Project Directors: Zack Cooper, Yale University; Fiona Scott Morton, Yale University

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About the Project

The goal of the 1% Steps for Health Care Reform Project is to shift the way we think about solving outsized health care spending in the US and offer a roadmap to policy makers of tangible steps we as a country can take to make the US health system more efficient. Directed by Yale University Professors Zack Cooper and Fiona Scott Morton, this project harnesses the insights from leading empirical economists to identify discrete problems in the US health system and offer evidence-based steps for reform.

The sheer scale of the US health care system is what makes reforming it so difficult. If the US health system, measured in dollars, was a country, it would be the fourth largest country in the world, larger than the economies of Germany, India, and the United Kingdom. In a $3.8 trillion system, there is not a single problem that makes us an international outlier. Rather than speaking about health spending via abstractions, high health care costs in the US can be viewed as the result of a series of discrete problems that each incrementally raises health spending by a percent or two–so-called 1% problems.

We can address health care costs in the US by going step by step, solving individual problems, and constantly improving. Each participant in this project wants to help policy makers at the local, state, and federal levels address the inefficiency of the US health care system.

To date, this project includes 16 policy briefs that, if all addressed, would sum to a 9 percent reduction in health spending in the U.S. The briefs address a range of inefficiencies including prescription drug pricing, reforms in how Medicare pays providers, steps to address rising insurance premiums, and recommendations to increase organ donation. Each set of policy proposals has tradeoffs, and the authors are willing and eager to engage with policy makers on refining their proposals and implementing their recommendations.

This is not a static project. We will continue to work with leading scholars to identify problems and put forward specific, evidence-based policies to solve them that can lower US health care spending. This incremental and continuous progress is how policy makers and empirical economists can work together to transform the US health system.

www.onepercentsteps.com

Health Care Reform: One-Percent Step at a Time

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Excerpt: High US health care costs are the result of a series of discrete problems that each incrementally raises health spending by a percent or two. We call these the "one percent problems" and have brought together experts to identify these problems and describe evidence-based steps to address them.

Rising health care costs are breaking the backs of American families. In many ways, as Anne Case and Angus Deaton have argued, the seeds of the economic discontent felt by so many in the US can likely, in part, be traced back to the health care system. The extent to which health care cost growth has outpaced wage growth is staggering. From 2000 to 2019, health spending in the US increased 87 percent while median household income increased by only 10 percent. Today, average annual health insurance premiums for a family of four are $21,342. That's the equivalent of a family buying a new Toyota Corolla worth of insurance each year.

The sheer scale of the US health care system is what makes reform so difficult. If the US health system, measured in dollars, were a country, it would be the 4th largest country in the world, larger than the economies of Germany, India, and the United Kingdom. In the $3.8 trillion US health system, multiple factors contribute to us being an international outlier. Just as there's not one singular problem driving our outsized spending, there is not going to be a singular policy solution. While we certainly wish for a silver bullet intervention and hope smart people are out there searching for one, in the meantime, we have an obligation to address the outsized cost of health care in this country. The upside is that we actually already know what needs to be done.

Rather than speaking about health spending via abstractions, we should view high US health care costs as the result of a series of discrete problems that each incrementally raises health spending by a percent or two – so-called "one percent problems." While each problem is unremarkable in isolation, the collective impact of a series of one percent problems can help explain why the US spends more than other nations. Reframing health care spending as a series of discrete problems also allows us to create a roadmap for how policymakers and industry can begin to reduce costs and make the US health system more efficient.

Example: Surprise Medical Bills

Surprise medical bills are a good example of a discrete problem that raises health care costs, has zero benefit to the public, and can be addressed. Surprise medical bills occur when a patient is treated at an in-network hospital by a physician outside of her insurer's network. They are the result of a single market failure: that some groups of physicians – radiologists, pathologists, anesthesiologists, and emergency physicians with privileges at a given hospital – are not chosen directly by patients and therefore can choose not to participate

in insurance networks without losing significant patient volume. The consequences of surprise billing are clear: patients are exposed to large, unexpected and unavoidable bills; health care costs are increased by approximately $60 billion annually (five percent of commercial health spending).

In December 2020, Congress passed surprise billing reforms that will largely eliminate this issue. The effort to pass surprise billing was bolstered by a strong evidence-base that outlined the scale of surprise billing nationally, studied the drivers of the problem, and tested potential solutions. Research that analyzed New York state's efforts to address surprise bills using arbitration showed that the policies in the state lowered emergency room physicians' in-network rates by 15 percent. New York's laws became a model for the national law. As a result, we estimate that the recent national legislation should reduce commercial health spending by approximately three percent ($38 billion annually).

One-Percent Steps to Reduce Health Spending

Economists who study health reform in the US regularly identify these types of solvable, discrete problems in their research. In fact, this is how knowledge generation generally occurs. Empirical economists – those of us who work with data – are best at answering specific questions like whether covering organ donors' costs increases rates of organ donation, whether hospital mergers raise hospital prices, and whether people are better able to select the best insurance plan for themselves financially when options that are never good for them are removed from their choice sets. Each study is like a small brick being used to build a large structure.

Empirical economists' insight about the health system can help create a roadmap for tangible reform. To that end, we brought together leading economists and produced 16 individual briefs that each highlight a significant one percent problem in the US health system that raises health spending without commensurate gains. These briefs then offer evidence-based steps to fix the problem. Collectively, the 16 briefs, with more to follow, form the backbone of the "1 Percent Steps for Health Care Reform Project."

The individual proposals are decidedly unsexy. They focus on eliminating narrow inefficiencies in the health system. Collectively, however, they represent a path to reducing health spending in the US by hundreds of billions of dollars annually (approximately nine percent of overall health spending).

The briefs address a range of topics, from reforming the inefficient coding used by the Centers for Medicare and Medicaid Services for physician administered drugs, to helping individuals more effectively choose insurance plans, to reducing fraud in the home health sector. The aim of the project and remit for the authors was to produce proposals that lowered health spending without adversely impacting quality; to make concrete policy recommendations from academic research. Wherever possible, we wanted the policy recommendations to be based on the authors' academic scholarship.

Take for example, the briefs that address increasing kidney donations. There are approximately 90,000 people in the US with end stage renal disease who are in need of a kidney. Death rates are considerably higher for individuals with end stage renal disease if they do not receive a kidney transplant and instead

rely on dialysis. Critically, each transplant completed saves the Medicare program, in aggregate, approximately $146,000 by eliminating the need for dialysis. That is, increasing kidney donations increases quality of life, produces economic gains from increased quality of life, and saves the Medicare program money. Kidney donations are inherently efficiency increasing. Yet, we have a shortage of donor organs, so two briefs offer steps to increase their supply. Together, these steps could result in a savings of 0.1 percent of national health spending.

As we illustrate in Exhibit 1, across our 16 briefs, we have identified steps, which if fully implemented, would decrease health spending by nearly nine percent of national health spending. Some proposals address prescription drug spending, others are focused on commercial markets, and some are focused on Medicare policy. Some proposals will require federal intervention, some will require steps by state-level policy-makers, and others will require interventions by payers and providers.

Exhibit 1: The 1% Steps Briefs

Topic	Authors	Annual Savings as a Share of National Health Spending
Decreasing cost barriers for living kidney donations	Mario Macis (Johns Hopkins)	0.08%
Expanding kidney exchanges	Nihkil Agarwal (MIT), Itai Ashlagi (Stanford University), Michael Rees (University of Toledo Medical Center), Alvin Roth (Stanford University)	0.02%
Addressing orphan drugs	Amitabh Chandra (Harvard University)	0.15%
Expanding preferred pharmacy networks	Amanda Starc (Northwestern University), Ashley Swanson (Columbia University)	0.04%
Reforming how Medicare reimburses biosimilars	Fiona Scott Morton (Yale University), Zack Cooper (Yale University)	0.21%
Eliminating prescription co-pay coupons	Leemore Dafny (Harvard University), Christopher Ody (Northwestern University), Christopher Schmitt (UCLA)	0.03%
Reducing fraud in home health	Stephen Lee (Benesch), Jonathan Skinner (Dartmouth College)	0.12%
Reforming the payments for long term care hospitals	Amy Finkelstein (MIT)	0.11%
Addressing surprise medical bills	Zack Cooper (Yale University), Fiona Scott Morton (Yale University)	1.67%

Addressing hospital consolidation	Zack Cooper (Yale University), Martin Gaynor (Carnegie Mellon University)	0.69%
Addressing vertical integration of hospitals and physicians	Daniel Kessler (Stanford University)	0.91%
Improving health insurance plan choice	Jason Abaluck (Yale University), Jonathan Gruber (MIT)	0.63%
Increasing the efficiency of claims adjudication	Peter Orszag (Lazard), Rahul Reiki (Lazard)	1.25%
Introducing smart provider networks	Jonathan Gruber (MIT)	0.83%
Regulating health care provider prices	Michael Chernew (Harvard University), Leemore Dafny (Harvard University), Maximilian Pany (Harvard University)	1.89%
Improving plan auto-assignment in Medicaid managed care	Chima Ndumele (Yale University), Jacob Wallace (Yale University)	0.24%
Total Savings		**8.87%**

Source: Authors' analysis based on data from the 1% Steps for Health Care Reform Project

Looking Ahead

Realistically, policies that eliminate waste in the US health system generally reduce at least one organization's income. Firms that stand to lose income then act to thwart reform. For example, surprise billing largely benefited physician staffing firms, like EmCare and TeamHealth, and some for-profit hospitals that used out-of-network billing as a business strategy. As a result, these firms and their private equity owners spent tens of millions of dollars attempting to thwart surprise billing legislation. Going forward, if Congress wants to meaningfully address US health spending, they must understand that there will be frustrated parties and stick to their job of helping consumers.

We understand the allure of hoping for silver-bullet solutions to reform the US health system. There aren't many country music songs written about incrementalism. Nevertheless, health economists owe it to the public to come up with tangible steps to reduce health care costs now. Today, our project includes 16 proposals, which, if all implemented, would lower health care costs by hundreds of billions of dollars. We anticipate our list of ideas will grow over time as more economists participate. Policymakers should be focused on identifying and implementing evidence-based solutions to address high health care costs, even if the expected gains are not dramatic. This kind of incremental and continuous progress, in the long run, is how we will transform the US health system.

Summary of Savings Table

		Savings from Policy Proposal							
		Medicare		Commercial Health		Drug		Additional Societal Gains per Year ($billions)	Total Savings as share of NHE (%)
	Total Savings per Year ($billions)	Dollars Saved $billions)	Reduction (%)	Dollars Saved ($billions)	Reduction (%)	Dollars Saved ($billions)	Reduction (%)		
Out-of-Network Billing by Hospital-Based Physicians	$60			$60	5%				1.67%
Capping Provider Prices and Price Growth in the US Commercial Health Sector	$68			$68	5.7%				1.89%
Long-Term Care Hospitals: A Case Study in Waste	$4	$4	1%[1]						0.11%
Addressing Hospital Concentration and Rising Consolidation in the United States	$5-$25			$25	2%				0.69%
Hospital Ownership of Physician Practices	$32.65[2]								0.91%
Reforming Home Health Care Coverage to Reduce Fraud	$1.2-$4.4	$4.4	0.59%						0.12%
Paying for Biologic PADs in Medicare Part B	$2.0-$7.5	$7.5	1%						0.21%
Eliminating Prescription Drug Copay Coupons	$1.2			$1.2	0.1%	$1.2	0.9%[3]		0.03%
Reforming Orphan Drug Act	$5.24					$5.24	1.5%		0.15%
Promoting Preferred Pharmacy Networks	$1.34					$1.34	0.4%		0.04%
Expanding Kidney Exchange	$0.73	$0.73	0.1%					$5.5	0.02%
Removing All Financial Disincentives to Living Kidney Donation	$1-$3	$3	0.5%					$7+	0.08%
Less Is More: Structuring Choice for Health Insurance Plans	$22.5	$6.7	1%	$15.8	1.3%				0.63%
Designing Smart Commercial Insurer Networks	$30			$30	2.8%[4]				0.83%
Real-Time Claims Adjudication	$45			$45	3.6%				1.25%
Improving Auto-Assignment in Medicaid Managed Care	$3.7-$9.2								0.24%[5]
Total Savings per Year	**$320 billion**							**$12.5+**	**8.87%**

1. Represents share of traditional Medicare spending.
2. Calculated based on author estimate that policy reforms would reduce total medical spending by approximately 1%. Represents 1% of health care spending less total drug spending.
3. Represents share of prescription drug spending on the commercially insured.
4. Represents share of non-drug health spending.
5. Represents share of NHE in 2019.

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Paying for Biologic PADs in Medicare Part B

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Less Is More: Structuring Choice for Health Insurance Plans

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Designing Smart Commercial Insurer Networks

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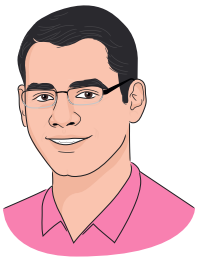

Nikhil Agarwal is an Associate Professor of Economics at Massachusetts Institute of Technology.

He researches efficient design of markets that match suppliers and consumers without price mechanisms. He has applied his work to organ donations, residency matching, and other markets in education and health care.

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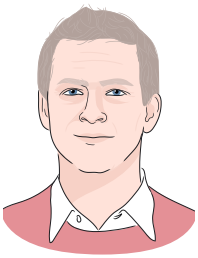

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Itai researches game theory and the design and analysis of marketplaces. He specializes in matching markets. His development of mechanisms using tools from operations/cs and economics has influenced the practice of kidney exchange, for which he has become a Franz Edelman Laureate.

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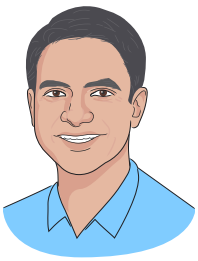

Amitabh Chandra is the Ethel Zimmerman Wiener Professor of Public Policy and Director of Health Policy Research at the John F. Kennedy School of Government at Harvard University.

His research focuses on innovation and cost-growth in health care, medical malpractice, and racial disparities in health care. Professor Chandra received the first prize of the Dissertation Award from the Upjohn Institute, the Kenneth Arrow Award for best paper in health economics, the Eugene Garfield Award for the impact of medical research, and the American Society of Health Economists Medal. He is a member of the Panel of Health Advisors at the Congressional Budget Office and served as Special Commissioner on Provider Price Reform for Massachusetts.

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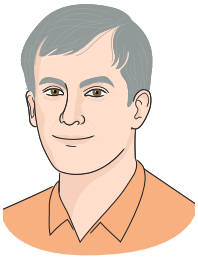

Michael Chernew is the Leonard D. Schaeffer Professor of Health Care Policy at Harvard Medical School.

Dr. Chernew's research examines opportunities to control health care spending growth while maintaining or improving quality of care. He is a member of the Panel of Health Advisers at the Congressional Budget Office and of the Committee on National Statistics at the Institute of Medicine. Dr. Chernew was named as a Highly Cited Researcher (Top 1%) by Thomson Reuters, and has won awards from the National Institute for Health Care Management Foundation and the Agency for Healthcare Research and Quality for his published work.

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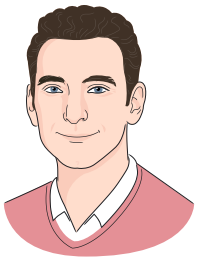

Zack Cooper is an Associate Professor of Public Health and of Economics at Yale University, where he also serves as Director of Health Policy at the school's Institution for Social and Policy Studies.

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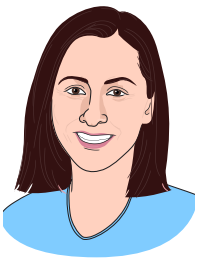

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Jonathan Gruber is the Ford Professor of Economics at Massachusetts Institute of Technology.

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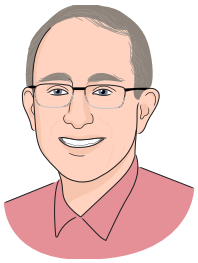

Daniel Kessler is the David S. and Ann M. Barlow Professor in Management at Stanford Graduate School of Business and a professor at Stanford Law School.

His research includes empirical studies in antitrust law, law and economics, and the economics of health care. His recent work is on the effect of hospital mergers and ownership on the cost and quality of care. Professor Kessler has won awards for his advising and research from Stanford University, the National Institute for Health Care Management Foundation, and the International Health Economics Association.

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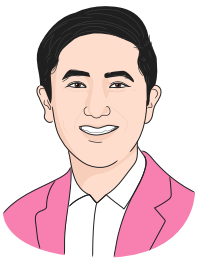

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Stephen concentrates on cases involving the FBI, HHS-OIG, the Medicare Strike Force, and the Medicare/Medicaid programs. He previously was an Assistant United States Attorney in the Chicago office's health care fraud unit, where he advised on civil and criminal investigations and counseled officials on ways to deter fraud, waste, and abuse more efficiently.

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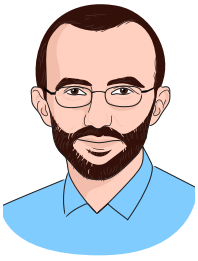

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His work focuses on how economic incentives interact with psychological factors and social norms to drive individual behavior and policy-relevant outcomes. Specific topics of interest include economic incentives for blood and organ donation and inducing behavioral change in health-related contexts. Professor Macis has been a consultant for the World Bank, the International Labor Organization, the National Marrow Donor Program, and the United Nations Development Program.

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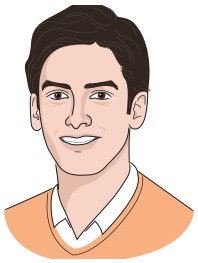

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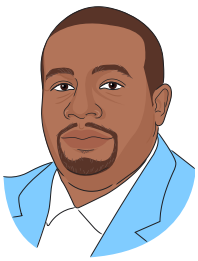

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Chris is an applied microeconomist whose research focuses on health care economics and the industrial organization of the health care market. He has studied the consequences of horizontal and vertical changes in market structure in a number of health care sectors, the reactions of nonprofit hospitals to wealth shocks, and the effects of the macroeconomy on health care spending.

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Peter R. Orszag is CEO of Financial Advisory at Lazard, leading the firm's advisory businesses that serve companies and governments across the globe.

His work has drawn attention to the fiscal impact of health costs. He served as Director of the Congressional Budget Office and Director of the Office of Management and Budget in the Obama Administration, where he worked on the American Recovery and Reinvestment Act and the Affordable Care Act.

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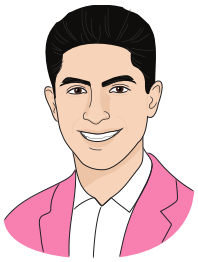
Michael Rees is Chief Executive Officer of the Alliance for Paired Donation and Surgical Director of Renal Transplantation at The University of Toledo Medical Center.

Michael created the first multi-transplant center, internet-based kidney exchange software system and now provides kidney exchange services to approximately 70 participating transplant centers across the US. He was awarded a federal grant from the Agency for Healthcare Research and Quality (AHRQ) to build a standard acquisition charge model to pay for kidney paired donation in the US.

Rahul Rekhi, Lazard



Rahul Rekhi is Vice President, Investment Banking at Lazard.

Rahul is part of the Global Healthcare Group at Lazard. He previously served as a Staff Economist at the White House Council of Economic Advisors in the Obama Administration, covering tax/budget policy, health care, and international finance. He has written about the economic case for vertical integration in health care and achieving improved clinical outcomes and patient experience at lower costs.

Alvin Roth, Stanford University

Alvin Roth is the Craig and Susan McCaw Professor of Economics at Stanford University and the Gund Professor of Economics and Business Administration Emeritus at Harvard University.

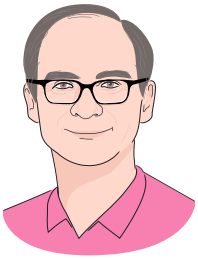
Alvin has made significant contributions to the fields of game theory, market design, and experimental economics and is known for his emphasis on applying economic theory to solutions for "real world" problems. In 2012, he won the Nobel Memorial Prize in Economic Sciences jointly with Lloyd Shapley for the theory of stable allocations and the practice of market design.

Matt Schmitt, UCLA Anderson School of Management

Matt Schmitt is an Assistant Professor of Strategy at the UCLA Anderson School of Management.

Matt's research primarily examines competition and antitrust issues in health care markets and whether policy may have a role to play in improving outcomes. His work includes studies of competition between multi-hospital systems, cost savings from hospital mergers, copayment coupons for prescription drugs, and "reverse payment" patent settlements.

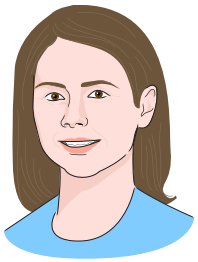
Jonathan Skinner, Dartmouth College



Jonathan Skinner is the James O. Freedman Presidential Professor in the Economics Department at Dartmouth College and a professor at The Dartmouth Institute for Health Policy and Clinical Practice at the Geisel School of Medicine.

His research interests include measuring productivity and efficiency in health care, and the diffusion and impact of health care technology. Professor Skinner is a member of the National Academy of Medicine.

