitrust enforcement by the Federal Trade Commission (FTC) and Department of Justice (DOJ). While these enforcement agencies review the mergers and acquisitions that trigger statutorily-defined valuation thresholds for regulatory oversight, these agencies do not have the capacity to review or challenge every potentially anticompetitive deal. Furthermore, they are not always successful when they challenge mergers in court. Some proposed policy solutions for preventing health care consolidation include increasing the resources of the antitrust enforcement agencies (Capps, Dranove and Ody, 2017) or strengthening thresholds and definitions for what kinds of mergers and acquisitions will trigger regulatory review (Capps, Dranove and Ody, 2017; Ginsburg and Pawlson, 2014; Leibenluft, 2015). Others have suggested a more pragmatic solution for addressing the outcomes of consolidation rather than only the phenomenon of consolidation itself. One method is increased use of so-called “conduct remedies”, which are stipulations under which proposed mergers and acquisitions will be allowed. For example, proposed transactions could be made conditional on demonstrated improvements in cost, quality, or access (Ginsburg and Pawlson, 2014). However, even with increased resources, better guidance, and conduct remedies, these policy solutions do not address the negative outcomes created by consolidation that have already occurred. Many have suggested reversing these effects by encouraging entry by rival entities, especially by lower barriers to entry like relaxing licensing restrictions or repealing certificate-of-need laws (Gaynor, Mostashari and Ginsburg, 2017; Sage, 2014; Fulton, 2017), but alleviating market concentration through competition is slow and difficult in practice.
Because so much consolidation has already occurred, it may make more sense to focus on policy remedies that address the effects of consolidation rather than the phenomenon of consolidation itself. Some of the proposed solutions to address price increases due to consolidation are price controls, such as limits on out-of-network charges (Ginsburg and Pawlson, 2014; Melnick, 2017) or prior approval of insurance rates by state regulators (Fulton, 2017). The state of California recently implemented some of the most stringent price controls in the country with the passage of AB 72, which limits out-of-network charges for patients receiving care at in-network facilities from out-of-network clinicians. The unintended consequences of this law may be a reduction in access to care, as some claim limiting out-of-network charges can result in staffing shortages at hospitals ("AAPS vs. Brown – protecting physicians and patients from AB 72," 2017). While many states have some type of rate review by state insurance commissioners, even the most stringent versions of these laws arguably will not work if insurers are not setting the price of care services. These policies ultimately do not address the underlying problem, which is that large, consolidated health systems are able to dictate the terms of engagement for both patients and employees.

Because the U.S. health care system is composed of entities (such as hospitals and insurers) that negotiate with each other rather than with individual patients, achieving scale is often the best way to improve negotiating leverage. Health systems form and increase in size to negotiate more favorable rates with insurers. In many places, these health systems can grow large to become a “must-have” based on size alone for other players or vendors in a local market, allowing them to act as monopolists in the market for services or products, and potentially labor or service monopsonies.

This exertion of monopolistic pricing power has historically been the motivation for government intervention with respect to consolidation of health care related entities. Prices and premiums are a key component of the main policy remedy of consolidation: antitrust enforcement. While generally ignored by antitrust enforcers, consolidation can also negatively impact labor markets (Naidu, Posner and Weyl, 2018). In particular, consolidation can result in a labor monopsony for clinicians that gives employers extra leverage in the form of non-compete employment agreements or other waivers of rights such as agreeing to arbitration for grievances. Two policy remedies have potential to reduce the ability of large consolidated health systems to dictate the terms of engagement and realign incentives for consolidated health care markets in ways that will benefit patients and employees. The first is restricting allowable insurance contract language, and the second is using tax-exempt status to protect patients and employees.
Policy Options to Address Negative Outcomes of Health Care Consolidation