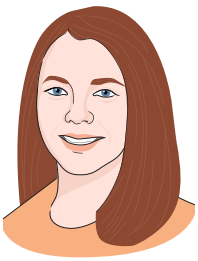
Amanda Starc, Northwestern University



Amanda Starc is an Associate Professor of Strategy at the Kellogg School of Management at Northwestern University.

Her research interests include industrial organization and health economics, particularly the Medicare Advantage, Medicare Part D, and Medicare Supplement ("Medigap") markets, as well as consumer behavior in insurance exchanges. Professor Starc won the National Institute of Health Care Management Foundation Research Award in 2017.

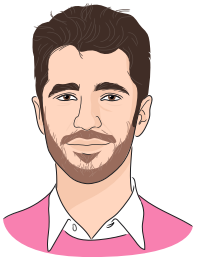
Ashley Swanson, Columbia University



Ashley Swanson is an Assistant Professor of Economics at Columbia Business School.

Her research focuses primarily on the economics of health care. In particular, she studies the effects of industrial organization and information on choices, costs, and health outcomes.

Jacob Wallace, Yale University



Jacob Wallace is an Assistant Professor of Public Health (Health Policy) at the Yale School of Public Health.

His research focuses on the economics of health insurance markets with particular emphasis on the impact of managed care in public insurance programs.

5% of Commercial Health Spending (1.67% of Total Health Spending)

Out-of-Network Billing by Hospital-Based Physicians

Authors: Zack Cooper, Yale University; Fiona Scott Morton, Yale University

Issue Summary: There are four medical specialties—pathology, emergency medicine, anesthesiology, and radiology (collectively PEAR physicians)—where patients have little or no choice over the physician who treats them. As a result, PEAR physicians can refuse to join insurers' networks, but cannot be avoided by patients. When PEAR physicians can bill out of network from inside in-network hospitals, patients can be exposed to large, unexpected, and unavoidable medical bills. In addition, the ability to engage in this profitable strategy gives these PEAR physicians the bargaining power to negotiate higher in-network payments than other physicians. These higher in-network payments are passed on to consumers in the form of higher insurance premiums. We show that more than 10% of in-network hospitalizations involve care and a bill from an out-of-network PEAR physician. We estimate this raises private health spending by approximately 8.8%.

Policy Proposal: Policy makers should ban physicians from balance billing patients. They must also determine either the amount or the process through which out-of-network providers get paid. There are two possible approaches. First is baseball-style arbitration where, absent an agreement between a doctor and an insurer, each would submit a bid to an arbitrator who would select between the two options for payment. Second, policy makers could require that hospitals sell a package of care that includes hospital and physician services. This would eliminate the possibility of a patient going to an in-network facility but being treated by an out-of-network provider.

Total Savings: Eliminating out-of-network billing policies that pay PEAR physicians exorbitant rates and instead paying these physicians the same rate as the median orthopedist would lower commercial health spending by approximately 5% (roughly $60 billion) in spending annually.

Related Literature and Evidence

Out-of-Network Emergency Physician Bills—An Unwelcome Surprise (2016). *New England Journal of Medicine*, 375 (20): 1915–1918 (Zack Cooper and Fiona Scott Morton).

Surprise! Out-of-Network Billing for Emergency Care in the United States (2020). *Journal of Political Economy*, 128 (9): 3626–3677 (Zack Cooper, Nathan Shekita, and Fiona Scott Morton).

Out-of-Network Billing and Negotiated Payments for Hospital-Based Physicians (2019). *Health Affairs*, 39 (1): 24-23 (Zack Cooper, Hao Nguyen, Nathan Shekita, and Fiona Scott Morton).

Introduction

Physicians and hospitals independently negotiate contracts with insurers. As a result, it is possible for a patient to go to an in-network hospital but receive care in that hospital from an out-of-network physician. There are four physician specialties—pathologists, emergency department (ED) physicians, anesthesiologists, and radiologists (collectively, PEAR physicians)—where patients have little or no choice over the physician who treats them. As a result, PEAR physicians can refuse to join insurers' networks but cannot be avoided by patients.

There are two problems that arise when PEAR physicians bill out of network from inside in-network hospitals. First, patients can receive large and unexpected out-of-network bills from these PEAR physicians, whom they cannot reasonably avoid. Insurers may not cover these bills, which may be hundreds or even thousands of dollars. At present, fewer than half of individuals in the US have the liquidity to pay an unexpected $400 bill (Board of Governors of the Federal Reserve System 2016). As a result, bills from out-of-network providers can be financially devastating for a large share of the US population.

Second, having the ability to go out of network alters the way physicians negotiate contracts with insurers and gives the physicians outsized bargaining leverage. Most physicians, like orthopedic surgeons and internists, are generally chosen by patients and can be avoided if they are out of network with a patient's insurer. However, there are several groups of physicians—anesthesiologists, radiologists, pathologists, assistant surgeons, and emergency room physicians—that are not chosen by patients and therefore cannot be avoided. This allows these physicians to negotiate significantly higher in-network payments, which ultimately get passed along to consumers in the form of higher insurance premiums.

The Frequency of Out-of-Network Billing in the US

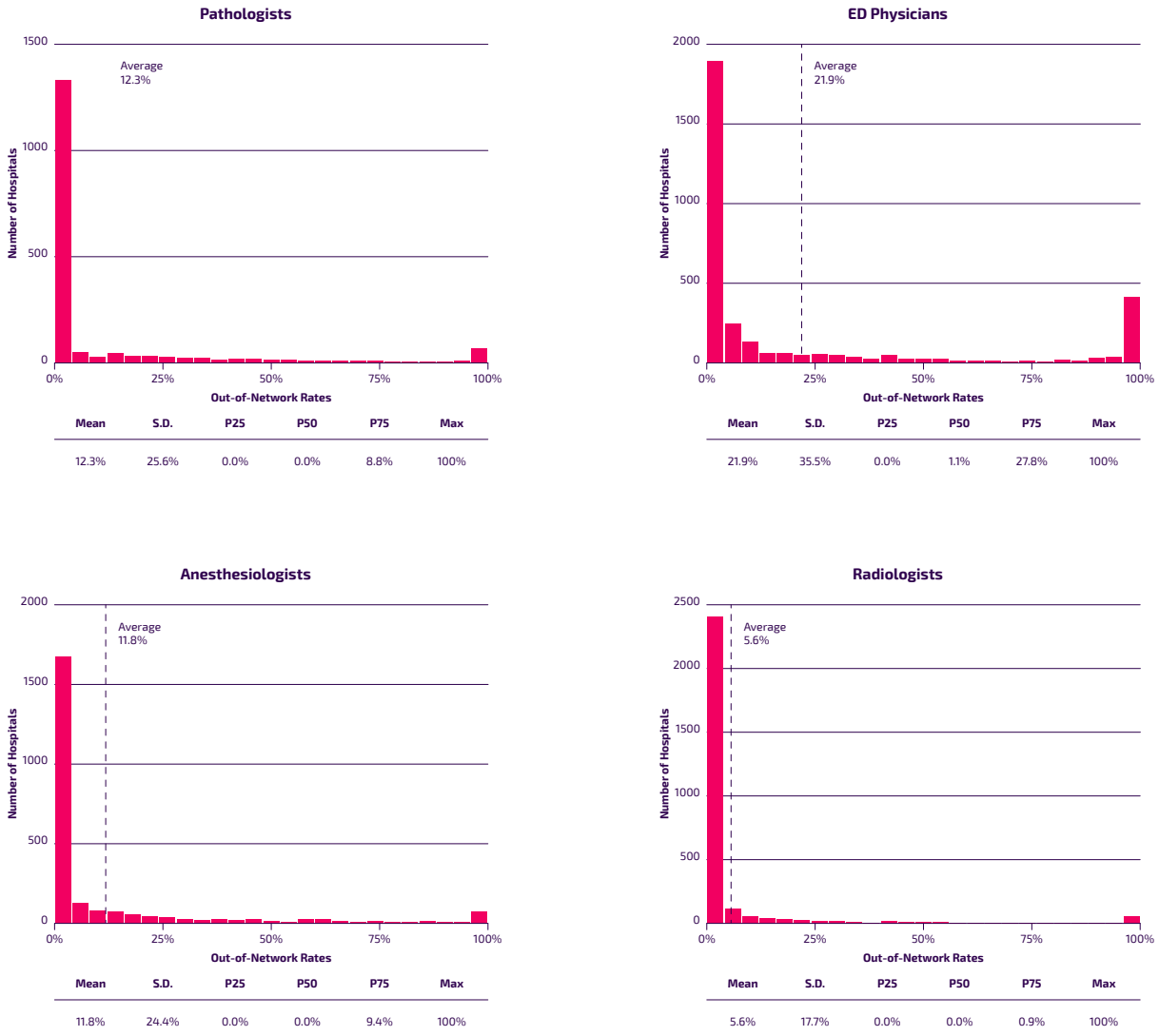
Based on 2015 data capturing tens of millions of privately insured patients across all 50 states, we observe that 12.3% of patients saw an out-of-network pathologist, 21.9% saw an out-of-network ED physician, 11.8% saw an out-of-network anesthesiologist, and 5.6% saw an out-of-network radiologist (Cooper et al. 2019).

However, out-of-network billing is not evenly distributed across hospitals. Instead, as we illustrate in Exhibit 1, out-of-network billing is concentrated in a small number of hospitals that clearly are allowing out-of-network physicians to deliver care from their facilities as a business strategy. For example, 66.3% of hospitals have fewer than 3% of patients treated by an out-of-network anesthesiologist. However, 2.1% of hospitals in our data have nearly 100% of patients treated by out-of-network physicians. We observe that 6.9% of these hospitals have no in-network ED physicians, 2.2% have no in-network anesthesiologists, and 0.8% have no in-network radiologists.

There are broadly two types of out-of-network bills. The first type results from contracting frictions between insurers and physicians. For example, in the US, there are approximately 45,000 ED physicians, 6,000 hospitals, and 1,000 insurers (American Medical Association 2019 and American Hospital Association

2020). As a result, it is unlikely that every ED physician could have a contract with every insurer that covers all the patients they treat. As an example, an ED physician in a popular vacation destination could see patients from across the country. Even if preferred, it would be a challenge for this ED physician to enter into contracts with insurers from across the country. While an out-of-state patient's insurer might have a contract with the hospital in the area the patient is visiting, it is possible they might not have a contract with the patient's ED physician. In these instances, if the physician were not engaging in a deliberate out-of-network strategy, the physician might accept a payment rate that is of the same magnitude as her usual in-network payments.

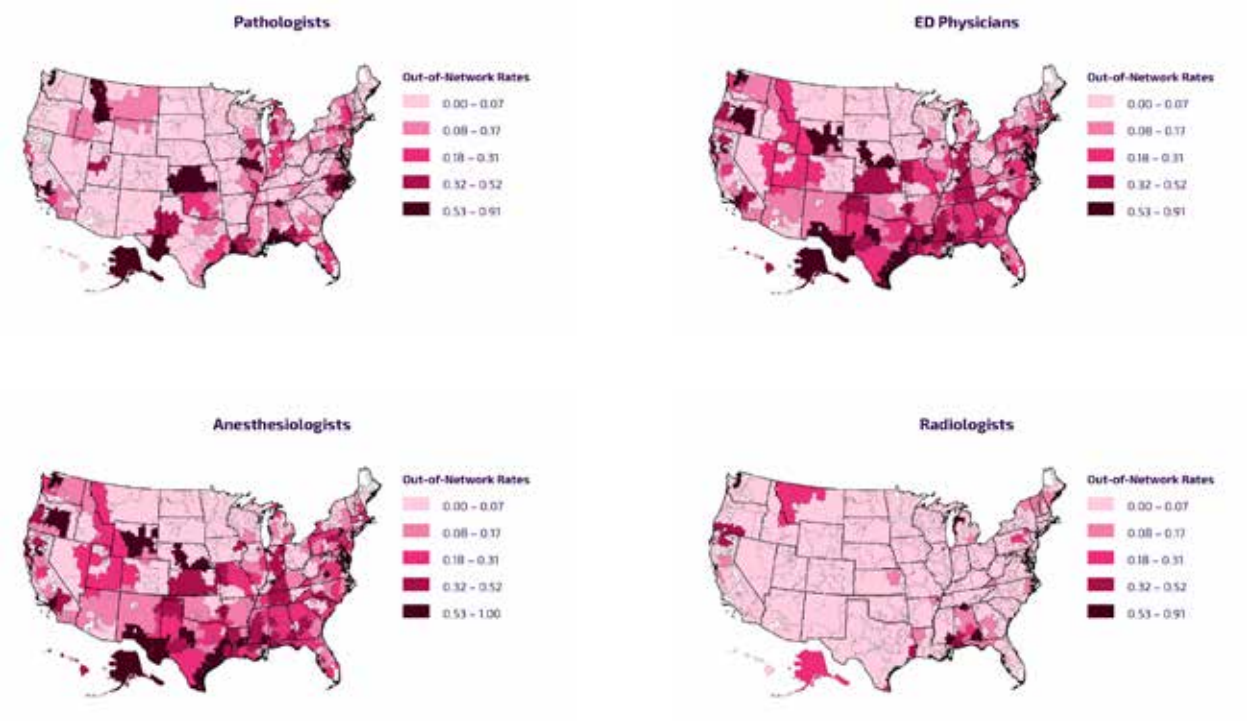
Exhibit 1: Distribution of Out-of-Network Billing Across Hospitals



Note: This exhibit is based on 2015 data from a large national insurer with beneficiaries in all 50 states. The graphs show the share of patients treated by an out-of-network physician, by specialty, at hospitals across the US.

A second type of out-of-network billing occurs when physicians deliberately do not participate in insurers' networks so that they can reap higher payments. As the New York State Department of Financial Services noted, "A relatively small but significant number of out-of-network specialists appear to take advantage of the fact that emergency care must be delivered and [that] advanced disclosure is not typically demanded or even expected by consumers. The fees charged by these providers can, in some instances, be many times larger than what private or public payers typically allow, and are another source of consumer complaints" (New York State Department of Financial Services). In previous work, we have illustrated that physicians compensate hospitals for allowing them to bill out of network from inside these facilities (Cooper et al. 2019). Some physicians engage in profit-sharing schemes with out-of-network providers; others compensate hospitals by altering their clinical practice, such as ordering more imaging studies performed in-hospital or admitting more patients to hospitals (Cooper et al. 2019).

Exhibit 2: Out-of-Network Prevalence by Hospital Referral Regions



Note: This exhibit is based on 2015 data from a large national insurer with beneficiaries in all 50 states. The graphs show the share of patients treated by an out-of-network physician, by specialty, at hospitals across the US.

In our previous work on out-of-network billing, we have illustrated that out-of-network physicians are more commonly found in for-profit hospitals and in hospitals in more concentrated markets (e.g., those with less competition) (Cooper et al. 2020). Often, physician staffing companies use out-of-network billing as a deliberate strategy to raise revenue.

There is significant variation in the rates at which patients are treated by out-of-network physicians across the US. In general, Texas, New Mexico, and South Carolina have the highest rates of out-of-network billing. Indeed, out-of-network billing tends to occur with higher frequency in states that offer little protection for patients. Exhibit 2 shows the frequency with which patients at in-network hospitals are treated by out-of-network providers, by specialty.

Out-of-Network Billing Charges and Patients' Potential Cost Exposure

In Exhibit 3, we present the average charges by out-of-network PEAR physicians in dollars and as a percentage of Medicare-regulated payments. The level of charges indicates whether the physician is attempting to extract high payments from the insurer or not. Previous work has found that charges by PEAR physicians tend to be higher than charges by physicians who do not have the ability to execute an out-of-network billing strategy (Bai and Anderson 2017).

In our data, the average charges for these providers are 562% of Medicare rates ($311) for pathologists, 781% of Medicare rates ($974) for ED physicians, 802% of Medicare rates ($2,130) for anesthesiologists, and 452% of Medicare rates ($194) for radiologists. Interestingly, 40.5%, 3.2%, 3%, and 22% of the out-of-network claims for pathologists, ED physicians, anesthesiologists, and radiologists, respectively, have charges below 300% of Medicare payments.

When a patient is treated by an out-of-network doctor, there are four potential outcomes. First, a patient's insurer could cover the entirety of the charges billed by a patient's out-of-network provider. These charges are typically significantly higher than in-network payments, so the patient could be exposed to higher cost sharing, and the remaining higher costs of care would be shifted to all consumers in the form of higher premiums.

Second, the patient's insurer and the out-of-network physician could reach a settlement over an amount lower than the physician's charges. The patient would pay the cost sharing associated with the rate their insurer and physician negotiate.

Exhibit 3: Out-of-Network Physician Charges and Potential Balance Bills

	Anesthesiologists	Pathologists	Radiologists	ED Physicians
Out-of Network Physician Charges	$2,130 (802%)	$311 (562%)	$194 (452%)	$974 (781%)
Potential Balance Bills	$1,171	$177	$115	$666

Note: This exhibit is based on 2015 data from a large commercial insurer.

Third, the insurer could pay the physician either usual and customary rates or average in-network payments. This could leave the physician to attempt to collect the difference between his or her charges and the median in-network payments (so-called balance billing). In Exhibit 3, we present the average difference between out-of-network physicians' charges and median in-network payments in our data. This difference is an estimate of the potential balance bills patients could face. As we illustrate in Exhibit 3, these potential balance bills range from $115 to $1,171.

Finally, an insurer could refuse to cover out-of-network physician services. This would leave patients exposed to the entire cost of their care. Physician charges can be substantial. For example, the charges of out-of-network anesthesiologists in the 95th percentile in our data were $6,447.

Ultimately, the outcomes a patient receives when seeing a PEAR physician are a function of the characteristics and policies of the patient's insurance plan. As a reminder, approximately 50% of Americans do not have the liquidity to pay a $400 unexpected cost without taking on debt (Board of Governors of the Federal Reserve System 2016). As a result, the cost of receiving care from an out-of-network provider while in the hospital could be financially devastating for a large share of the US population.

Market Characteristics and Estimated Savings

Most physicians face a trade-off when deciding whether or not to join an insurer's network. On the one hand, joining an insurer's network gives them access to more patients (volume). However, in order to join an insurer's network, physicians need to negotiate a price with the insurer that is lower than their usual charges. Crucially, however, PEAR physicians do not need to make the same sort of trade-off as other physicians. Because they are not chosen by patients, PEAR physicians can remain out of network without seeing a substantial decrease in the numbers of patients they treat. Even if they are not paid the entirety of their charges by insurers, these physicians can seek to collect the balance of their bills from patients. Crucially, they are allowed to practice out of network by the hospitals that let them deliver care from inside their facilities.

Because PEAR physicians can remain out of network without losing significant patient volume, these providers have significantly more bargaining leverage with commercial insurers. This is evident from the level of their in-network payments. For example, whereas the average in-network rates for internists for standard offices and orthopedists for knee replacements were 158% and 164% of Medicare rates in 2015, respectively, the in-network rates for pathologists, ED physicians, anesthesiologists, and radiologists as a percentage of Medicare rates in 2015 were 343%, 303%, 367%, and 195%, respectively (Cooper et al. 2019). These higher in-network rates can significantly raise insurance premiums and total health spending.

To give a scale of the impact that out-of-network billing has on total health spending in the US, we estimate the reduction in private health spending that would occur if PEAR physicians were paid at the same level that orthopedic surgeons were paid for knee replacements (i.e., 164% of Medicare rates). Among the privately insured, we estimate that pathologists, ED physicians, anesthesiologists, and radiologists account

for 5.9%, 5.7%, 2.9%, and 6.9% of health spending on the privately insured, respectively. We estimate that if they were not allowed to bill out of network and instead negotiated in-network payments on par with orthopedists' payments, it would lower private health spending by approximately 5%. This would reduce US health expenditures by $60 billion per year.

Policy Options to Eliminate Out-of-Network Billing

Policies to address out-of-network billing by PEAR physicians should have two aims. First, patients should be insulated from balance bills and high cost-sharing payments if they are treated by an out-of-network physician working from an in-network hospital that the patient could not avoid. Second, a policy must restore a competitively set price (or as close to a competitively set price as possible) for out-of-network PEAR physicians. At present, only a handful of states have laws that protect consumers and mechanisms to restore a competitively set rate (New York State Department of Financial Services 2012). Unfortunately, even when states pass meaningful reforms, state laws only apply to individuals enrolled in fully insured insurance plans. State laws addressing out-of-network billing do not apply to the 60% of individuals with private insurance who receive their coverage from plans that self-insure (Claxton et al. 2017).

There are two economically grounded policy approaches for addressing out-of-network bills. The first is introducing a baseball-style arbitration process where physicians and insurers can settle disputes over payments. New York State, for example, introduced an arbitration process together with patient protections in a law passed in 2015. In New York State, if a patient in a fully insured private insurance plan is treated by an out-of-network ED physician, the patient is only exposed to cost sharing equal to what they would have to pay should their provider have been in network. Under the New York law, if the out-of-network provider and the patient's insurer cannot reach an agreement over a payment, they can initiate a baseball-style arbitration process. Under the law, an arbitrator can determine what the physician will be paid by choosing from either the physician's original charge or the insurer's proposed payment.

In a 2017 study, we examined the impact of the New York State law on out-of-network billing in the state. We found that the policy reduced out-of-network billing by 6.8% and actually lowered in-network ED physician payments by 9% (Cooper et al. 2020). Unfortunately, because states cannot regulate ERISA plans, these types of state-based laws do not apply to individuals who receive insurance coverage through employers that self-insure.

A second approach to addressing out-of-network billing is to regulate the nature of the contract between providers and insurers. At present, physicians and hospitals independently negotiate contracts with insurers. Out-of-network billing could also be addressed by requiring hospitals to negotiate payments for PEAR physicians and fold their care into hospital bills. Then it would be up to hospitals to recruit or contract with these PEAR physicians to provide care within their facilities. This type of policy would both eliminate unexpected patient costs and restore competitively set PEAR physician prices.

References

American Hospital Association. 2020. "Fast Facts on US Hospitals." *American Hospital Association*. Accessed Nov 17, 2020. https://www.aha.org/system/files/media/file/2020/01/2020-aha-hospital-fast-facts-new-Jan-2020.pdf.

American Medical Association. 2019. "AMA Masterfile." *American Medical Association*.

Bai, Ge, and Gerard F. Anderson. 2017. "Variation in the Ratio of Physician Charges to Medicare Payments by Specialty and Region." *JAMA* 317 (3): 315–318.

Board of Governors of the Federal Reserve System. 2016. "Report on the Economic Well-Being of U.S. Households in 2015." Washington, DC: *Federal Reserve Board*. Accessed Feb 2018. https://www.federalreserve.gov/2015-report-economic-well-being-us-households-201605.pdf.

Claxton, Gary, Matthew Rae, Michelle Long, Anthony Damico, Gregory Foster, and Heidy Whitmore. 2017. "Employer Health Benefits: 2017 Annual Survey." Menlo Park, CA: Kaiser Family Foundation and Health Research and Educational Trust.

Cooper, Zack and Fiona Scott Morton. 2016. "Out-of-Network Emergency Physician Bills—An Unwelcome Surprise." *New England Journal of Medicine*, 375 (20): 1915–1918.

Cooper, Zack, Fiona Scott Morton, and Nathan Shekita. 2020. "Surprise! Out-of-Network Billing for Emergency Care in the United States." *Journal of Political Economy*, 128 (9): 3626–3677.

Cooper, Zack, Hao Nguyen, Nathan Shekita, and Fiona Scott Morton. 2019. "Out-of-Network Billing and Negotiated Payments for Hospital-Based Physicians." *Health Affairs*, 39 (1): 24–23.

Insurance Information Institute. 2020. "Facts + Statistics: Industry Overview." *Insurance Information Institute*. Accessed Nov 17, 2020. https://www.iii.org/fact-statistic/facts-statistics-industry-overview#:~:text=The%20U.S.%20insurance%20industry%20employed,and%20reinsurers%20(28%2C500%20workers).

Klasnja, Predrag and Eric Hekler. 2017. "Variation in the Ratio of Physician Charges to Medicare Payments by Specialty and Region." *JAMA*, 317(3): 315–317.

New York State Department of Financial Services. 2012. "An Unwelcome Surprise: How New Yorkers Are Getting Stuck with Unexpected Medical Bills from Out-of-Network Providers." Albany, NY: New York Department of Financial Services.

5.7% of Commercial Health Care Spending (1.8% of Total Health Spending)

Capping Provider Prices and Price Growth in the US Commercial Health Sector

Authors: Michael Chernew, Harvard University; Leemore Dafny, Harvard University; Maximilian Pany, Harvard University

Issue Summary: The US commercial health insurance sector, where tens of millions of individuals under the age of 65 receive health insurance coverage, uses market-based rather than regulated prices for providers. However, over the last three decades, health care provider markets have become increasingly consolidated and, as a result, there has been a steady increase in prices for care in the commercial sector. US provider prices are high relative to provider prices in other countries and are growing faster than prices in many other US industries. Growth in provider prices has been a primary driver of the growth in commercial health insurance premiums. Ultimately, premium increases are borne by the American public. As a result, the US requires multifaceted regulatory action to address high and rapidly rising prices for care.

Policy Proposal: We propose a three-pronged approach to regulate provider prices in the US. First, the US should introduce "backstop" price caps, which preclude prices above 500% of the 20th percentile of local prices, at the local market level. Second, the US should introduce price growth regulation that limits provider price growth and allows higher (lower) growth caps for relatively cheaper (more expensive) providers. Third, these efforts should be supported with state and federal regulation and, if necessary, legislation to provide the data and resources to support enforcement.

Potential Savings: If the "backstop" price cap alone were introduced for inpatient hospital prices, we estimate it would reduce commercial inpatient spending by 8.7%. Capping commercial outpatient prices has a somewhat higher percentage impact and capping professional services a bit lower percentage impact. Capping both inpatient and outpatient commercial hospital prices would save approximately $38 billion, reducing commercial health care spending by about 3.2% and total health care spending by about 1.0%. Capping professional service prices would save about $30 billion, which translates to 2.5% of commercial and 0.8% of total health care spending.[1] Moreover, the price growth cap would limit year-on-year increases in health spending and thus result in larger savings over time.

Related Literature and Evidence

Chernew, Michael, Leemore Dafny, and Maximillian Pany. 2020. "A Proposal to Cap Provider Prices and Price Growth in the Commercial Health-Care Market." *Brookings Institution*. Accessed Dec 8, 2020. https://www.hamiltonproject.org/assets/files/CDP_PP_WEB_FINAL.pdf.

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

Gaynor, Martin, Kate Ho, Robert Town. 2015. "The Industrial Organization of Health-Care Markets." *Journal of Economic Literature*, 53 (2): 235–284.

Background

From 2008 to 2018, health insurance premiums grew approximately 4% per year as median household incomes stayed flat (Collins et al. 2019; U.S. Census Bureau 2020). By 2020, health insurance premiums for a family of four in the US were $21,342 (Kaiser Family Foundation 2020). Provider price growth is one of the largest drivers of health spending and premium growth in the US. From 2007 to 2014, for example, hospital prices for inpatient care grew 42% (Cooper et al. 2019). During this same period, the US Consumer Price Index (CPI) increased by 14% (Bureau of Labor Statistics 2020).

Approximately 55% of individuals in the US have commercial insurance (Berchick et al. 2019). Whereas provider prices are set in the Medicare and Medicaid programs (as they are in most developed countries), provider prices in the US commercial health sector are market-based and often determined via bilateral negotiations between providers and insurers. Over the last 30 years, provider markets have become increasingly consolidated (Fulton 2017), strengthening providers' bargaining leverage. Robust academic literature shows that provider prices are higher in more concentrated markets and that provider mergers can raise prices significantly (Gaynor et al. 2015; Cooper et al. 2019).

In a well-functioning market, competition drives prices to efficient levels. However, in the health care sector, there are many deviations from competitive conditions that thwart market forces. First, health insurance coverage limits individuals' exposure to the cost of services they consume. Second, the quality of providers is difficult to measure, and consumers may be unable to differentiate between high-quality and low-quality providers. Third, the majority of hospital and specialist physician markets are highly concentrated (Fulton 2017). Many provider organizations possess substantial market power, which enables them to demand high prices because of this market power as opposed to high quality.

The US should pursue multiple initiatives to increase competition among health care providers, including vigorous antitrust enforcement and the introduction of insurance plans that help and incentivize patients to seek out efficient providers. However, pro-competition policy alone is insufficient to address the rising cost of health care in the US. At this juncture, because of idiosyncrasies in health care markets in general and the high degree of concentration in provider markets in particular, there is a strong case for regulatory intervention in provider markets.

We believe some provider price variation is warranted. High-quality providers, for example, should be permitted to charge higher prices. As a result, rather than setting price *levels*, we are proposing price *caps*. Caps eliminate the top tail of provider prices, which likely reflect inefficiencies in competition in health care markets. This proposal sets out a framework for designing "backstop" price caps and for containing price growth over time.

Recommended Policy Proposal

The policy proposal includes three components: (1) local market- and service-specific price caps that regulate maximum prices providers can negotiate, (2) service-, insurer-, and provider-specific price growth caps that limit the year-on-year growth in provider prices, and (3) oversight power for state and federal authorities. Collectively, these components are designed to address the market failures in the commercial health sector that have led to extremely high prices for some health care services. These regulations are designed to be introduced into the current health policy landscape and fit alongside other pro-competitive reforms.

Rate Caps on the Top of the In-Network and Out-of-Network Provider Price Distribution

In each geographic region (e.g., commuting zones), prices would be capped by service at 500% of the current 20th percentile of commercial in-network prices (or the 75th percentile of such service-market price percentiles nationally, if that is lower). This cap would apply to in-network and out-of-network services, and providers would be prohibited from being paid rates over this cap. Under this policy, prices are capped based on the existing negotiated rates, rather than set as a percentage of Medicare reimbursements. As a result, this proposal still allows prices to vary within and across regions.

Based on data from the Health Care Cost Institute, physician office visits at the median 20th percentile commercial price approximate Medicare reimbursements. The median 20th percentile of inpatient payments is approximately 133% of Medicare reimbursements (Chernew et al. 2020). Given the market-service distribution of prices, the price caps we propose would tend to bind around five times of Medicare. For context, across inpatient services, this price cap would impact approximately 4.5% of cases and 84.3% of providers (Chernew et al. 2020).

Annual Price Growth Caps

In addition to capping price levels, we would introduce a limit on annual price growth. For example, growth could be limited to the CPI or a moving average of annual GDP growth, plus one or two percentage points. The price growth caps would apply by insurer-provider-service combinations and would be lower for provider-service combinations with relatively high prices (and conversely, higher for provider-service combinations with relatively low prices). This flexibility could allow prices to converge over time if supported by market demand.

Investment in Federal and/or State Agencies to Administer the Regulations

Introducing, enforcing, and updating the price caps will require technical support. Indeed, there is potential for providers to circumvent the price caps, for example by paying providers using different payment systems (e.g., per diems) or by making payments outside of the claims systems (e.g., quality bonuses or shared savings payments). Construction and enforcement of the caps require a mechanism to account for these activities. As a result, we also recommend that the agencies administering these regulations adjust for any payments outside of the claims system. Moreover, state and federal officials should oversee the regulation and take action if needed. The federal government should set the policies, drive the setting and adjusting of the price caps, require submission of the necessary data, and periodically review the regulatory program. States should be responsible for administering the system locally. Crucially, at present, much of the expertise to manage and run these sorts of regulatory programs day-to-day already exists at the state level.

Estimated Savings

If the "backstop" price cap alone were introduced for inpatient hospital prices, we estimate it would reduce commercial inpatient spending by 8.7%. Capping commercial outpatient prices has a somewhat higher percentage impact and capping professional services a bit lower percentage impact. Capping both inpatient and outpatient commercial hospital prices would save approximately $38 billion, reducing commercial health care spending by about 3.2% and total health care spending by about 1.0%. Capping professional service prices would save about $30 billion, which translates to 2.5% of commercial and 0.8% of total health care spending. Moreover, the price growth cap would limit year-on-year increases in health spending and thus result in larger savings over time.

Footnotes

1. In 2019, total health care spending and total commercial health care spending (i.e., spending on the privately insured) were approximately $3.8 trillion and $1.2 trillion, respectively (CMS 2020).

References

Berchick, Edward, Jessica Barnett, and Rachel Upton. 2019. "Health Insurance Coverage in the United States: 2018." *United States Census Bureau*. Accessed Dec 8, 2020. https://www.census.gov/content/dam/Census/library/publications/2019/demo/p60-267.pdf.

Bureau of Labor Statistics. 2020. "Consumer Price Index U.S. City Average All Urban Consumers (CPI-U): All Items." *Bureau of Labor Statistics*. Accessed Dec 8, 2020. https://www.bls.gov/regions/midwest/data/consumerpriceindexhistorical_us_table.pdf.

Collins, Sara, David Radley, and Jesse Baumgartner. 2019. "Trends in Employer Health Care Coverage 2008–2018: Higher Costs for Workers and Their Families." *The Commonwealth Fund*. Accessed Dec 8, 2020. https://www.commonwealthfund.org/publications/2019/nov/trends-employer-health-care-coverage-2008-2018.

Chernew, Michael, Leemore Dafny, and Maximilian Pany. 2020. "A Proposal to Cap Provider Prices and Price Growth in the Commercial Health-Care Market." *Brookings Institution*. Accessed Dec 8, 2020. https://www.hamiltonproject.org/assets/files/CDP_PP_WEB_FINAL.pdf.

Cooper, Zack, Stuart V. Craig, Martin Gaynor, Nir J. Harish, Harlan M. Krumholz, and John Van Reenen. 2019a. "Hospital Prices Grew Substantially Faster Than Physician Prices for Hospital-Based Care in 2007–14." *Health Affairs*, 38 (2): 184–189.

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

Centers for Medicare and Medicaid Services. 2020. "2019 National Health Expenditure Fact Sheet." *Centers for Medicare and Medicaid Services*. Accessed Dec 30, 2020. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.

Fulton, Brent. 2017. "Health Care Market Concentration Trends in the United States: Evidence and Policy Responses." *Health Affairs* 36 (9): 1530–1538.

Gaynor, Martin, Kate Ho, Robert Town. 2015. "The Industrial Organization of Health-Care Markets." *Journal of Economic Literature*, 53 (2): 235–284.

Kaiser Family Foundation. 2020. "Employer Health Benefits 2020 Summary of Findings." *Kaiser Family Foundation*. Accessed Dec 8, 2020. http://files.kff.org/attachment/Summary-of-Findings-Employer-Health-Benefits-2020.pdf.

U.S. Census Bureau, "Real Median Household Income in the United States [MEHOINUSA672N]." retrieved from FRED, Federal Reserve Bank of St. Louis. Accessed Dec 7, 2020. https://fred.stlouisfed.org/series/MEHOINUSA672N.

Long-Term Care Hospitals: A Case Study in Waste

Authors: Liran Einav, Stanford University; Amy Finkelstein, Massachusetts Institute of Technology; Neale Mahoney, Stanford University

Issue Summary: The post-acute care sector provides patients with rehabilitation services following an acute hospital stay. An administrative carve-out in the 1980s resulted in the creation of 40 long-term care hospitals (LTCHs) that were paid differently (and more generously) than other types of post-acute care providers. Since then, the number of LTCHs has expanded dramatically and reached 400 (mostly for-profit) facilities by 2014. LTCHs are a particularly expensive place to receive post-acute care. On average, admission to a long-term care hospital raises post-acute care spending by the Medicare fee-for-service program by approximately $30,000 per admission relative to alternative settings for care delivery (Einav et al. 2019). Patients discharged to an LTCH also owe more money out of pocket, and do not spend less time in institutional care or have lower mortality than if they were discharged to other settings. Taken together, the evidence indicates that Medicare could save roughly $4 billion per year (based on 2017 data) with no harm to patients by not allowing for discharge to LTCHs or by paying them on par with how other post-acute care providers are reimbursed.

Policy Proposal: Policy makers should eliminate the administratively created concept of LTCHs and have the Medicare program reimburse those facilities on par with how skilled nursing facilities are paid.

Total Savings: $4 billion per year in spending (based on 2017 data) on traditional Medicare beneficiaries (1% of traditional Medicare spending).

Related Literature and Evidence

"Long-Term Care Hospitals: A Case Study in Waste" (2019). *NBER Working Paper 24946* (Liran Einav, Amy Finkelstein, Neale Mahoney).

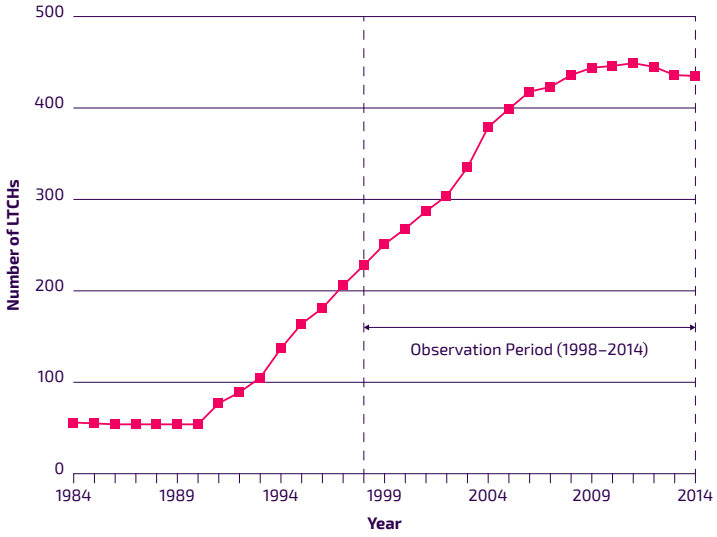
Introduction

The post-acute care sector provides patients with rehabilitation services following an acute hospital stay. It includes both facility-based care—care in skilled nursing facilities (SNFs), inpatient rehabilitation facilities (IRFs), and long-term care hospitals (LTCHs)—and home-based care provided by home health agencies (HHAs). Within the post-acute care landscape, LTCHs generally provide the most intensive care, SNFs and IRFs provide intermediate levels of care, and HHAs provide the least intensive care.

The Medicare fee-for-service program spends approximately $60 billion per year on post-acute medical services (MedPAC 2019a). This is approximately 15% of the $413 billion in total Traditional Medicare

(hereafter, "Medicare") spending in 2018 (Boards of Trustees for Medicare 2019) and about 5% more than the much-studied Medicare Part D program spending on Traditional Medicare beneficiaries (MedPAC 2019a). Medicare spending on post-acute care grew one percentage point faster per year than overall Medicare spending between 2001 and 2017, and more than doubled over this period (Boards of Trustees for Medicare 2002, 2018; MedPAC 2016, 2019a). A recent Institute of Medicine report found that, despite accounting for only 16% of Medicare spending, post-acute care contributed to a striking 73% of the unexplained geographic variation in Medicare spending (IOM 2013), suggesting that there may be inefficiency in the sector.

Figure 1: LTCH Facilities Over Time



Note: Figure 1 is based on analysis by Einav, Finkelstein, and Mahoney (2018). Data for this figure come from the Provider of Service (POS) File from 1984–1998 and the MedPAR data from 1998–2014. Figure 1 only includes LTCHs that appear in the MedPAR data.

LTCHs are not clinically distinct from other types of post-acute care providers. Instead, they are an administrative concept, born out of legislation in the early 1980s designed to protect 40 chronic disease hospitals from the new Medicare Prospective Payment System introduced in 1983. There is no analogous type of care provider in other industrialized countries.

Since 1982, there has been rapid growth in the LTCH sector. In 2017, LTCHs accounted for about 4% of discharges to facility-based post-acute care facilities and about 11% of facility-based post-acute care spending (MedPAC 2019a). Despite attempts to rein in the sector, the LTCH industry, which started as a legislative carve-out, expanded from 40 facilities to over 400 by 2014, and in 2017 accounted for $4.5 billion in annual Medicare spending (MedPAC 2019b; see Figure 1). The vast majority of LTCHs are for-profit facilities.

Spending and Patient Outcomes at Long-Term Care Hospitals

LTCHs are a particularly expensive location to receive post-acute care but deliver no measurable benefits to patients. To estimate the impact of LTCHs on Medicare spending and patient outcomes, researchers examined how patients' care patterns change when an LTCH enters a market (Einav et al. 2018). When an LTCH first opens in a market there is, not surprisingly, a marked increase in the rate of patients being discharged from an acute care hospital to an LTCH. The research estimates that this discharge to an LTCH increases net Medicare spending by about $30,000. This increase, the researchers find, is because care in LTCHs mostly substitutes for care that would—in the absence of an available LTCH—be delivered by an SNF; these are the most common forms of facility-based post-acute care and are reimbursed approximately $1,000 less per day to SNFs than LTCHs by the Medicare program.

In addition, discharge to LTCHs reduces average length of stay in the originating acute care hospital by over eight days (Einav et al. 2018). This suggests that LTCHs, in some cases, provide care to patients that cannot (at least initially) be provided by SNFs. However, since acute care hospitals are paid a lump sum per patient that is (largely) independent of length of stay, the reduction in length of stay does not result in any savings to Medicare.

Despite dramatically higher spending from being discharged to an LTCH, there is no evidence of benefits to patients. Patients discharged to an LTCH owe more money out of pocket, and they do not spend any less time in institutional care or experience lower mortality. These results hold not only on average, but also when examining the subset of patients who are sickest or most likely to be discharged to LTCHs. This suggests that, in most cases, patients who are discharged to LTCHs can fare just as well through some combination of longer stays in acute care hospitals and discharge to an SNF instead. Taken together, these findings indicate that Medicare could save roughly $3.85 billion per year (based on 2017 spending) with no measurable harm to patients by not allowing for discharge to LTCHs (Einav et al. 2019).

Policy Recommendation

The policy response to address this inefficiency is straightforward: policy makers should eliminate the administratively created concept of LTCHs as institutions with their own reimbursement schedule—and reimburse them instead like SNFs.