Restricting Allowable Contract Language

A recent lawsuit between the State of California and a consolidated health care system, Sutter Health, illustrates why restricting allowable health insurance contract language is a critical component to addressing the negative outcomes of consolidation. Sutter Health successfully defended a challenge to a merger of two facilities by arguing that they would not be able to engage in monopolistic pricing behaviors because insurers could still incentivize patients to receive care at less expensive facilities through the structure of their insurance contracts. However, the State of California alleges that Sutter Health has subsequently been able to prevent insurers from including these provisions in their contracts (Lomax, 2018). Large consolidated systems are likely to be viewed as “must-have” facilities by insurers, and these systems use this to their advantage to dictate the terms of engagement with other players through certain types of contract clauses. These include:

“Steering and tiering” clauses

Clauses that prohibit “steering and tiering” prevent insurers from incentivizing patients from using certain facilities or providers over others through differences in cost-sharing, copays, or other financial incentives, essentially behaving as a formulary for facilities. Large consolidated systems often try to prohibit steering and tiering to ensure that patients have the same level of access to all facilities regardless of their quality or cost. Prohibiting these clauses would help control health care costs (Gaynor, Mostashari and Ginsburg, 2017; Leibenluft, 2015; Fulton, 2017; Melnick, 2017).

“All-or-none” clauses

Insurance contracts often include “all-or-none” clauses, which means that insurers have to accept all of a system’s facilities and providers as in-network if they want any facility or provider to be considered in-network (Melnick, 2017). This could still be in place even if steering and tiering is prohibited. This would make it more difficult for high-cost or low-quality facilities to attract patients.

“Gag” clauses

“Gag” clauses prohibit insurers from distributing information about the price or quality of facilities or providers to consumers (Gaynor, Mostashari and Ginsburg, 2017; Leibenluft, 2015; Fulton, 2017; Melnick, 2017). The veneer of the brand name of a large system often masks high variability in the quality of facilities and providers.
“Most favored customer” clauses

“Most favored customer” clauses are the equivalent of retailers who say they will match any advertised price. Essentially, these clauses are inserted by insurers to make sure that the rates they are given are the lowest rates available, and any lower rates offered to anyone else must be offered to them as well. These clauses inhibit the growth of insurance competitors by making it impossible for hospitals and practices to accept lower fees from smaller insurance companies (Sage, 2014; Berenson et al., 2012).

Language restrictions could also be applied to employment contracts. Employees faced with a labor monopsony are subjected to less favorable terms of employment. These types of terms include clauses that force employees to waive their right to sue their employer by agreeing that grievances will be solved with binding arbitration, non-compete agreements that limit the ability of employees to seek employment from competitors, and employment exclusivity clauses that prohibit clinicians from being employed or contracting with multiple systems (Sage, 2014).

Restricting contracting language is a policy change that could be enacted by either Federal or state lawmakers. Additionally, the Federal Trade Commission or state antitrust enforcement agencies could incorporate these prohibitions into conduct remedies on a case-by-case basis. These kinds of restrictions are gaining some traction. Lawmakers in Massachusetts banned many of these insurance contract clauses in 2010 ("Health insurance consumer protections," 2010), and non-compete agreements are void in the State of California.

**Strengthen Non-Profit Tax-Exempt Status Designation**

A recent acquisition of the for-profit Phoenixville Hospital in the suburbs of Philadelphia is illustrative of how tax-exempt status is a critical policy lever for addressing consolidation. For-profit Phoenixville Hospital was acquired by non-profit Tower Health, which qualified Phoenixville Hospital for relief from property taxes overnight, without evidence that there would be an increase in the provision of community benefits. This conversion relieved the hospital of $950,000 in annual taxes for the local school district alone (Brubaker, 2018). It seems unlikely that the amount of community benefits provided will increase accordingly. Evidence suggests that non-profit hospitals are no more likely than for-profit hospitals to increase the charity care provided as their market power increases (Capps, Carlton and David, 2017).