Calculating Potential Savings

The policy recommendation would save $3.85 billion in Medicare spending per year—relative to $4.5 billion in 2017 total LTCH spending (MedPAC 2016, 2019b)—with no measurable harm to patients. The savings would come primarily from the lower Medicare reimbursement rates for SNFs—where most patients who are currently discharged to LTCHs would otherwise go. In addition to saving $3.85 billion in Medicare spending per year with no harm to patients, eliminating LTCHs would reduce by 10% the unexplained geographic variation in Medicare spending.

References

Boards of Trustees for Medicare. 2002. "The 2002 Annual Report of the Boards of Trustees of the Federal Hospital Insurance Trust Fund and the Federal Supplementary Medical Insurance Trust Fund." *Centers for Medicare and Medicaid Services*.

Boards of Trustees for Medicare. 2018. "The 2018 Annual Report of the Boards of Trustees of the Federal Hospital Insurance Trust Fund and the Federal Supplementary Medical Insurance Trust Fund." *Centers for Medicare and Medicaid Services*.

Boards of Trustees for Medicare. 2019. "The 2019 Annual Report of the Boards of Trustees of the Federal Hospital Insurance Trust Fund and the Federal Supplementary Medical Insurance Trust Fund." *Centers for Medicare and Medicaid Services*.

Einav, Liran, Amy Finkelstein, and Neale Mahoney. 2018. "Provider Incentives and Healthcare Costs: Evidence from Long-Term Care Hospitals." *Econometrica*, 86 (6): 2161-2219.

Einav, Liran, Amy Finkelstein, and Neale Mahoney. 2019. "Long-Term Care Hospitals: A Case Study in Waste." *NBER Working Paper* No. 24946.

IOM. 2013. "Variation in Health Care Spending: Target Decision Making, not Geography. *National Academies Press*.

MedPAC. 2016. "A Data Book: Health Care Spending and the Medicare Program." *Medicare Payment Advisory Commission*.

MedPAC. 2019a. "A Data Book: Health Care Spending and the Medicare Program." *Medicare Payment Advisory Commission*.

MedPAC. 2019b. "Chapter 11: Long-term Care Hospital Services." *Medicare Payment Advisory Commission*.

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

Addressing Hospital Concentration and Rising Consolidation in the United States

Authors: Zack Cooper, Yale University; Martin Gaynor, Carnegie Mellon University

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

Policy Proposal: We recommend the following five policies:

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

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

Related Literature and Evidence

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

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

Background and Overview

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

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

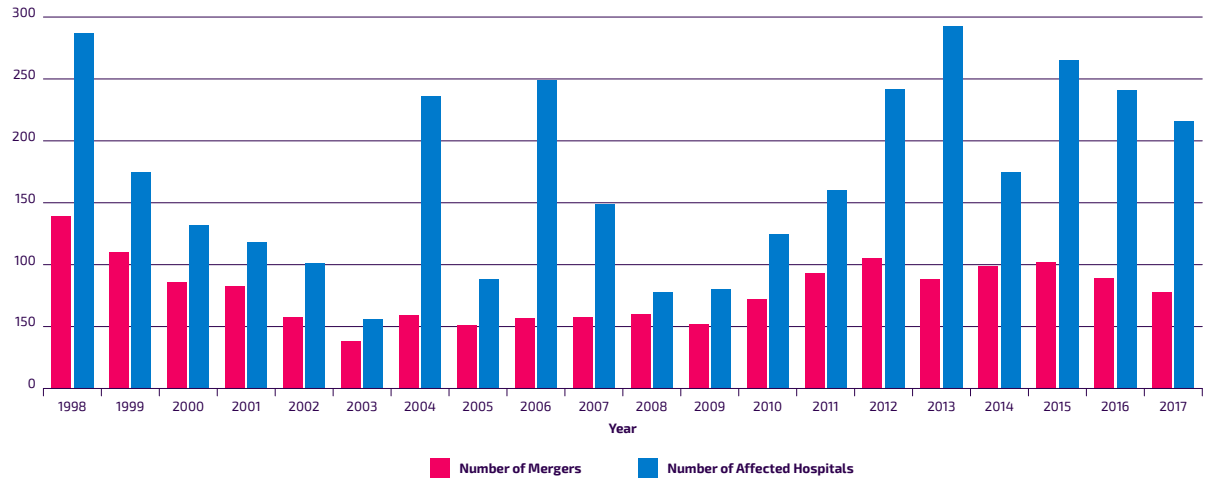
Unfortunately, there is ample evidence that the markets that underpin the US hospital sector are broken. Over the last 30 years, a wave of hospital mergers in the US has substantially increased market concentration (Gaynor 2020). Our calculations indicate that, at present, more than 80% of hospital markets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

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

Hospital Mergers

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

Figure 1: Number of Hospital Mergers, 1998–2017



Source: American Hospital Association, 2018

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

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

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

Hospital Market Concentration

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

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

Vertical Integration between Hospitals and Physicians

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

Policies to Increase Competition in the US Hospital Sector

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

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

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

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

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

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

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

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

Potential Savings

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

Footnotes

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

References

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Hospital Ownership of Physician Practices

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Issue Summary: Over the past decade, hospitals have purchased large numbers of physician practices. In theory, the effect of hospital ownership of physician practices (vertical integration) on health spending and the quality of care is indeterminate. Empirically, however, vertical integration is associated with increases in spending but not with improvements in quality. Based on the existing academic literature, vertical integration has increased spending by enhancing physician and hospital market power, enabling physicians to exploit anomalies in reimbursement rules, and creating powerful incentives to shift care to more-costly sites of service.

Policy Proposals: First, the Federal Trade Commission (FTC) and the Department of Justice (DOJ) should increase antitrust scrutiny of vertically integrating physicians and hospitals. Second, Congress could facilitate this by amending the Hart-Scott-Rodino Act to lower the reporting threshold for mergers involving a physician practice. If Congress fails to amend the Act, the agencies should consider creating reporting requirements of their own if they can do so under existing law. Third, Medicare should continue to refine its reimbursement rules in order to eliminate the ability of physicians in vertically integrated practices to obtain higher payments for exactly the same treatments simply by virtue of their integrated status. Medicare should reduce other "site-of-service" payment differences that reward physicians and hospitals for treating patients in hospital outpatient departments in cases that could be appropriately managed in less-costly non-hospital settings.

Potential Savings: Absent intervention, vertical integration of physician practices and hospitals will continue. Over the past decade, vertical integration increased by 18.7 percentage points to 34.7% in 2018. If policy reforms could prevent a further 20 percentage point increase in vertical integration, they would reduce total medical spending by approximately 1%.

Related Literature and Evidence

Baker, Laurence, M. Kate Bundorf, Daniel Kessler. 2014. "Vertical Integration: Hospital Ownership of Physician Practices Is Associated with Higher Prices and Spending." *Health Affairs*, 33 (5): 756–63.

Baker, Laurence, M. Kate Bundorf, Daniel Kessler. 2016. "The Effect of Hospital/Physician Integration on Hospital Choice." *Journal of Health Economics*, 50: 1–8.

Capps, Cory, David Dranove, Christopher Ody. 2018. "The Effect of Hospital Acquisitions on Physician Practices on Prices and Spending." *Journal of Health Economics*, 59: 139–52.

Overview

Over the past decade, hospitals have acquired a large number of physician practices. According to the American Medical Association's Physician Practice Benchmark Surveys, the share of physicians employed in practices owned (at least in part) by hospitals increased from 16% in 2007–2008 to 34.7% in 2018 (Kane and Emmons 2013; Kane 2019).

In theory, the effect on consumers of hospital ownership of physician practices (vertical integration) is ambiguous. On the one hand, vertical integration could be beneficial for consumers if consolidating the services of physicians and hospitals into a commonly owned organization reduces the costs of coordination. In addition, vertical integration could bring efficiency gains if it enables physicians or hospitals to set prices efficiently for services that must be produced jointly.

However, on the other hand, vertical integration could harm consumers in several ways. First, vertical integration could enhance the market power of physicians, hospitals, or both. Hospital acquisitions of physician practices can consolidate physicians into large, commonly owned groups, thereby increasing physicians' bargaining leverage and enabling them to negotiate higher prices with commercial insurers. Vertical integration can also increase hospital market power; physicians control the flow of referrals to the hospital, and physicians in vertically integrated practices are much more likely to refer patients to the hospital that owns their practice than to other competing hospitals. This allows hospitals not only to increase their market share but also to "lock up" patients who are potential customers of competing hospitals. In this way, vertically integrated hospitals can gain an advantage over their rivals in a process sometimes described as "foreclosure."

Second, vertical integration gives physicians and hospitals the ability and powerful incentives to take advantage of rules that pay different amounts for the same outpatient care at different "sites of service." Most outpatient visits occur in one of three different sites of service: a physician's office, a non-hospital facility (such as a freestanding ambulatory surgery or imaging center), or a hospital outpatient department. For treatments in a physician's office, Medicare pays the physician a "professional" fee that compensates her for her time and office expenses. For treatments in a non-hospital facility or hospital outpatient department, Medicare makes two payments—a professional fee to the physician for her time and a "facility" fee to the facility.

When Medicare pays a separate facility fee, the sum of the professional and facility fee is generally greater than the professional fee that Medicare would pay, were the service to be supplied in a physician's office. Although such "site-of-service differentials" exist for both non-hospital facilities and hospital outpatient departments, they are particularly large for hospital outpatient departments. This aspect of Medicare reimbursement was originally based on the hypothesis that patients treated in a hospital outpatient department generally required support that was only available in a hospital. However, as technology has changed to allow a wider range of services to be provided in physicians' offices and non-hospital facilities, the economic basis for site-of-service differentials has eroded.

The problem is that Medicare payment rules give vertically integrated physicians and hospitals the ability and powerful incentives to collect both a "professional" and a "facility" fee. The most anomalous example of this is the ability of vertically integrated physicians and hospitals to collect both a professional and a facility fee simply by designating the location of the physician's practice—even if it was an office that was physically separate from the hospital's campus—to be a branch of the hospital's outpatient department.[1] Physician practices not owned by a hospital do not have this ability. Through this anomaly, vertically integrated physicians and hospitals have been able to obtain substantially greater reimbursement for exactly the same treatments simply by virtue of their integrated status.

Distortions from site-of-service differentials, however, extend beyond this special case. As explained above, site-of-service differentials exist not only between physician offices and hospital outpatient departments but also between non-hospital facilities and hospital outpatient departments. Although unintegrated physicians and hospitals have as much ability to exploit this second type of site-of-service differential as do vertically integrated physicians and hospitals, vertically integrated physicians and hospitals have more powerful joint incentives to do so. Hospitals that own physician practices can reward or even require their integrated physicians to deliver care in (more-costly) hospital outpatient departments, even when a (less-costly) non-hospital facility would be just as effective. For example, hospitals may provide incentives for or even require their physicians to conduct imaging studies in the hospital instead of an imaging center. Of course, legal and contractual restrictions generally prohibit a hospital from making direct cash payments to physicians in exchange for this behavior. However, these restrictions can be circumvented, at least in part, by vertical integration. Because it is extremely difficult to police payments between parties that share fixed assets or a complex contractual relationship, it is hard to prevent a hospital from making implicit payments for referrals to physicians whose practices it owns.

Although commercial insurers are not required to follow Medicare's policy of paying different amounts for the same service supplied at different sites, some do (MedPAC 2020a, 477). As explained below, there is substantial evidence that the distortions from site-of-service differentials in Medicare spill over to commercial insurance.

In general, the academic literature on vertical integration suggests that hospitals' acquisitions of physician practices raise health spending without increasing efficiency or improving quality. Indeed, in a review of the literature, Post, Buchmueller, and Ryan (2018) conclude that "integration [between hospitals and physicians] poses a threat to the affordability of health services." This brief outlines three policy reforms to mitigate the costs of potentially harmful increases in vertical integration.

Vertical Integration and Market Power

A large body of research finds that vertical integration increases both hospital and physician market power. Baker, Bundorf, and Kessler (2014) find that increases in the market share of vertically integrated hospitals were associated with greater growth rates in inpatient hospital prices. In particular, they find that a one standard deviation increase in the market share of vertically integrated hospitals—which is approximately what would result from one hospital in a four-hospital market acquiring a physician prac-

tice—was associated with an increase in inpatient prices of 3.2%. There is evidence that these effects are caused by hospitals using vertical integration to influence where physicians refer their patients. Baker, Bundorf, and Kessler (2016) find that physicians in vertically integrated practices are much more likely to refer patients to their integrated hospital than to other competing hospitals. Moreover, patients were more likely to choose a high-cost, low-quality hospital when their physician was in a practice that was owned by the hospital.

On the outpatient side, Neprash et al. (2015) find that increases in the market share of vertically integrated hospitals were associated with greater growth rates in outpatient prices, holding constant other market characteristics including physician market competitiveness. Along the same lines, Capps, Dranove, and Ody (2018) find that in the three years after a physician practice integrates with a hospital, the physicians' prices increased by 14.1%, approximately half of which was due to market power. They also find that vertical integration increased physician prices by more when it was undertaken by a larger hospital, consistent with the hypothesis that hospital market power interacts with vertical integration to increase physician as well as hospital prices.

Baker, Bundorf, and Kessler (2014), Neprash et al. (2015), and Capps, Dranove, and Ody (2018) all find that price increases due to vertical integration are not offset by volume decreases, which means that vertical integration increases health spending as well as prices. This is confirmed by Scheffler, Arnold, and Whaley (2018), who find that increases in vertical integration in highly concentrated hospital markets were associated with a 12% increase in marketplace insurance policy premiums.

Vertical Integration and Site of Service

Koch, Wendling, and Wilson (2017) show that physicians and hospitals that vertically integrate exploit their newfound ability to collect both a "professional" and a "facility" fee from Medicare. In particular, they find that acquisition of a Medicare beneficiary's physician practice by a hospital system increased outpatient spending by 18%, holding other factors constant. MedPAC (2020a, 480-481) shows that the share of Medicare patients' evaluation and management visits in hospital outpatient departments grew more slowly in Maryland than in the rest of the country after Maryland adopted policies in 2014 that reduced the add-on payments that vertically integrated providers could receive. Capps, Dranove, and Ody (2018) show that this billing anomaly also affects commercial insurance prices; according to them, around half of the approximately 14% increase in physician prices not due to market power was due to the ability to bill both a professional and a facility fee.

In addition to giving physicians and hospitals the ability to collect two fees instead of one, vertical integration increases spending in both Medicare and commercial insurance by enhancing the joint incentives of physicians and hospitals to redirect patients to (higher-priced) hospital outpatient departments from (lower-priced) non-hospital facilities. Chernew et al. (2019) find that vertical integration was associated with an increased likelihood of the integrated physicians' patients being referred to (more-costly) hospital-based rather than free-standing imaging facilities. Richards, Seward, and Whaley (2020) find that

physicians in practices acquired by a hospital shifted nearly 10% of the procedures they perform away from ambulatory surgery centers to hospital outpatient departments.

Vertical Integration, Quality, and Efficiency

Despite evidence that vertical integration of hospitals and physician practices increases prices and spending, there is scant evidence that vertical integration increases productivity or clinical quality. Scott et al. (2016) find that neither clinical measures of hospital quality nor patient satisfaction was associated with vertical integration after controlling for location and other hospital characteristics. Kerrissey et al. (2017) find that even vertical integration involving documented changes to the medical care production process was not associated with aspects of patient/physician engagement generally considered important for improved quality. In particular, according to patients' observations, vertical integration was not associated with greater physician or staff knowledge of the patient's medical history, not associated with greater support for self-directed care or medication/home health management, and not associated with better communication of test results. Short and Ho (2020) find that vertical integration is significantly associated with higher quality on only two of the 29 quality measures they analyze. Koch, Wendling, and Wilson (2020) find that acquisition of a Medicare beneficiary's physician practice by a hospital system did not reduce adverse health outcomes related to the treatment of hypertension and diabetes of the practice's Medicare patients, including mortality, heart attack, ischemic heart disease, glaucoma, and other potentially avoidable complications.

Policies to Mitigate Costs of Vertical Integration

Several policy reforms have the potential to reduce the costs of vertical integration. First, the FTC and DOJ should increase antitrust scrutiny of vertically integrating physicians and hospitals. Currently, scrutiny of vertical transactions is essentially nonexistent. Indeed, neither agency has ever challenged any hospital acquisition of a physician practice on the basis of anticompetitive harm from vertical integration (Greaney 2019). Although the former Director of the Bureau of Competition at the FTC has acknowledged that foreclosure from vertical integration in markets for health services could in theory raise anticompetitive concerns (Federal Trade Commission 2014), neither agency has acknowledged that vertical integration could inhibit competition simply by increasing a hospital's market share. It is time to reconsider that position.

Second, Congress should consider amending the Hart-Scott-Rodino Act to lower the reporting threshold for mergers involving a physician practice. Under the Act, acquisitions must only be reported if they involve transactions greater than $94 million (Federal Trade Commission 2020). But most acquisitions of physician practices fall below that threshold (Capps, Dranove, and Ody 2017). As Wollman (2019) shows, mergers that fall below the Hart-Scott-Rodino threshold rarely receive antitrust scrutiny from the agencies. If Congress fails to amend the Act, the agencies should consider creating reporting requirements of their own if they can do so under existing law.

Third, Medicare should continue to refine its reimbursement rules. In particular, Medicare should eliminate the ability of physicians in vertically integrated practices to obtain higher payments for exactly the same treatments simply by virtue of their integrated status, and should reduce "site-of-service" payment differences that reward physicians and hospitals for treating patients in hospital outpatient departments in cases that could be appropriately managed in less-costly non-hospital settings. Extensive research by MedPAC (2013; 2014, 75-78; 2017, 142) shows how such reforms could be implemented. Recent research by Dranove and Ody (2019) suggests that such reforms could have an economically significant effect on integration behavior.

Potential Savings

Capps, Dranove, and Ody (2018) estimate that the vertical integration of primary care physicians increased commercially insured patients' health spending by 4.9%. Koch, Wendling, and Wilson (2017) estimate that acquisition of a physician practice by a hospital system increased Medicare beneficiaries' outpatient spending by 18%. In Medicare, outpatient spending in 2019 was approximately 25% of total spending (MedPAC 2020b, Chart 1-2), so vertical integration would increase the average Medicare patient's total spending by approximately 4.5% (= 0.25 ⁄ 0.18).

Over the past decade, vertical integration increased by 18.7 percentage points, to 34.7% in 2018. If the policy reforms discussed above could prevent a further 20 percentage point increase in vertical integration, and the effect of vertical integration on other patients' spending is similar to the effect on commercially insured patients and Medicare beneficiaries, then the policy reforms would reduce total medical spending by approximately 1% (between 0.009 = 0.2 ⁄ 0.045 and 0.0098 = 0.2 ⁄ 0.049).

Footnotes

1. The Bipartisan Budget Act of 2015 prohibited providers from billing a separate hospital outpatient facility fee after January 1, 2017, if a) they began billing under the outpatient prospective payment system (OPPS) on or after November 2, 2015, and b) they are not located on a hospital campus. CMS has successfully imposed additional restrictions on billing for certain evaluation and management services in off-campus "hospital outpatient" departments (American Hospital Association v. Azar). However, off-campus hospital outpatient departments can still receive a separate facility fee for other services.

References

American Hospital Association, et al. v. Alex M. Azar, 1:18-cv-02084-RC (DC Circuit, July 17, 2020), rehearing denied, October 16, 2020.

Baker, Laurence, M. Kate Bundorf, Daniel Kessler. 2014. "Vertical Integration: Hospital Ownership of Physician Practices Is Associated with Higher Prices and Spending." *Health Affairs*, 33 (5): 756–63.

Baker, Laurence, M. Kate Bundorf, Daniel Kessler. 2016. "The Effect of Hospital/Physician Integration on Hospital Choice." *Journal of Health Economics*, 50: 1–8.

Capps, Cory, David Dranove, Christopher Ody. 2017. "Physician Practice Consolidation Driven by Small Acquisitions, So Antitrust Agencies Have Few Tools to Intervene." *Health Affairs*, 36 (9): 1556–63.

Capps, Cory, David Dranove, Christopher Ody. 2018. "The Effect of Hospital Acquisitions on Physician Practices on Prices and Spending." *Journal of Health Economics*, 59: 139–52.

Chernew, Michael, Zack Cooper, Eugene Larsen-Hallock, Fiona Scott Morton. 2019. "Are Health Care Services Shoppable? Evidence from the Consumption of Lower-Limb MRI Scans." *NBER* Working Paper No. 24869, http://www.nber.org/papers/w24869.

Dranove, David, Christopher Ody. 2019. "Employed for Higher Pay? How Medicare Payment Rules Affect Hospital Employment of Physicians," *American Economic Journal: Economic Policy* 11 (4): 249–71.

Federal Trade Commission. 2014. "Antitrust Enforcement in Health Care: Proscription, Not Prescription." *Federal Trade Commission*. https://www.ftc.gov/public-statements/2014/06/antitrust-enforcement-health-care-proscription-not-prescription.

Federal Trade Commission. 2020. "HSR threshold adjustments and reportability for 2020." Federal Trade Commission. Accessed Dec 3, 2020. https://www.ftc.gov/news-events/blogs/competition-matters/2020/01/hsr-threshold-adjustments-reportability-2020.

Greaney, Thomas. 2019. "The New Health Care Merger Wave: Does the "Vertical, Good" Maxim Apply?" *The Journal of Law, Medicine & Ethics*, 46 (4): 918–926.

Kane, Carol, David Emmons. 2013. "New Data on Physician Practice Arrangements: Private Practice Remains Strong Despite Shifts Toward Hospital Employment." AMA Policy Research Perspectives, Accessed Dec 3, 2020. https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/premium/health-policy/prp-physician-practice-arrangements_0.pdf.

Kane, Carol. 2019. "Updated Data on Physician Practice Arrangements: For the First Time, Fewer Physicians Are Owners Than Employees." *AMA Policy Research Perspectives*, Accessed Dec 3, 2020. https://www.ama-assn.org/system/files/2019-07/prp-fewer-owners-benchmark-survey-2018.pdf.

Kerrissey, Michaela, Jonathan R. Clark, Mark W. Friedberg, Wei Jiang, Ashley K. Fryer, Molly Frean, Stephen M. Shortell, et al. 2017. "Medical Group Structural Integration May Not Ensure That Care Is Integrated, from the Patient's Perspective." *Health Affairs*, 36 (5): 885–892.

Koch, Thomas, Brett Wendling, Nathan Wilson. 2017. "How Vertical Integration Affects the Quantity and Cost of Care for Medicare Beneficiaries." *Journal of Health Economics*, 52: 19–32.

Koch, Thomas, Brett Wendling, Nathan Wilson. 2020. "The Effects of Physician and Hospital Integration on Medicare Beneficiaries' Health Outcomes." *Review of Economics and Statistics*, forthcoming.

Medicare Payment Advisory Commission, Medicare and the Health Care Delivery System, Chapter 2, June 2013.

Medicare Payment Advisory Commission, Report to the Congress: Medicare Payment Policy, March 2014, March 2017, March 2019, March 2020a.

Medicare Payment Advisory Commission, Health Care Spending and the Medicare Program: Data Book, July 2020b.

Neprash, Hannah, Michael Chernew, Andrew Hicks, Teresa Gibson, J. Michael McWilliams. 2015. "Association of Financial Integration between Physicians and Hospitals with Commercial Health Care Prices." *JAMA Internal Medicine*, 175 (12): 1932–1939.

Post, Brady, Tom Buchmueller, Andrew Ryan. 2018. "Vertical Integration of Hospitals and Physicians: Economic Theory and Empirical Evidence on Spending and Quality." *Medical Care Research and Review* 75 (4): 399–433.

Richards, Michael, Johnathan Seward, Christopher Whaley. 2020. "Treatment Consolidation after Vertical Integration: Evidence from Outpatient Procedure Markets." RAND WR-A621-1.

Scheffler, Richard, Daniel Arnold, Christopher Whaley. 2018. "Consolidation Trends in California's Health Care System: Impacts on ACA Premiums and Outpatient Visit Prices." *Health Affairs* 37 (9): 1409–1416.

Scott, Kirsten, John E. Orav, David Cutler, Ashish Jha. 2016. "Changes in Hospital-Physician Affiliations in U.S. Hospitals and Their Effect on Quality of Care." *Annals of Internal Medicine*, Accessed Dec 3, 2020. https://www.acpjournals.org/doi/10.7326/M16-0125?url_ver=Z39.882003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed.

Short, Marah, Ho, Vivian. 2020. "Weighing the Effects of Vertical Integration versus Market Concentration on Hospital Quality." *Medical Care and Research Review*, 77 (6): 538–548.

Wollman, Thomas. 2019. "Stealth Consolidation: Evidence from an Amendment to the Hart-Scott-Rodino Act." *American Economic Review Insights*, 1 (1): 77–94.

6%–24% of Home Health Care Spending (0.12% of Total Health Spending)

Reforming Home Health Care Coverage to Reduce Fraud

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Issue Summary: The US Medicare program currently spends approximately $18 billion for home health services by skilled nursing agencies (Medicare Payment Advisory Commission 2020, 251).[1] While the promise of home health care services is great—to keep frail people out of the hospital or nursing home by supporting them in their house—so also is the potential for fraud and "gray area" use of visits with little value to health. Indeed, home health care has traditionally been one of the key industries with large-scale fraudulent activities, particularly in specific cities such as Miami, Houston, and McAllen, Texas (Katzenstein et al. 2018; O'Malley et al. 2020).

Policy Proposal: This proposal describes four actionable policy changes that could lead to a significant reduction in fraud and spillover savings for other insurance programs, in part by addressing the information gaps that have helped allow for the growth in home health fraud. First, we recommend requiring that Medicare revise a form that is commonly abused so that physicians make clearer representations that patients have the clinical conditions necessary for home health care. The document they are signing would include a clearly stated legal definition of "medical necessity." Second, physicians who approve home health services would receive ongoing reports of the money spent on home care services billed for their patients. Third, the government should take actions to deter physicians and their employers from waiving copayments for services related to home health, thereby ensuring that patients would be aware of bills that might alert them to fraud committed in their name. Fourth, Medicare should more actively pursue preemptive policies and audits in regions where, despite continued efforts, there is evidence of unwarranted home health expenditures.

Total Savings: Estimates of overall health care fraud are as much as $100 billion, and home health care is well understood as one of the major sources of fraudulent behavior (Rudman et al. 2009). Based on our recommendations, we estimate potential savings to be between 6% and 24% of total home health care spending, or $1.2 billion to $4.4 billion. There is no evidence that such reductions at the margin would cause harm to patients (Doyle et al. 2017).

Related Literature and Evidence

Uncovering Waste in US Healthcare: Evidence from Ambulance Referral Patterns (2017). *Journal of Health Economics* 54: 25-39 (Joseph J. Doyle Jr., John A. Graves, and Jonathan Gruber).

Recent Trends in Criminal Health Care Fraud Prosecutions (2018). *US Attorneys Bulletin* 66 (5): 29-50 (Ranee A. Katzenstein, Diidri Robinson, Benjamin Barron, Ashwin Janakiram, and Alexander F. Porter).

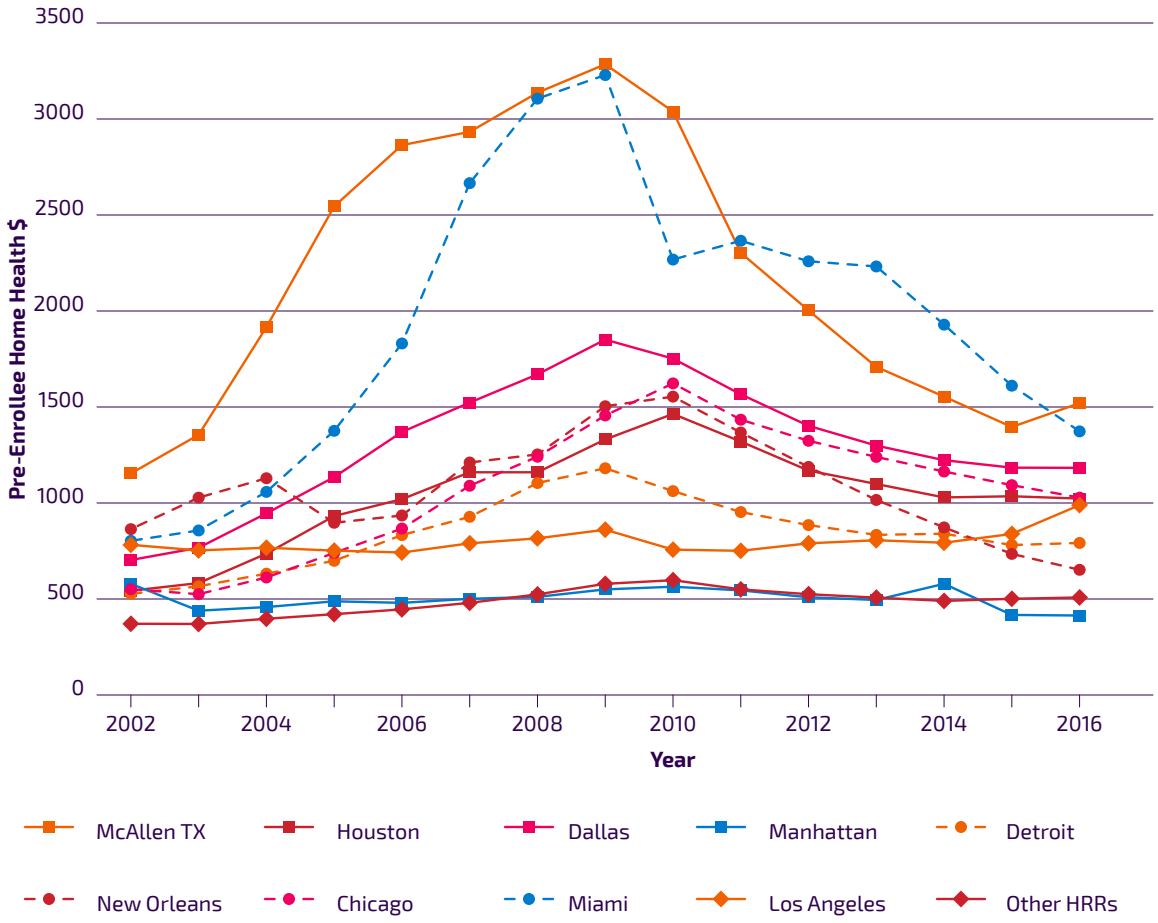
The Diffusion of Medicare Fraud: A Network Analysis (2020). *Working Paper, Dartmouth College* (James O'Malley, Thomas Bubolz, and Jonathan Skinner).

Introduction

The US Medicare program currently spends approximately $18 billion for home health services, with considerably more paid for Medicaid patients, commercial patients, and out-of-pocket spending (Medicare Payment Advisory Commission 2020, 251).[2] While the promise of home health care services is great—to keep frail people out of the hospital or nursing home by supporting them in their house—so also is the potential for fraud and "gray area" use of visits with little value to health. Indeed, home health care has traditionally been one of the key industries with large-scale fraudulent activities in specific cities such as Miami, Houston, and McAllen, Texas.

The spatial clustering of home health care fraud has been noticed by the Department of Justice (DOJ). Between 2007 and 2016, the DOJ placed nine local "strike force" offices in specific districts to pursue fraud of all types, but most of these nine regions also correspond to unusually high levels of home health care spending. Figure 1 shows the per-enrollee level of Medicare expenditures for home health care from 2000 to 2016, drawn from the Dartmouth Atlas Project database, for nine representative Hospital Referral Regions (HRRs) contained within the DOJ strike force districts (O'Malley et al. 2020). These data are adjusted for differences across regions in age, sex, race, and cost of living (e.g., local price differences in wages and rents). They are also adjusted for inflation and expressed in 2016 dollars. There are clear regional "hot spots," with spending in the McAllen, TX HRR and Miami, FL HRR an order of magnitude above spending in other regions (such as Manhattan and Los Angeles, which show less evidence of home health care fraud).[3]

Figure 1: Per-Enrollee Home Health Expenditures, 2000–2016, by Selected Hospital Referral Region



Note: Regions chosen if the DOJ had established a Medicare fraud office by 2016; "Other HRRs" is the weighted average of the HRRs not included in the DOJ strike force. All expenditures in constant 2016 dollars (O'Malley et al. 2020).

Despite the recognition that home health care can be used inappropriately, there has been only modest attenuation in billing in "hot spot" cities compared to other regions. For example, in the McAllen, Texas HRR, average price-adjusted spending per Medicare enrollee was $1,520 in 2016, more than three times the median ($460), and an order of magnitude higher than the HRR with the lowest regional spending ($87 in Bismarck, ND). Aggregate home health care expenditures since 2016 have remained roughly constant, and the DOJ has since opened several more strike force offices in other US cities with an additional focus on opioid fraud (Health and Human Services and Department of Justice 2019). While fraudulent behavior has likely scaled back from the late 2000s, there clearly remains the potential for further cost savings.

Can Home Health Care Expenditures Be Reduced without Harming Patients?

Should we be worried that cutting back on health care expenditures might harm patients? One certainly might be concerned about a national cut in reimbursement rates, for example, since doing so affects all home health care agencies, whether they are in low- or high-use regions. For this reason, we propose targeting home health agencies most likely to be providing either fraudulent or low-value care. One recent study, for example, suggested that hospitals relying more heavily on post-acute care (such as home health care) experienced worse outcomes for their patients (Doyle et al. 2017). Another study found that home health care expenditure reductions had no impact on health outcomes (McKnight 2006). Certainly for cases in which home health care is fraudulently billed for nonexistent services, we need not be overly concerned that spending less will harm patients. In particular, based on one author's experience, many of the patients who are used in home health schemes are simply getting routine checkups of chronic conditions and would not suffer if those checkups were ceased.

Current Fraud Reduction Strategies

There continues to be fraudulent activity in home health care, with extensive efforts to prosecute such activities.[4] According to the Fiscal Year 2019 report on the variety of cooperative programs to combat fraud between the DOJ and Health and Human Services (HHS), more than 1,000 new criminal health care investigations were opened, and there were 485 cases with criminal charges leading to 528 convicted defendants. As well, there were 1,112 new civil health care fraud investigations opened; on net, $2.5 billion was transferred to the Medicare Trust Fund (HHS and DOJ 2019).

In many respects, the sheer number of cases being brought is indicative of the continued profitability of fraudulent activities in home health care, with successful prosecution often hobbled by antiquated Medicare rules that lead to a system of "pay and chase" by which Medicare is obligated to pay for claims soon after submission and only afterwards consider criminal prosecution. Furthermore, these cases are likely to be only the tip of the iceberg. For these reasons we consider several proposals that could make it easier to identify and prosecute fraud or unwarranted prescribing, and thereby reduce overall fraudulent activities by preventing them in the first place.

Strategies to Reduce Fraudulent Home Health Care

A measure of success would be to observe a decline in the number and extent of new criminal and civil investigations, along with a decline in the extent of home health care expenditure. To do this, HHS and DOJ can take steps to more effectively reduce the ability of home health care agencies to reap profits and evade prosecution. Here are several approaches:

Increasing the Accountability of Providers

In the experience of one of the authors, physicians and other health care providers, when confronted with evidence of fraudulent home health billing, claim that they didn't actually know about such activities and even claim that they did not understand the actual requirements for home health care. This often occurs when a company or individual running a home health care agency, instead of waiting for a legitimate referral, will seek out patients who don't care if they are signed up, go behind the back of the primary care physician, and then find a doctor who will go along and sign off on everything.[5] This occurs for home health as well as other services such as durable medical equipment. When caught, physicians who signed off on what amounted to huge numbers of Medicare expenditures say that they did not know what the qualifications were for such expenditures and had no idea there were questionable activities involved. In some instances, the physician escapes responsibility for involvement in massive fraud.

To address this type of fraud, we recommend requiring referring physicians to sign a document with more explicit statements that their patient has the clinical conditions necessary for home health care (or the specified service). With the current Form 485, a physician certifies that the patient is "confined to the home," but there is no definition of this term, and there is no reference to the Medicare benefit definition. Citing the definition would be a nudge that would make a physician aware of the requirements so that the physician could no longer plead ignorance in the event of prosecution.

Reducing Information Gaps

The root of home health care fraud is typically not the physician but rather the agency that administers home health care. Home health agencies typically get paid thousands of dollars for an episode of home health care while a complicit physician typically gets paid just hundreds in the form of related Medicare claims or illegal kickbacks. But much of this is invisible to physicians and to the patients. For an office visit and other services that a physician might bill, the patient will receive a form with an explanation of benefits, while the physician will receive remittance information. By contrast, for home health care, the physician never receives information about how much is being billed in their name by other people, and the patient never sees how much the nursing agencies are getting paid. Thus they don't see how much money the home health agencies are making. Many physicians don't realize that they've signed off on $5–$10 million worth of care—a fact that, if known, would certainly get their attention.

To address this information gap, we recommend that each physician who approves primary care on a Form 485 would receive quarterly summaries, by patient, of the home health care payments authorized in their name, which the ordering/responsible physician would need to sign and authorize. This would be another nudge that would put the physician who signs stacks of 485s on notice that he or she is responsible for millions of dollars in payments.

Auditing Copayments and Deductibles

Medicare does not charge copayments for home health services provided by skilled nursing agencies, a policy that might have been well intentioned but has helped allow for massive fraud to occur in this area. Medicare does still charge copayments for physicians who certify patients for home health and who bill for services that often are related to home health fraud, but the companies employing such physicians typically waive patients' cost sharing. Absent cost sharing, patients have no incentive to avoid or report excess or fraudulent home health services and are often not even aware of the fraud that is occurring in their name. (In one author's experience, many patients receiving home health care have been told that home health is a service that all Medicare patients are entitled to free of charge, which leaves out the crucial point that the service is meant only for those patients who are "confined to the home" and actually need skilled nursing care.) In order to reduce home health fraud, we recommend that firms report and verify the amounts they collect in patient cost sharing for home health services (National Health Care Anti-Fraud Association). We also recommend an audit program to verify that the amounts collected from patients approximate what should have been paid. These nudges would deter some from waiving copayments, would get some patients to cut off unnecessary home health services themselves, and would make it easier for the government to prosecute those who waive copayments and lie about doing so.

Accountability at the Regional Level

It is difficult to estimate the precise savings from the measures above, but guaranteed savings can be realized by a focus on preemptive auditing and payment withholds (Skinner et al. 2012) to reduce the frequency of Medicare paying first and then having to chase after potentially fraudulent agencies to recover the money. The Centers for Medicare and Medicaid Services' "Review Choice Demonstration" is a promising first step toward this goal, but it has been successively delayed (Centers for Medicare and Medicaid Services). A program of audits and payment withholds could be triggered locally by unwarranted high rates of per-Medicare-enrollee home health care expenditures in a given county or region, along the lines of the current DOJ/HHS local strike forces. Rather than auditing all agencies in a region, such audits could focus on home health agencies based on data-driven red flags, such as (1) a pattern of discharging large numbers of patients and then readmitting them soon afterward, (2) a high percentage of patients who have not had recent hospital stays and are allegedly receiving home health services for chronic conditions, or (3) a high percentage of patients who are going to physicians' offices during periods when they were allegedly confined to the home. With a return on investment of $4 in fines and recovered funds per $1 of enforcement costs (and likely even larger effects on fraudulent behavior) (HHS and DOJ 2019), increased enforcement would be implemented until overall home health care expenditures at the regional level were reduced to a preset spending level.

Savings from Addressing Fraud in Home Health

We anticipate that strengthening the federal government's hand in prosecuting Medicare fraud targeted to specific areas of the US—and thus leaving alone unaffected regions with little evidence of fraudulent

behavior—would save substantial federal funds. As an optimistic estimate of savings, we consider the reduction in Medicare spending that would occur if every HRR that exceeds the median spending were to be reduced to the median of those HRRs that were not targeted by the DOJ ($451 per Medicare enrollee); this would reduce 2016 expenditures by 24%, or $4.4 billion in total. Many large regions with disadvantaged elderly populations are already well under this median level; 2016 home health care spending in the Bronx, New York, was $279 and in Savannah, Georgia, was $379. A less ambitious target would be to reduce home health expenditures to the 75th percentile ($2.3 billion saved). The least ambitious would be to scale back to just the 90th percentile of non-targeted regions ($771), which would save $1.2 billion (O'Malley et al. 2020).[6]

Footnotes

1. Estimates from National Health Expenditures for Medicare expenditures on home health care were $40 billion, and for total spending on home health care were $110 billion in 2018. We instead adopt the more conservative estimate from the Medicare Payment Advisory Commission, Report to the Congress: Medicare Payment Policy, March 2020. See http://www.medpac.gov/docs/default-source/reports/mar20_medpac_ch9_sec.pdf?sfvrsn=0 and https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData.

2. See Footnote 1.

3. The sharp decline in home health billing in Miami between 2009 and 2010 was the direct consequence of a change in the regulations regarding billing for "outlier" or unusually expensive home health patients. In the mid-2000s, nearly half of all outlier payments in the United States occurred in Miami-Dade County (Benzio 2010).

4. An example of a recent case is as follows: "In January 2019, the owner and operator of Amex Medical Clinic and a doctor in Texas were convicted of charges resulting from their involvement in a Medicare fraud scheme. … The owner sold medical orders and other documents signed by the doctor to HHAs in and around Houston. In these medical orders, the doctor falsely certified information about the patient's medical condition and need for home health services. Co-conspirators at HHAs then used the false paperwork to bill to, and receive payment from, Medicare for services that were not medically necessary or not provided. The owner also caused Amex to bill Medicare for purported physician services that were actually provided by an unlicensed practitioner, if at all. The individuals were sentenced to a combined 55 years in prison and ordered to pay up to $26.7 million in restitution, jointly and severally." (HHS and DOJ 2019, 24).