Health care, in comparison to other consolidated industries, includes a mixture of entities that have for-profit and non-profit, tax-exempt status. The for-profit entities arguably provide their community benefits in the form of taxes, though they also often provide community benefits such as charity care. However, the fact that so many entities have tax-exempt, non-profit status when they are by many definitions profitable (Bai and Anderson, 2016) is a unique market feature could be better exploited to ensure that even if prices rise, they generate benefits to patients and the community. If the requirements to maintain non-profit status become too onerous or difficult for systems to obtain based on their current activities, they can adjust their
activities to maintain this status, or they can revert to for-profit status and taxation will count as their community benefit. There are several ways in which this could be operationalized:

Increase Standards for Tax-Exempt Designation

Rules to determine qualification for this status could be strengthened. For example, in Pennsylvania, the five-prong “HUP test” is a relatively low-threshold set of criteria used to determine whether an entity is deserving of tax-exempt status as a non-profit. Definitions could be expanded to establish minimum standards for conducting purely charitable activities.

Create special rules for “profitable” non-profits

The community benefit standard enacted by the Affordable Care Act (ACA) could be replaced with an annual quantitative standard of community benefits that essentially acts as a tax credit; any amount less than the amount that would be paid in tax would be owed (James, 2016). Another solution would be a formalized system of payments in lieu of taxes (known as PILOTs) to account for erosion of tax base or make other monetary contributions to community initiatives. Pittsburgh has implemented PILOTs at various points for the large, “profitable,” land-owning non-profits (mostly health care and insurance entities and universities) (Simpson, 2016).

Create special rules for hospital non-profits

The Affordable Care Act (ACA) mandated additional requirements for non-profit hospitals, such as requiring them to conduct community health needs assessments and create a plan for addressing those needs. These requirements could be added to and strengthened to include provisions like providing information for patients about qualifying for charity care.

More directly connecting the idea of tax-exempt status to provision of community benefits would help mitigate the negative impact of price increases after consolidation. These changes could be enacted by either state authorities like the Attorney General, which has broad authority over charitable assets, or federal lawmakers who could change the qualifications for charitable status defined by the Internal Revenue Service.

Contracting Language and Non-Profit Status Can Counter Negative Effects of Consolidation

Antitrust enforcement is not the solution to the issues created by the balance of power toward health systems in the current consolidated health care marketplace. The consolidation that has already happened cannot be reversed, and competition in the form of new entrants or disruptive innovation is unpredictable. Health insurance contract language and tax-exempt status of health care entities are two potentially promising pathways to countering the imbalance of power created by consolidation and formation of large health systems that ultimately affects both patients and employees.
Both of the suggested policy changes raise important questions about the role of the government dictating the terms under which businesses negotiate and operate in a country where market interference is less politically palatable than the rest of the world. For many years, political leanings related to antitrust regulation split along party lines, with pro-regulation, consumer welfare watchdogs on the left and the laissez-faire, red-tape-hating business-friendly on the right. Nowadays, both sides of the aisle appear to be open to consumer welfare as a policy goal, with even Republicans lawmakers proposing that large tech monopolies like Google become utilities (Crane, 2018). Public sentiment that denigrates insurers and elevates hospitals appears to be waning as the public increasingly understands that prices, rather than utilization, appear to drive high health care costs (Papanicolas, Woskie and Jha, 2018).

Both of these policies may have unintended negative consequences. Restricting contracting language might encourage the development of narrow networks, which have limited acceptability among patients. Converting the value of non-profit corporations’ community benefits to a tax credit might create reporting requirements so burdensome that they could discourage other non-profits from conducting other beneficial activities. These and other potentially negative effects are tradeoffs need to be carefully considered in comparison to the benefits these policies could provide.

Health care consolidation is not a universal evil. Indeed, there are many situations in which mergers and acquisitions or health care entities can result in efficiencies and benefits for patients and improved conditions for employees. However, consolidation often falls short of these aims. The policy proposals discussed address important negative outcomes of consolidation. If anticompetitive consolidations cannot be prevented, then stakeholders and policy makers need to look for creative ways to mitigate their negative outcomes.
Acknowledgments

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