5. For example, "In May 2019, a patient recruiter for multiple Houston-area home health agencies and owner of Circuit Wide was sentenced to 188 months in prison, followed by three years of supervised release, and was ordered to pay $12.9 million in restitution. The charges stem from a $20 million scheme to pay illegal health care kickbacks to physicians and Medicare beneficiaries in order to fraudulently bill for medically unnecessary home health services and to launder the proceeds." (HHS and DOJ 2019, 24).

6. These are percentiles weighted by the Medicare population.

References

Benzio, Brooke. 2010. "Fee-for-Disservice: Medicare Fraud in the Home Healthcare Industry," *Annals of Health Law* 19 (1): 229-233.

Centers for Medicare and Medicaid Services. "Review Choice Demonstration for Home Health Services." (Accessed November 22, 2020.) https://www.cms.gov/Research-Statistics-Data-and-Systems/Monitoring-Programs/Medicare-FFS-Compliance-Programs/Review-Choice-Demonstration/Review-Choice-Demonstration-for-Home-Health-Services.

Doyle Jr, Joseph J., John A. Graves, and Jonathan Gruber. 2017. "Uncovering Waste in US Healthcare: Evidence from Ambulance Referral Patterns." *Journal of Health Economics* 54 (July): 25-39.

Health and Human Services and Department of Justice. 2019. "Health Care Fraud and Abuse Control Program Annual Report for Fiscal Year 2019." (Accessed November 21, 2020.) https://oig.hhs.gov/publications/docs/hcfac/FY2019-hcfac.pdf.

Katzenstein, Ranee A., Diidri Robinson, Benjamin Barron, Ashwin Janakiram, and Alexander F. Porter. 2018. "Recent Trends in Criminal Health Care Fraud Prosecutions." *US Attorneys Bulletin* 66 (5): 29-50.

McKnight, Robin. 2006. "Home care reimbursement, long-term care utilization, and health outcomes." *Journal of Public Economics* 90 (1-2): 293-323.

Medicare Payment Advisory Commission. 2020. "Report to the Congress: Medicare Payment Policy." *Home Health Care Services*. http://www.medpac.gov/docs/default-source/reports/mar20_medpac_ch9_sec.pdf?sfvrsn=0.

National Health Care Anti-Fraud Association. 2020. "The Challenge of Health Care Fraud." (Accessed November 21, 2020.) https://www.nhcaa.org/resources/health-care-anti-fraud-resources/the-challenge-of-health-care-fraud.aspx.

O'Malley, James, Thomas Bubolz, and Jonathan Skinner. 2020. "The Diffusion of Medicare Fraud: A Network Analysis." *Working Paper, Dartmouth College*.

Rudman, William J., John S. Eberhardt, William Pierce, and Susan Hart-Hester. 2009. "Healthcare fraud and abuse." *Perspectives in Health Information Management* 6 (Fall).

Skinner, Jonathan, James N. Weinstein, and Elliott S. Fisher. 2012. "Withholds to slow Medicare spending: a better deal than cuts." *JAMA* 307 (1): 43-44.

1% of Medicare Spending (0.21% of Total Health Spending)

Paying for Biologic PADs in Medicare Part B

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Issue Summary: Medicare spending on physician-administered drugs (PADs) continues to increase substantially and is being driven in large part by higher prices. PADs are covered under Medicare Part B for Medicare enrollees and under the medical benefit for most commercial enrollees. Under the current structure, the physician chooses a version of the drug to purchase, holds the inventory, and then prescribes and administers it. When administered, the physician receives a payment, which is typically equal to the cost to acquire the drug charged by the manufacturer plus a specified markup. In the US, each biologic PAD and each individual biosimilar PAD has its own reimbursement amount based on its distinct billing code, known as its J-code. As a result, current procurement policy for biologic PADs under Medicare Part B avoids all competitive market forces. It does not create any incentive to compete on price; rather, it rewards higher-priced drugs by permitting firms to set any price they want Medicare to pay and giving no incentive to physicians to avoid high-priced drugs. Compounding the problem, many commercial insurers follow Medicare reimbursement rules for PADs. The J-code regulations entirely defeat the purpose of biosimilar entry, which was designed to create price competition for old biologic drugs in the way that generic drugs lower prices in the pharmacy channel. With R&D pipelines filled with biologic drugs, it's imperative to modify the design of Medicare J-codes to generate competition amongst manufacturers of biologic PADs and incentivize physicians to prescribe lower-cost biosimilars.

Policy Proposal: This brief proposes changing the design of Medicare J-codes for PADs so that there is a single J-code for each molecule: the reference biologic and all of its biosimilar versions. Physicians should then be compensated a fixed amount for administering any product in the J-code group. The fixed amount could be the price of the least-costly alternative in the J-code plus 5%, or $500, whichever is smaller.

Total Savings: Biologic PADs are a large and growing share of Medicare. Moreover, many commercial plans follow Medicare payment schemes. Under conservative assumptions, this policy would save $2 billion per year, and it might save as much as $7.5 billion per year, which is approximately 1% of Medicare spending.

Related Literature and Evidence

The Impact of the Entry of Biosimilars: Evidence from Europe (2018). *Review of Industrial Organization* 53 (1): 173–210 (Fiona M. Scott Morton, Ariel Dora Stern, and Scott Stern).

The Distortionary Effects of Government Procurement: Evidence from Medicaid Prescription Drug Purchasing (2006). *The Quarterly Journal of Economics* 121 (1): 1–130 (Mark Duggan and Fiona M. Scott Morton).

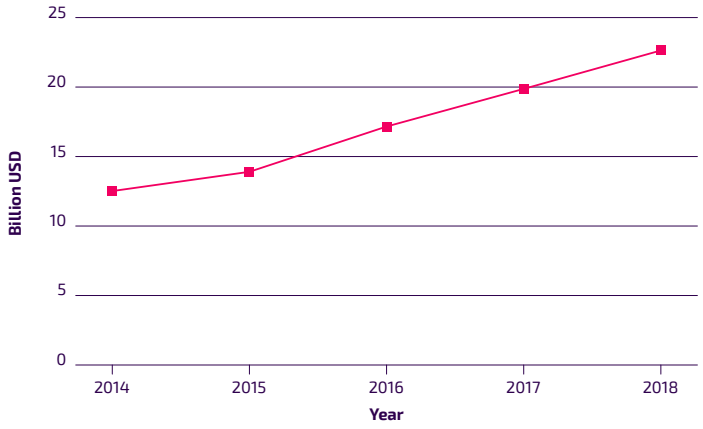
Least Costly Alternative Policies: Impact on Prostate Cancer Drugs Covered Under Medicare Part B (2012). *Department of Health and Human Services*. https://oig.hhs.gov/oei/reports/oei-12-12-00210.pdf.

Background

PADs are treatments such as injections or infusions that are administered by physicians in an outpatient setting (e.g., doctor's office). Medicare covers PADs under Part B and, analogously, commercial health insurance plans typically cover PADs as part of the medical benefit. Two thirds of Medicare Part B drug spending is on biologic drugs (MedPAC 2017). In 2018, total Medicare PAD spending on biologics was $22.63 billion (FDA 2020; CMS 2020).

Spending on PADs is growing much faster than spending on self-administered drugs and represents the largest growth in spending for professional services (HCCI 2019, 16).[1] Medicare alone spent $32 billion on PADs in 2017, and, on average, expenditure grew by 9.7% annually between 2009 and 2015 (MedPAC 2018). This increase in spending was driven primarily by price rather than utilization; the average payment per Part B drug increased on average by 6.6% annually (MedPAC 2018). These steep price increases can be attributed to the way Medicare currently procures PADs. Physician practices or hospital outpatient departments purchase PADs from group purchasing organizations, distributors, wholesalers, or the manufacturers themselves (Ginsburg, Brandt, and Lieberman 2019).[2] Physicians choose a version of the drug to buy, stock the drug, and incur inventory costs. Unlike most small-molecule drugs, many PADs cost thousands of dollars (MedPAC 2015, 66) and are perishable (County of Suffolk v. Abbott Laboratories), so they have high inventory costs. Physicians then dispense the drug and receive a payment from a patient's medical insurer. Many commercial insurers follow Medicare reimbursement rules for PADs, so the Medicare rules take on outsized importance in terms of influencing the pricing behavior of manufacturers.[3]

Table 1: Estimated Spending on Biologic PADs by Medicare Part B



Source: FDA (2020); CMS (2020).

Current Remuneration for Biologic PADs

Medicare pays the physician an amount known as the Average Sales Price (ASP) plus 6%.[4] The ASP is calculated as the volume-weighted sales to all purchasers (with some exceptions[5]) across all drugs categorized under the same billing code, known as a J-code. Specifically, manufacturers submit their ASPs for all forms and sizes of the drug, and the Centers for Medicare and Medicaid Services (CMS) aggregates a volume-weighted ASP for each J-code. Physicians are paid the ASP from two quarters before the patient's visit plus 6% as a profit margin. For a biosimilar, the ASP is based on its J-code and the 6% markup is based on the reference biologic's ASP. Commercial insurers use the Medicare rate as a benchmark for negotiation, though they often pay a markup higher than 6%.

Herein lies the key issue: under the current Medicare rules, each biologic and each biosimilar receives its own distinct J-code and corresponding reimbursement price from Medicare.[6] From the manufacturer's perspective, the J-code reimbursement scheme with one manufacturer in it is a cost-plus contract. This creates no price competition. Instead, the manufacturer of a drug freely chooses a launch list price or raises its existing list price as much as it desires, and then sells to physician groups and hospital outpatient departments whose demand does not fall in response to the higher prices. The current system results in the government paying the price the manufacturer chooses, whatever the level of that price and regardless of the amount of competition in the market.

In addition, because physicians are reimbursed for their acquisition costs, the level of the manufacturer's price does not affect their demand. Physicians have no incentive to consider equally effective but lower-priced alternative drugs such as biosimilars. Physicians are constrained only by their patients; to the degree patients cannot afford, and do not pay, the 20% coinsurance that applies to the drug, the physician would be disincentivized to administer it. However, 34% of fee-for-service Medicare (i.e., original Medicare)

beneficiaries have supplemental coverage, and another 31% of beneficiaries have Medicare Advantage, both of which further insulate patients from costs (AHIP 2018). As a result, only a fraction of Medicare enrollees are responsible for the 20% coinsurance and could potentially exhibit elastic demand.

In short, current Medicare regulations insulate biologics from price competition. The way the government procures these drugs incentivizes manufacturers of both biologics and biosimilars to maintain high list prices. These prices are then paid by commercial customers as well and raise the cost of health care for all Americans.

Reform Needed

This brief proposes changing the design of Medicare J-codes for PADs so that there is a single J-code for each molecule: the reference biologic and all of its biosimilar versions. Physicians should then be compensated a fixed amount for administering any product in the J-code group. The fixed amount could be the price of the least-costly alternative in the J-code plus 5%, or $500, whichever is smaller.

Under this scheme, when multiple manufacturers have a drug paid by the same J-code, each will face downward pressure on its price because customers—the physicians—will be paid a fixed amount regardless of which drug in the group they choose to buy. The single J-code creates a financial incentive for the provider to purchase from the least-expensive manufacturer in the J-code. A physician or hospital will increase its margin by purchasing a drug in the J-code group with a lower price. They are also likely to notice if buying a particular drug leaves them with a loss; for example, because its price is above the fixed reimbursement amount. Therefore, the J-code creates an incentive for manufacturers in the same J-code to compete for the business of physicians by lowering their prices. Sharing a J-code is a way for Medicare to create price competition between manufacturers of the same drugs and to generate awareness by physicians for potentially lower-cost alternatives.

Studies have shown that when reference products compete with biosimilars, there is downward pressure on price. Scott Morton et al. (2018) estimate that average market prices decrease by 3.5 percentage points per year after biosimilar entry. For each additional distributor, there is an additional 2.4 percentage point decrease in price. These estimates are reflective of the experience of European countries plus Australia, where, in aggregate, a 30% reduction in savings is commonplace. Norway was able to achieve a 70% reduction in biologic spending from introduction of a biosimilar (Mack 2015).[7]

Savings Estimation

To estimate the potential cost savings of biologic competition in the US, this brief takes all biologic products (reference products and biosimilars) licensed by the Food and Drug Administration (FDA) as of March 2020.[8] By merging these biologics with spending data from Medicare Part B in 2018, estimated cost savings are simulated by applying a percentage discount in price to biologics with existing biosimilars in 2020, and then secondly to all biologics that have been on the market for a certain number of years.

This calculation is intended to represent the steady-state value of the J-code reform in an environment with biosimilar entry.

Table 2, using a range of these back-of-the-envelope calculations, shows that potential cost savings are large and range from approximately $1 billion to $7.5 billion. For example, Scenario 2 assumes that all biosimilars that are currently approved by the FDA enter the market and compete against reference biologic products. As is common in Europe, it is conservatively assumed that the biologics facing competition see a 30% decrease in spending. Overall, this leads to savings of $1.94 billion, which represents an 8.6% decrease in total spending by Medicare Part B on biologic PADs. Under this same scenario, if it is assumed that biologics facing competition experience a 50% decrease in spending, savings is estimated to be $3.24 billion, which represents a 14.3% decrease in spending by Medicare Part B on biologic PADs. Scenario 3 shows savings from a 30% decrease in price applied to all biologics that have been on the market for more than 20 years. This results in savings of $1.38 billion. Likewise, assuming a 50% decrease in price for all biologics on the market for more than 20 years results in savings of $2.29 billion, this represents a 10.1% reduction in total spending by Medicare Part B on biologic PADs. Each scenario assessed if biologics facing competition experience a 30%, 50%, and 70% decrease in spending, respectively. Based on the resulting savings calculations, under conservative assumptions this policy would save around $2 billion per year, and it might save as much as $7.5 billion per year, which is approximately 1% of Medicare spending.

	Savings in Billions in USD, if we assume biosimilar competition	Savings w/ biosimilar competition		
		30%	50%	70%
Scenario 1	After 12 years from reference product licensure (expiration of exclusivity)	3.20	5.33	7.47
Scenario 2	Among all currently licensed biosimilars	1.94	3.24	4.53
Scenario 2	After 20 years from reference product licensure	1.38	2.29	3.21
Scenario 3	Among all currently marketed biosimilars	0.88	1.47	2.06

Notes: (1) The table above calculates simulated savings if biosimilar competition were to have been introduced in the following hypothetical scenarios. (2) Total Medicare Part B spending on biologic PADs is 22.63 billion in 2018.

These savings estimates likely understate the full impact of this change in policy. As more biologics and biosimilars are developed, approved, and competitively priced within a J-code, physicians may consider therapeutic alternatives across molecules. This consideration will result in further competition amongst manufacturers of biologic PADs and corresponding savings.

Footnotes

1. Drugs that are taken at home by patients, or self-administered prescription drugs, are covered as part of the pharmaceutical benefit for commercial plans and by Part D for Medicare enrollees.

2. It also looks like these methods of distribution are determined by the manufacturer of the drug (see County of Suffolk v. Abbott Laboratories).

3. "Commercial payers frequently adopt the [Average Sales Price] with higher markups" (Ginsburg, Brandt, and Lieberman 2019).

4. The Budget Control Act of 2011 mandates a 2% reduction across Medicare expenditures. Because the sequester does not affect the patient copay component of reimbursement, as of 2013, physicians are paid 104.3% of the ASP until 2021.

5. Exclusions include the 340 B drug discount mandate and Medicare Best Price.

6. Prior to 2018, all biosimilars were placed together on a different J-code from the reference biologic product. Biosimilars were paid the ASP of their own J-code plus 6% of the reference biologic's ASP. Under this structure, if a physician was going to purchase a biosimilar, he/she was incentivized to purchase the least-expensive drug within the generic J-code. "Reforms" effective on January 1, 2018, provided that each biosimilar product is given its own J-code. The policy represents classic "regulatory capture"; it eliminated price competition between biosimilars and did not restore it between biosimilars and the reference biologic (Syrop 2017; AJMC 2017).

7. This is for the biosimilar Remsima® (infliximab), launched by Orion in December 2013 as a generic version of Remicade® (infliximab), sold by Merck and used in the treatment of patients with rheumatoid arthritis, Crohn's disease, ulcerative colitis, and psoriasis (Mack 2015).

8. Commonly, this data source is known as the Purple Book.

References

American Journal of Managed Care (AJMC). 2017. "CMS Biosimilar Reimbursement Shift: What You Need to Know." *American Journal of Managed Care (AJMC), The Center for Biosimilars*, Nov. 16, 2017. https://www.centerforbiosimilars.com/view/cms-biosimilar-reimbursement-shift-what-you-need-to-know.

America's Health Insurance Plans (AHIP). 2018. "State of Medigap 2018: Trends in Enrollment and Demographics." *America's Health Insurance Plans*. https://www.ahip.org/wp-content/uploads/2018/06/State_of_Medigap18_FINAL.pdf.

Centers for Medicare and Medicaid Services. 2020. "Medicare Part B Drug Spending Dashboard." *Centers for Medicare and Medicaid Services*. Accessed Dec 3, 2020. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Information-on-Prescription-Drugs/MedicarePartB.

County of Suffolk v. Abbott Laboratories, et al, In re: Pharmaceutical Industry Average Wholesale Price Litigation. 1:01-cv-12257-PBS (U.S. District Court, D. Mass 2007), Findings of Fact and Conclusions of Law. http://online.wsj.com/public/resources/documents/AWPDecision.pdf.

Department of Health and Human Services. 2012. "Least Costly Alternative Policies: Impact on Prostate Cancer Drugs Covered Under Medicare Part B." https://oig.hhs.gov/oei/reports/oei-12-12-00210.pdf.

Food and Drug Administration, Center for Drug Evaluation and Research. 2020. "List of Licensed Biological Products with (1) Reference Product Exclusivity and (2) Biosimilarity or Interchangeability Evaluations to Date." *Food and Drug Administration*. Accessed Dec 3, 2020. https://www.fda.gov/media/89589/download.

Ginsberg, Paul B., Caitlin Brandt, and Steven M. Lieberman. 2019. "The Use of Vendors in Medicare Part B Drug Payment." *Brookings*, August 2, 2019. https://www.brookings.edu/blog/usc-brookings-schaeffer-on-health-policy/2019/08/02/the-use-of-vendors-in-medicare-part-b-drug-payment/.

Health Care Cost Institute (HCCI). 2019. "2017 Health Care Cost and Utilization Report." *Health Care Cost Institute*. https://healthcostinstitute.org/images/easyblog_articles/276/HCCI-2017-Health-Care-Cost-and-Utilization-Report-02.12.19.pdf.

Mack, Asbjørn. 2015. "Norway, Biosimilars in Different Funding Systems. What Works?" *Generics and Biosimilars Initiative Journal* 4 (2): 90-92. http://gabi-journal.net/norway-biosimilars-in-different-funding-systems-what-works.html.

Medicare Payment Advisory Commission, Report to the Congress: Medicare and the Health Care Delivery System, June 2015. http://medpac.gov/docs/default-source/reports/june-2015-report-to-the-congress-medicare-and-the-health-care-delivery-system.pdf?sfvrsn=0.

Medicare Payment Advisory Commission, Payment Basics: "Part B Drugs Payment Systems." October 2017. http://www.medpac.gov/docs/default-source/payment-basics/medpac_payment_basics_17_partb_final.pdf?sfvrsn=0.

Medicare Payment Advisory Commission, "Prescription Drugs." *Health Care Spending and the Medicare Program: Data Book*, June 2018. http://www.medpac.gov/docs/default-source/data-book/jun18_databooksec10_sec.pdf.

Scott Morton, Fiona M., Mark Duggan. 2006. "The Distortionary Effects of Government Procurement: Evidence from Medicaid Prescription Drug Purchasing." The Quarterly Journal of Economics 121 (1): 1–130.

Scott Morton, Fiona M. Ariel Dora Stern, and Scott Stern. 2018. "The Impact of the Entry of Biosimilars: Evidence from Europe." *Review of Industrial Organization* 53 (1): 173–210.

Syrop, Jackie. 2017. "CMS Reverses Its Policy on Biosimilar Reimbursement, Will Issue Unique J-Codes." American Journal of Managed Care (AJMC), *The Center for Biosimilar*s, Nov. 3, 2017. https://www.centerforbiosimilars.com/view/cms-reverses-its-policy-on-biosimilars-reimbursement-will-issue-unique-jcodes.

Eliminating Prescription Drug Copay Coupons

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Issue Summary: To compete for market share after generic entry, branded pharmaceutical manufacturers are currently legally permitted to pay patients kickbacks in the form of "copay coupons" to retain sales. Copay coupons, offered by branded drug manufacturers and distributed through various channels including physicians' offices, magazines, direct mail, and websites, pay some or all of a patient's cost sharing for the manufacturer's drug. These coupons reduce the out-of-pocket costs for branded drugs. However, for branded drugs that have generic substitutes, these coupons raise prescription drug prices and total health spending for individuals with private health insurance.

Branded drugs cost, on average, several times as much as their therapeutically identical generics. As a result, the use of generic drugs, when available, is inherently efficiency improving. Since the 1980s, there has been a marked increase in rates of generic drug substitution, driven by automatic generic substitution laws, patent expirations, and insurance benefit designs that expose patients to higher cost sharing when a branded drug has an available generic substitute.

Drug copay coupons are frequently used by branded pharmaceutical manufacturers to circumvent patient cost sharing, increase the use of branded drugs, and raise profits. These coupons increase the share of a molecule's prescriptions that are filled by a branded drug by over 60% and increase total prescription drug spending by the commercially insured by approximately 1% annually (Dafny et al. 2017). These costs ultimately get passed along to all consumers through higher insurance premiums.

Policy Proposal: Policy makers should ban the use of prescription drug copay coupons on branded drugs that have generic substitutes. This approach has been adopted in Massachusetts and California. Furthermore, New Jersey is considering a copay coupon ban, and New Hampshire considered but did not adopt a copay coupon ban (State of New Jersey 2018; State of New Hampshire 2019). Medicare and Medicaid also forbid the use of prescription copay coupons by enrollees.

Total Savings: We estimate total savings to be $1.155 billion per year—approximately 0.9% of prescription drug spending on the commercially insured and 0.1% of commercial health spending.

Related Literature and Evidence

Undermining Value-Based Purchasing—Lessons from the Pharmaceutical Industry (2016). *New England Journal of Medicine*, 374 (21): 2013–2015 (Leemore Dafny, Christopher Ody, and Matthew Schmitt).

When Discounts Raise Costs: The Effect of Copay Coupons on Generic Utilization (2017). *American Economic Journal, Economic Policy*, 9 (2): 91–123 (Leemore Dafny, Christopher Ody, and Matthew Schmitt).

Background

Copay coupons, offered by branded drug manufacturers through various channels including physicians' offices, magazines, direct mail, and websites, pay some or all of a patient's cost sharing for the manufacturer's branded drugs. However, for branded drugs that have generic substitutes, these coupons decrease the use of generics, raise prescription drug prices for branded drugs, and increase total health spending.

Generic drugs are bioequivalent and therapeutically identical to branded drugs. However, as the FDA reports, branded drugs are more than five times as expensive as generics. As a result, the use of branded drugs, when generic versions are available, constitutes a pure form of inefficiency. The sole counterargument—that branded manufacturers have an incentive to promote the drug and therefore may increase its utilization, which *could* in theory reduce total medical spending by improving patient adherence with a prescribed therapy—is unsupported by systematic empirical analysis of drugs going off patent over the period June 2007 to December 2010 (Dafny et al. 2017).

The increasing use of generic drugs over the last 30 years has been one of the most notable successes in US health policy. The 1984 Hatch-Waxman Act spurred significant entry of generic drugs. The share of total prescriptions dispensed as generic has risen from 19% in 1984 to 90% in 2018 (US GAO 2012; IQVIA 2019). Three factors have increased generic drug adoption. First, patents on a number of blockbuster drugs, such as Lipitor, expired and generic entry ensued. Second, many states passed automatic substitution laws, enabling pharmacists to fill a prescription written for a branded drug with its bioequivalent generic. Finally, health insurers have developed more restrictive formularies and benefit designs that exposed patients to higher cost sharing for branded drugs when cheaper generics were available. Tiered benefit designs, along with the availability of generics, also enable insurers to negotiate deeper price discounts from manufacturers of competing branded drugs.

Copay Coupons

Over the last decade, in response to insurers' tighter drug formularies and tiered benefit designs, branded pharmaceutical manufacturers have introduced "copay coupons" to incent consumers to choose their drugs. With a copay coupon, the branded manufacturer pays some or all of a patient's cost sharing for the manu-

facturer's drug. Manufacturers can use these copay coupons to reduce the difference in costs that patients face between the manufacturer's branded drugs and the cheaper generic offerings.

Copay coupons encourage consumers to use more costly branded drugs. The higher costs of these branded drugs are then passed on to all consumers via higher insurance premiums. In short, copay coupons offset or undo cost sharing designed by insurers to contain costs and direct patients to higher-value drugs (Dafny et al. 2016). In the presence of coupons, consumers' out-of-pocket costs may be lower for low-value brand-name drugs than for high-value generics.

Over the last two decades, pharmaceutical manufacturers have dramatically increased the availability of copay coupons. In 2016, 20% of branded prescriptions for the commercially insured were filled with some form of copay coupon (IQVIA 2017). Websites, like internetdrugcoupons.com and needymeds.org, now routinely offer copay coupons for consumers (See Figure 1).

Figure 1: Copayment Coupon for Crestor

Note: This figure was taken from needymeds.org. A generic version of Crestor was approved by the FDA in 2016.

Beyond steering consumers away from high-value drugs, drug coupons can also harm insurer negotiating positions, thereby raising drug prices (and ultimately raising insurance premiums). In the absence of copay coupons, insurers could negotiate lower drug prices by threatening to place high-priced drugs on lower benefit tiers that have higher cost sharing. With coupons, drug manufacturers have an incentive to raise prices and offer coupons to offset consumer cost sharing. Because drug manufacturers can use coupons to undo consumer cost sharing, insurers have little ability to steer demand, other than by excluding a drug from their formulary entirely. This has the potential to deny patients both coverage of and negotiated discounts to pharmaceutical drugs which may be particularly efficacious for them.

Research on the Effect of Copayment Coupons on Generic Utilization, Prescription Drug Prices, and Prescription Drug Spending

In a 2017 article in the *American Economic Journal: Economic Policy*, we analyzed the impact of copay coupons on the use and the prices of branded drugs that faced generic competition. We were able to study the effect of these coupons because they are illegal in certain states (specifically, during our study period, in Massachusetts) and in the Medicare program. We compared the generic utilization rates among the commercially insured in Massachusetts and in neighboring New Hampshire for a set of branded drugs exposed to generic competition for the first time over the period June 2007 to December 2010. As a "placebo" or "control" group, we also compared these rates for the Medicare population, as Medicare enrollees in both states are not permitted to redeem coupons.

Drug copay coupons caused a 60% increase in the utilization of branded drugs (a 3.4 percentage point reduction in generic usage) in Massachusetts relative to New Hampshire (Dafny et al. 2017). Importantly, this relative increase did not occur for Massachusetts Medicare enrollees. Drug copay coupons were also associated with significantly faster branded drug price growth. Drugs without copay coupons experienced real price growth of approximately 8% per year; drugs with copay coupons experienced approximately 12% price growth. Combined, these facts suggest that for a prescription drug facing generic competition, introduction of a copay coupon increased retail spending by up to 4.6% over a five-year period (or approximately $120 million per drug in 2010 dollars) (Dafny et al. 2017; Dafny et al. 2016).

Taking our results and scaling across all privately insured individuals with prescription drug coverage, the impact of copay coupons on health spending is substantial. Based on our estimates, copay coupons raise health care spending of the privately insured by approximately $1.1 billion per year (in 2018 dollars). This constitutes roughly 0.1% of commercial health care costs and 0.9% of prescription drug spending for this population.

Our estimates are limited to branded, small-molecule drugs facing generic competition. Manufacturers also offer coupons for branded, small-molecule drugs without generic competitors and for biologics. Our study did not examine the impacts of these coupons; hence our proposal does not address them directly. Yet the same economic forces are at play, and the potential savings from a ban on those drugs is much larger, so we believe further research on the effects of copay coupons on those drugs is needed.

Policy Recommendation

Our policy proposal is to ban the use of copay coupons on branded drugs where a bioequivalent generic is available.

This approach would mirror the approach taken in Massachusetts (under General Laws c.175H § 3) and California (under Bill AB 65) where policy makers have enacted laws prohibiting pharmaceutical manufacturers from offering discounts to consumers, including copay coupons, on any drug with a generic equivalent.[1] Both states' copay coupon bans do not apply to cash-paying patients and include a number of other safeguards and exclusions.[2]

Estimated Savings

We estimate, based on our results from Massachusetts, that banning copay coupons would lower prescription drug costs by approximately $1.155 billion per year. This is approximately 0.9% of total prescription drug spending on the commercially insured and 0.1% of total health spending on the commercially insured.[3]

Footnotes

* This research was performed while Dr. Ody worked at the Kellogg School of Management. It reflects the views of the authors and not necessarily the views of the organizations with which they are affiliated.

1. Massachusetts bans coupons on any prescription drug with a generic equivalent. California bans the use of coupons on a prescription drug if a lower-cost, generic equivalent is on the patient's formulary. The California law also prohibits coupons for drugs with lower-cost, non-prescription generic equivalents.

2. Both Massachusetts and California allow coupons for drugs with an FDA Risk Evaluation and Mitigation Strategy (REMS). California also allows coupons for HIV or AIDS drugs under certain conditions, and for patients who follow their insurer's step therapy or prior authorization requirements.

3. In our American Economic Journal: Economic Policy article, we estimate that, among the drugs we study, the availability of copay coupons raises drug spending by $2.7 billion over five years. Our paper considered drugs that first faced generic entry over a 43-month window; we assume that this level of new generic entry is constant over time. Our sample of drugs is roughly 75% of revenue of drugs that experienced generic entry during the time period, so we scale up our estimates by 4/3rds. Finally, our estimates are in 2010 dollars, so we multiply by 1.15 to convert them into 2018 dollars. Finally, we rely on CMS estimates of health spending in the US in 2018 and the share of health spending that occurs for individuals with commercial health insurance (CMS 2020). We rely on estimates of the

share of commercial spending that goes to pharmaceutical spending based on analysis from Sherman et al. (2018).

References

California Legislature. 2017. *Prescription Drugs: Prohibition on Price Discount*, A.B. 265, 2017–2018 Reg. Sess.

Centers for Medicare and Medicaid Services. 2020. "National Health Expenditure Fact Sheet." *Centers for Medicare and Medicaid Services*. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet.

Commonwealth of Massachusetts. "Solicitation, improper inducement to use goods, facilities, services, or products covered by insurance." Mass. General Laws c.175H § 3.

Dafny, Leemore, Christopher Ody, and Matthew Schmitt. 2016. "Undermining Value-Based Purchasing—Lessons from the Pharmaceutical Industry." *New England Journal of Medicine*, 374 (21): 2013–2015.

Dafny, Leemore, Christopher Ody, and Matthew Schmitt. 2017. "When Discounts Raise Costs: The Effect of Copay Coupons on Generic Utilization." *American Economic Journal, Economic Policy*, 9 (2): 91–123.

Sherman, Michael, Gregory D. Curfman, Jason Parent, and Anita Katharina Wagner. 2018. "Prescription Medications Account for One in Four Dollars Spent by a Commercial Health Plan." *Health Affairs Blog*. https://www.healthaffairs.org/do/10.1377/hblog20180821.820628/full/.

State of New Hampshire. 2019. "An Act Prohibiting Prescription Drug Manufacturers from Offering Coupons or Discounts to Cover Insurance Copayments or Deductibles." H.B. 717-FN, 2019 Reg. Sess.

State of New Jersey. 2018. "An Act Concerning Prescription Medications and Supplementing Title 24 of the Revised Statutes." S. 1117, 218th Legislature.

The IQVIA Institute. 2019. "Medicine Use and Spending in the U.S." *IQVIA*, Accessed Dec 15, 2020. https://www.iqvia.com/insights/the-iqvia-institute/reports/medicine-use-and-spending-in-the-us-a-review-of-2018-and-outlook-to-2023.

The IQVIA Institute. 2017. "Medicines Use and Spending in the U.S." *IQVIA*, Accessed Dec 15, 2020. https://www.iqvia.com/insights/the-iqvia-institute/reports/medicines-use-and-spending-in-the-us-a-review-of-2016/.

United States Government Accountability Office. 2012. "Drug Pricing: Research on Savings from Generic Drug Use."

1.5% of Total Drug Spending (0.15% of Total Health Spending)

Reforming the Orphan Drug Act

Author: Amitabh Chandra, Harvard University

Issue Summary: The Orphan Drug Act (ODA) is designed to encourage the biotech sector to invest in the development of treatment for rare conditions and diseases. Because, by construction, rare diseases do not have large patient populations and will not have treatments that get sold in large quantities, for-profit firms may not face strong enough incentives to invest in developing treatments for these conditions. The ODA employs two policy levers to incentivize private firms to invest in developing treatments for rare conditions and diseases. First, the law offers tax credits that defray the costs of research and development (R&D) for drugs used to treat orphan conditions. Second, the ODA offers drugs with an orphan designation a seven-year period of market exclusivity from the date of FDA marketing approval instead of the usual three to five years given to other drugs. When firms get extended market exclusivity for a product, this extends the period in which they can charge monopoly prices, even if their patents have expired. As a result, the ODA provides a pathway to increase the returns to firms that develop drugs for rare conditions relative to the returns available to firms for developing products that treat more common diseases.

Unfortunately, in its current form, the ODA rewards some drug manufacturers for bringing drugs to market or finding indications for existing drugs that, in all likelihood, would have been produced without additional incentives. Many drugs have multiple indications (including some for orphan conditions and some for more common non-orphan conditions). The ODA allows manufacturers to get extended patent protection for products that mainly treat non-orphan conditions, but also have indications for orphan conditions. As a result, some of the most widely prescribed drugs in the US—Humira®, Enbrel®, Keytruda®, Biktarvy®, Remicade®, and Stelara®—receive extended patent protection from the ODA even though they primarily treat non-orphan conditions (IQVIA 2020; US Food and Drug Administration 2020).

Policy Proposal: This brief proposes three updates to the ODA. First, rather than providing market exclusivity, firms should only be incentivized to invest in orphan diseases via the provision of R&D tax credits. Second, these R&D tax credits should be subject to a "clawback" provision for drugs that earn enough to suggest, ex post, that they could have been developed without such R&D tax credits. Third, firms receiving R&D tax credits for developing an orphan drug should agree to some form of price regulation on the drug after patent expiration if there is no generic or biosimilar competition.

Potential Savings: To give a back-of-the-envelope estimate of savings, among the top 10 highest-revenue drugs in the US, six have received an orphan drug designation. A 10% reduction in prices of those products alone would reduce health spending by $5.24 billion (approximately 1.5% of total drug spending).

Related Literature and Evidence

Bagley, Nicholas, Benjamin Berger, Amitabh Chandra, Craig Garthwaite, and Ariel D. Stern. 2018. "The Orphan Drug Act at 35: Observations and an Outlook for the Twenty-First Century." *Innovation Policy and the Economy*, Vol. 19 University of Chicago Press and NBER.

Bagley, Nicholas, Amitabh Chandra, Craig Garthwaite, and Ariel D. Stern. 2018. "It's Time to Reform the Orphan Drug Act." *New England Journal of Medicine Catalyst*.

Background

In 1983, Congress passed the ODA. The ODA was designed to incentivize firms to increase their development of treatments for rare diseases and conditions. In general, absent intervention, for-profit firms often do not have sufficiently large incentives to invest in treatments for rare conditions. By definition, rare diseases have small patient populations, so the treatments for rare diseases often cannot be sold at sufficiently large volume and generate large enough profits to justify the costs of their development.

The ODA used two policy levers to encourage firms to invest in "orphan drugs" used to treat rare diseases and conditions. First, the law provides R&D tax credits to offset the costs of developing orphan drugs. Up until recently, firms that produced an orphan drug could recoup up to 50% of their R&D costs. In 2017, the R&D credit was halved, so firms could only recoup 25% of their R&D costs (26 US Code § 45C). Second, the ODA extends the market exclusivity of products used to treat orphan conditions. Whereas most products have market exclusivity for three to five years, the ODA granted orphan drugs a seven-year fixed period of market exclusivity from the approval date of the product (US Food and Drug Administration 2013). This extended patent protection increases the returns to orphan drugs by extending the period that their manufacturers can charge monopoly prices.

By most accounts, the ODA significantly increased investment in and the development of orphan drugs. In 1983, when the ODA was passed, there were approximately 40 orphan drugs available (Institute of Medicine 2010). From 1984 to 2003, there were approximately 63 orphan drug designations per year; in the 2000s, there have been approximately 200 per year (Kesselheim et al. 2017).

However, in the more than three decades since the ODA was passed, the market for therapies to treat rare diseases has changed significantly. First, the price of orphan drugs has increased dramatically. The average price for the top 100 orphan drugs was estimated to be $150,854 per patient per year in 2018, and the median price was estimated to be $109,723 per patient per year, which is approximately seven times the median price of a non-orphan drug (Pomeranz 2019). Orphan drugs account for six of the 10 top-selling drugs in the US based on annual sales data (IQVIA 2020; US Food and Drug Administration 2020).

Second, the rise of precision medicine and the use of genomic biomarkers have allowed firms to target medications at smaller populations. This has raised concerns that firms are securing orphan drug designations for products that are likely to be used to treat large populations.

Third, changes in the R&D process in general and the use of surrogate endpoints in particular have lowered the cost of drug development. The FDA offers four primary expedited programs for the development and review of drugs that address unmet medical needs: accelerated approval, breakthrough therapy designation, fast track designation, and priority review. Approximately 71% of orphan drug marketing approvals from 2008 to 2017 benefited from at least one type of these expedited programs (US Government Accountability Office 2018).

As a result of these trends, the ODA rewards some drug manufacturers for bringing drugs to market that in all likelihood would have been produced without additional incentives. Indeed, a sizeable share of drugs approved for additional market exclusivity via the ODA have a range of non-orphan disease indications and are used to treat wider populations. From 2008 to 2017, 38.5% of orphan drug marketing approvals were for a new indication for a drug previously approved to treat a rare or non-rare disease (US Government Accountability Office 2018).

For example, the blockbuster product Humira® (adalimumab) initially received FDA marketing approval on December 31, 2002, for rheumatoid arthritis, which is a non-orphan disease (Tribble and Lupkin 2017). Subsequently, between 2008 and 2016, the FDA approved Humira® to treat five orphan indications in the areas of dermatology, gastroenterology, ophthalmology, and rheumatology (US Government Accountability Office 2018). Indeed, based on our calculations, less than 10% of total spending on Humira® is on orphan disease populations.

As orphan drug uses are approved, manufacturers can "stack" orphan designations to receive extended periods of patent protection.[1] For example, Sigma-Tau Pharmaceuticals enjoyed more than 20 years of market exclusivity for its product, Carnitor®, as a result of the ODA (Tribble and Lupkin 2017). This metabolic disorder drug was approved for three orphan drug exemptions for three different conditions. The second and third exemptions were obtained in the year patent protections were about to expire.

Improving the Orphan Drug Act

This brief outlines three reforms to modernize the ODA.

First, R&D tax credits should be the only incentives provided to firms to produce orphan drugs, rather than the current mix of tax credits and market exclusivity. Many orphan drugs are economically viable without extended market exclusivity. Moreover, when firms are given additional market exclusivity, the higher costs from this exclusivity are borne by a narrow sliver of the public. Added exclusivity translates into higher drug prices. These higher drug prices result in higher insurance premiums and higher cost sharing for the individuals who consume the drugs. By contrast, tax credits are funded via general tax revenue. As a result, the costs of them are spread more evenly across the population.

Second, R&D tax credits should be subject to a "clawback" provision if it becomes clear, ex post, that a drug would have been developed in the absence of the tax credits. This type of system has been shown to be effective outside the US. In Japan, for example, manufacturers must begin to repay R&D subsidies

for drugs with annual sales that exceed 100 million yen (Bagely et al. 2018). A similar threshold could be adapted for the US market. A change of this type would focus government subsidies on drugs that would otherwise have not been developed, rather than subsidizing products that had broader uses outside of their orphan designation.

Third, firms that receive R&D tax credits for developing an orphan drug should agree, as a condition of receiving the tax credits, to some form of price regulation after their patent expires if there is no generic or biosimilar competition. For some orphan drugs, there is not a sufficiently large market to justify generic entry. As a result, firms that produce branded orphan products can recoup monopoly rents even after their patent expires. One potential form of price regulation would be to require these manufacturers to set rates that generate a prespecified margin above the production costs of the orphan drug. In general, while across-the-board regulation of the mark-ups that firms could charge would discourage innovation, in this setting, policy makers would only be regulating the prices of products that already received high returns during the period they had patent protection.

Estimated Savings

It is difficult to calculate precisely the potential savings from these three interventions. However, to give a back-of-the-envelope estimate of savings from amending the ODA, it is vital to note that among the top 10 highest-revenue drugs in the US, six have received an orphan drug designation. A 10% reduction in prices of those products alone would reduce health spending by $5.24 billion (approximately 1.5% of total drug spending).

Footnotes

1. Orphan designations are indication-specific; manufacturers receive seven years of exclusivity for each newly approved orphan indication. However, generic and biosimilar entry for the expired indications is possible after the first seven-year exclusivity period ends. Doctors are able to prescribe these alternatives off-label, even when the FDA grants a secondary indication for a drug.

References

26 U.S. Code § 45C, https://www.law.cornell.edu/uscode/text/26/45C. Accessed Nov 12, 2020.

Bagley, Nicholas, Benjamin Berger, Amitabh Chandra, Craig Garthwaite, and Ariel D. Stern. 2018. "The Orphan Drug Act at 35: Observations and an Outlook for the Twenty-First Century." *Innovation Policy and the Economy*, Vol. 19 University of Chicago Press and NBER.

Bagley, Nicholas, Amitabh Chandra, Craig Garthwaite, and Ariel D. Stern. 2018. "It's Time to Reform the Orphan Drug Act." *New England Journal of Medicine Catalyst*.

Institute of Medicine Committee on Accelerating Rare Diseases Research and Orphan Product Development. 2010. "Rare Diseases and Orphan Products: Accelerating Research and Development." Washington (DC): *National Academies Press (US)*; 1, Introduction.

IQVIA. 2020. "Medicine Spending and Affordability in the United States." *IQVIA Institute for Human Data Science*, https://www.iqvia.com/insights/the-iqvia-institute/reports/medicine-spending-and-affordability-in-the-us#:~:text=Total%20net%20payer%20spending%20in,5.2%25%20from%202018%20to%202019. Accessed Nov 17, 2020.

Kesselheim, Aaron, Carolyn Treasure, and Steven Joffe. 2017. "Biomarker-Defined Subsets of Common Diseases Policy and Economic Implications of Orphan Drug Act Coverage." *PLOS Medicine*, 14 (1): e1002190.

Pomeranz, Karen. 2019. "Orphan Drug Report 2019." *EvaluatePharma*. Accessed Nov 23, 2020. https://info.evaluate.com/rs/607-YGS-364/images/EvaluatePharma%20Orphan%20Drug%20Report%202019.pdf.

Tribble, Sarah Jane and Sydney Lupkin. 2017. "Drugmakers Manipulate Orphan Drug Rules to Create Prized Monopolies." *Kaiser Health News*. Accessed Nov 13, 2020. https://khn.org/news/drugmakers-manipulate-orphan-drug-rules-to-create-prized-monopolies/.

U.S. Food and Drug Administration. 2013. "Orphan Drug Act—Relevant Excerpts." *U.S. Food and Drug Administration*, Accessed Nov 12, 2020. https://www.fda.gov/industry/designating-orphan-product-drugs-and-biological-products/orphan-drug-act-relevant-excerpts#:~:text=(6)%20it%20is%20in%20the,the%20development%20of%20orphan%20drugs.&text=SEC.&text=(2)%20if%20the%20drug%20is,the%20Public%20Health%20Service%20Act.

U.S. Food and Drug Administration. 2020. "Search Orphan Drug Designations and Approvals." *U.S. Food and Drug Administration*, Accessed Nov 11, 2020. https://www.accessdata.fda.gov/scripts/opdlisting/oopd/.

United States Government Accountability Office. 2018. "Report to Congressional Requesters, Orphan Drug." GAO-19-83, pp. 23-26.

0.4% of Commercial Health Spending (1.67% of Total Health Spending)

Promoting Preferred Pharmacy Networks

Authors: Amanda Starc, Northwestern University; Ashley Swanson, Columbia University

Issue Summary: The price of pharmaceutical products can vary substantially across pharmacies, even within narrowly defined product categories. As a result, there is significant scope for consumers to lower drug costs if they fill their prescriptions at particular locations. Insurers can create preferred pharmacy networks via selective contracts. The use of preferred pharmacy networks helps nudge policyholders toward locations with lower out-of-pocket costs and increases insurers' bargaining leverage with pharmacies, which can lower the overall price of their members' prescriptions. In the Medicare Part D market, plans with preferred pharmacy networks reduce spending on prescription drugs by approximately 2%. While around 95% of Medicare Part D insurers use preferred pharmacy networks, only half of employers are using narrow or preferred pharmacy networks. Expanding the use of preferred pharmacy networks would lower prescription drug costs for individuals in the US with commercial health insurance.

Policy Proposal: We encourage employers to pursue and commercial insurers to adopt preferred pharmacy networks. On average, when Medicare Part D plans switch to preferred pharmacy networks, consumers pay lower premiums and lower out-of-pocket prices for drugs, with no concurrent reduction in access to drugs or pharmacies.

Total Savings: Based on relevant experience with the Medicare Part D market, we estimate the adoption of preferred pharmacy networks will lower drug spending in private insurance plans by approximately 2%. Roughly half of all commercial plans do not have preferred pharmacy networks. Lowering drug spending among this cohort by 2% would result in a savings of more than $1.34 billion. This represents a reduction of approximately 0.4% of total expenditures in the US on retail prescription drugs.

Related Literature and Evidence

Preferred Pharmacy Networks and Drug Costs (forthcoming). *American Economic Journal: Economic Policy* (Amanda Starc and Ashley Swanson).

Yes, Commercial Payers Are Adopting Narrow Retail Pharmacy Networks (2017). *Drug Channels Institute* (A. J. Fein).

Introduction

The price of generic and branded drugs varies significantly across retail pharmacies. For popular branded drugs like Crestor, prices can vary by up to 34% across pharmacies. The variation in prices across pharmacies for identical generic drugs can be even larger. For example, prices for levothyroxine, a generic drug

used to treat hyperthyroidism, can vary by up to 40%. Variation in prices across pharmacies on this scale means that payers and consumers can save significant amounts if consumers fill their prescriptions at locations with the lowest prices.

The variation in pricing of pharmaceutical products across pharmacies reflects, in part, variation in insurers' bargaining leverage with pharmacies. If insurers can successfully steer their policyholders to fill their prescriptions at pharmacies with lower prices, the insurers can gain bargaining leverage with respect to pharmacy price negotiations, and ultimately lower the prices of the prescriptions filled by their policyholders.

Selective contracting—the formation of contracted provider networks—is a common tool insurers use to decrease health care costs. However, the cost savings from selective contracting must be weighed against potential welfare losses driven by reductions in individuals' access to providers (in this case, pharmacies). Policy makers and insurers must also consider how the use of selective contracting will impact insurers' enrollment.

Preferred pharmacy networks have become increasingly common. Within Medicare Part D, the proportion of plans with preferred networks increased from 13% in 2011 to 95% in 2019. However, the use of selective contracting is less common in the market for employer-sponsored coverage. Approximately 50% of employer-sponsored plans have limited or preferred pharmacy networks (Fein 2017). As a result, there is significant scope for lowering prescription drug prices at the 50% of insurance plans that do not currently participate in selective contracting with pharmacies.

Preferred Pharmacy Plans and Patient Cost Exposure

The use of preferred pharmacy networks can lower total prescription drug spending and out-of-pocket costs. However, for preferred pharmacy networks to lower prices, insurers must successfully steer their policyholders to preferred locations. Research suggests that plans can steer policyholders to preferred pharmacies by offering lower copayments at those locations. For example, policyholders in Medicare Part D plans with preferred pharmacy networks generally have out-of-pocket costs that are $6 to $8 lower per prescription than out-of-pocket costs for identical products at non-preferred locations.

When insurers can effectively steer their policyholders to preferred pharmacies, they can increase their bargaining leverage over drug prices. Part D plans that take advantage of preferred pharmacy networks are able to negotiate 1.9% to 2.3% lower prices.

One concern is that, when plans adopt preferred pharmacy networks, consumers may have to travel farther to get to preferred pharmacies. Indeed, the closest preferred pharmacy is four minutes farther from the average Medicare Part D beneficiary than the closest in-network pharmacy. However, evidence from the Medicare Part D context suggests that the average beneficiary does not travel farther when her plan adopts a preferred pharmacy network. In fact, the average enrollee benefits, due to reduced out-of-pocket costs at preferred pharmacies.

Policy Recommendation

Expanding the use of preferred pharmacy networks across private insurance products will lower drug costs without reducing consumers' access to convenient pharmacies.

Potential Savings

Total spending on retail prescription drugs in 2018 was $335 billion. Of this, $134.3 billion was attributable to spending by the commercially insured. Based on relevant experience with the Medicare Part D market, we estimate that adoption of preferred pharmacy networks will lower drug spending in commercial insurance plans by approximately 2%. Roughly half of all commercial plans do not have preferred pharmacy networks. Therefore, applying this 2% reduction to the 50% of plans without selective pharmacy networks would lower drug spending by more than $1.34 billion. This represents a reduction of approximately 0.4% of retail prescription drug expenditures in the US.

References

Preferred Pharmacy Networks and Drug Costs (forthcoming). *American Economic Journal: Economic Policy* (Amanda Starc and Ashley Swanson).

Yes, Commercial Payers Are Adopting Narrow Retail Pharmacy Networks (2017). *Drug Channels Institute* (A. J. Fein).

0.1% of Medicare Spending (0.02% of Total Health Spending)

Expanding Kidney Exchange

Authors: Nikhil Agarwal, Massachusetts Institute of Technology; Itai Ashlagi, Stanford University; Michael Rees, The University of Toledo Medical Center; Alvin Roth, Stanford University

Issue Summary: Kidney exchange enables transplants for patients who have a willing live but incompatible donor by arranging swaps and chains with other patient-donor pairs. Each transplant improves the quality and length of a patient's life while saving several hundred thousand dollars of expensive dialysis treatment over the remaining length of a patient's life. Recent research has documented that legal and economic barriers in the kidney exchange market keep this mode of transplantation from reaching its full potential. Barriers identified include financial disincentives that limit participation by transplant centers in kidney exchange, poor coordination between kidney exchange platforms and the kidney transplant waiting list, and the untapped potential of coordinating with other countries. Policies aimed at reducing these barriers and improving coordination can create several thousand more transplants per year. These reforms can reduce Medicare spending on kidney failure—which currently costs the taxpayer approximately $36 billion each year (roughly 1% of the national health care expenditure)—while simultaneously improving health outcomes.

Policy Proposal: This brief discusses three specific proposals for expanding kidney exchange. First, policy makers should eliminate financial disincentives for participating in kidney exchange platforms by including medical and administrative costs specific to kidney exchange in reimbursements from the Medicare program. Second, policy makers should direct the federal contractor UNOS (United Network for Organ Sharing) to allow kidney exchange chains to be initiated by deceased donors. Third, Medicare should pay for the costs of a global kidney exchange that allows exchanges involving patients in different nations.

Total Savings: Each additional transplant facilitated by kidney exchange saves approximately $146,000 per transplanted Medicare patient (Held et al. 2016) and more for a privately insured patient. If the three proposals combined resulted in 5,000 additional transplants annually, overall savings would be $730 million annually, representing 0.1% of the annual Medicare budget. Moreover, the economic value of each transplant is estimated to be $1.1 million, resulting in $5.5 billion in general economic gains from 5,000 additional transplants.

Related Literature and Evidence

Market Failure in Kidney Exchange (2019). *American Economic Review*, 109 (11): 4026–4070 (Nikhil Agarwal, Itai Ashlagi, Eduardo Azevedo, Clayton Featherstone, and Omer Karaduman).

A Cost-Benefit Analysis of Government Compensation of Kidney Donors (2016). *American Journal of Transplantation*, 16 (3): 877–885 (Philip J. Held, F McCormick, A. Ojo, and J.P. Roberts).

Introduction

End-stage renal disease (ESRD) directly impacts more than half a million Americans. Most of the costs of ESRD are borne by the Medicare program and account for approximately 7% of its overall budget. The preferred treatment for ESRD is kidney transplant. Unfortunately, there is a severe shortage of organs available for transplantation. As a result, the bulk of the money the Medicare program spends on ESRD goes toward dialysis (a substitute treatment for kidney transplant).

In 2019, about 40,000 patients were added to the donor waiting list, while just under 17,000 patients were transplanted using organs from deceased donors and 6,900 received transplants from living donors. As a result, there are approximately 90,000 patients on the kidney waiting list, and approximately 8,000 die annually or become too sick to transplant.

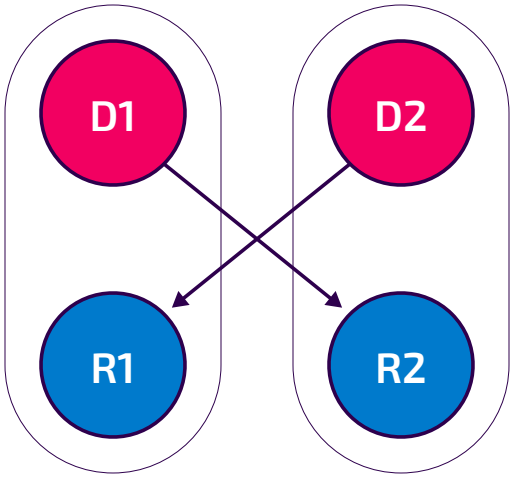
Individuals with ESRD who cannot be transplanted require kidney dialysis—a treatment that filters toxins from the blood outside of the body in lieu of relying on the kidneys. Dialysis is inconvenient and debilitating for patients and hugely costly. Therefore, in addition to increasing quality of life and life expectancy, each transplantation saves approximately $146,000 per Medicare beneficiary. Moreover, Held et al. (2016) estimate that each kidney transplant generates $1.1 million in economic value.

This brief outlines three specific proposals to expand the availability of transplanted kidneys in the US.

Kidney Exchanges

Despite the shortage of organs from deceased donors, there are many patients with kidney failure who have a friend or a loved one who is willing and able to donate one of their kidneys but cannot do so because they are not biologically compatible. One solution in such situations is to perform a kidney exchange, in which two or more incompatible patient-donor pairs exchange kidneys, with each patient in the exchange receiving a compatible kidney from another patient's donor. Figure 1 illustrates the simplest form of kidney exchange: a two-way swap.

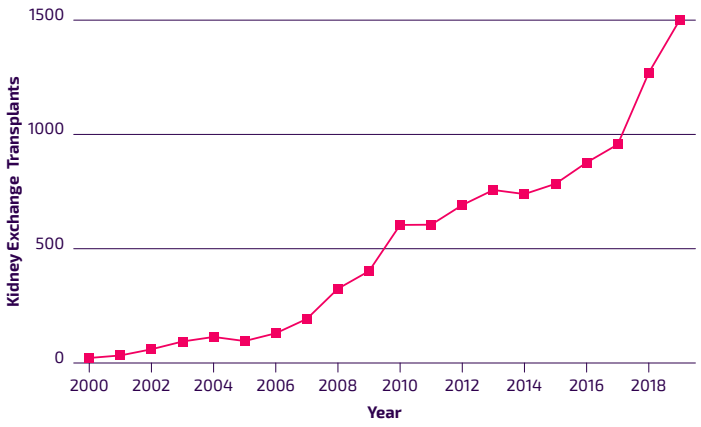
Figure 1: Exchange between two incompatible patient-donor pairs, (D1,R1) and (D1,R2).



More recently, donor chains that take advantage of healthy but incompatible donors have emerged. A donor chain is kicked off by a non-directed donor (either deceased or living) who donates an organ to a recipient with an available, healthy donor who is not a match but is willing to donate their kidney to another recipient with an incompatible willing donor. These chains can involve large numbers of donors. For example, in 2015, there was a 68-person donor chain (34 donors and 34 recipients) that involved kidney transplants at 26 hospitals nationwide. Donor chains represent an opportunity to substantially increase the scale of donations in the US.

There are kidney exchange platforms in the US that match donor-recipient pairs. On these exchange platforms, patients with a willing but incompatible donor are paired with other donor-recipient pairs. Figure 2 shows that kidney exchange transplants have grown rapidly in the last two decades. At present, there are approximately 1,500 transplants enabled by formalized exchanges annually in the US.

Figure 2: Kidney Exchange Transplants in the US



Unfortunately, while many have benefited from kidney exchange, this mode of transplantation has not reached its full potential. There are several barriers that keep kidney exchange from doing so. This brief describes three such barriers and proposes specific policy solutions.

Reimbursing Costs of Kidney Exchange

There are costs to running kidney exchanges and costs to hospitals for participating in exchanges. While hospitals get monetary benefits from performing transplants, they do not benefit monetarily from participating on an exchange platform. These costs are often cited by hospitals as barriers to participation (Ellison 2014; American Society of Transplant Surgeons 2016). These additional uncompensated costs result in a fragmented and inefficient kidney exchange landscape. The cost, although small relative to the value of additional transplants, discourages hospitals from referring their patients to large kidney exchange programs because they represent a large fraction of hospital profits from kidney transplantation. As a result, the kidney exchange market is highly fragmented—many hospitals only perform kidney exchanges amongst their own donors and patients, and many small hospitals do not participate in kidney exchanges at all.

This barrier to participation is important because the largest kidney exchange platforms, such as the National Kidney Registry (NKR), the Alliance for Paired Kidney Donation (APD), and UNOS, are able to utilize patient-donor pairs that are interested in kidney exchange to set up long chains and swaps much better than single centers. These gains are primarily due to the fact that having many patients and donors on a single platform allows these programs to find rare matches that are not available to a small transplant center. In fact, estimates in Agarwal et al. (2019) suggest that a medium-sized hospital can only transplant about 20% of its patient-donor pairs while a large platform can transplant close to half of its patients and donors.

To solve this problem, the Medicare program should reimburse providers' costs for participating in kidney exchanges and fund kidney exchange platforms. The best estimates suggest that these costs average $30,000 per transplant. Based on estimates in Agarwal et al. (2019), this policy can increase the number of kidney exchange transplants by upwards of 30% per year or 450 additional transplants per year. This is a substantial increase relative to the 1,500 transplants currently enabled annually by formalized exchanges in the US. Improving this policy will result in generating $500 million in economic value and approximately $66 million in cost savings (based on Medicare spending; more if private insurance).

Instructing UNOS to Initiate Kidney Chains from Deceased Donors

Most kidney exchange transplants on large platforms are performed through chains—links of multiple donor pairs. These chains are initiated by a non-directed donor who does not have a specific patient with whom he or she registers for kidney exchange. The donor related to the patient who receives this kidney can then donate to the next patient, and this chain can continue until, finally, a patient who does not have a related donor receives a kidney. These transplants can occur in sequence, separated by several days or weeks. In large kidney exchange platforms, the median kidney chain involves about five transplants, with many chains facilitating more than twice as many.

While chains are an important part of kidney exchange, the number of chains that can be initiated is severely limited by the number of non-directed donors. Even in the largest kidney exchange platform, only 15% of the donors are non-directed.

We propose that policy makers instruct UNOS to implement the suggestion of Melcher et al. (2016) by first attempting to use deceased donors to initiate kidney chains. Under this proposal, a kidney from a deceased donor would be transplanted to a patient registered at any one of the large multi-hospital kidney exchange platforms. It would be necessary for this patient to be paired with a living donor who is willing to continue the chain. The chain could then enable several transplants. Finally, the kidney from the last donor would be transplanted to a patient on the deceased donor list in order to make sure that the total number of kidneys available to deceased donors is not reduced. In fact, patients waiting for a deceased donor kidney would instead receive a transplant from a living donor, which is typically associated with better health outcomes. Balance on blood types can also be enforced.

We expect that many patients with related living donors should be willing to participate in this program. Many patients in kidney exchange programs have low odds of receiving a transplant because they are highly immunologically sensitive and a hard-to-match blood type. For these patients, priority in the much larger pool of deceased donors can be very useful.

But even with very low participation rates, this change can make a large impact on kidney exchange. In 2019, there were approximately 17,000 kidney transplants from deceased donors. Each donor provided to a chain enables approximately two extra transplants that would otherwise not have taken place (see Agarwal et al. 2019). This number is less than the average chain length because some patients transplanted through a chain would have otherwise received a transplant through a kidney swap.

Therefore, the number of transplants conducted through kidney exchange will more than double if only 5% of deceased donors can be used to initiate chains. For context, the cost savings from an additional 1,700 transplants per year accumulate to approximately $250 million annually, and the economic value of these additional transplants is estimated to be over $1.9 billion.

Paying for Global Kidney Exchange

In the United States, patients who have a compatible living donor are typically able to pay for a direct kidney transplant through the Medicare End-Stage Renal Disease program. However, in many parts of the world, patients with compatible donors who are not able to afford the costs of a transplant do not have a public health care system to rely on. Hence, a financial barrier limits worldwide kidney transplants.

Global kidney exchange is a solution that benefits both patients and donors in the United States and abroad. Bozek et al. (2018) describe the first global kidney exchange chain. In this chain, a Filipino patient-donor pair who could not afford transplantation in the Philippines was brought to the United States and transplanted through a kidney exchange platform. The costs of transplanting the Filipino pair were paid for by the US health care system, and escrow money was set aside to take care of the pair's follow-up treatment.

Even though the US health care system pays for the transplant of the patient-donor pair from abroad, there are still large cost savings. In the US kidney exchange system, patients whose immune systems are highly sensitized to human proteins and are not compatible with their related living donor have low odds of receiving a living donor transplant. Patient-donor pairs that can be brought in from the rest of the world can be chosen to match these patients. Indeed, the chain involving the Filipino patient-donor pair described above resulted in transplants to 11 patients in total. The Filipino patient received a kidney from a donor in Georgia, and the Filipino donor donated to an American patient in Minnesota who was hard to match with a donor. The donor of the patient from Minnesota continued the chain by donating to a patient in Seattle. The chain continued to result in many transplants.

Our proposal is that policy makers direct Medicare to cover the costs of global kidney exchange. Nikzad et al. (2017) conducted a detailed analysis of the financing arrangements that would be necessary and the cost savings from such a program. If this program generated an additional 2,000 transplants annually, this would result in savings of approximately $300 million with an economic value of $2.2 billion.

References

Agarwal, Nikhil, Itai Ashlagi, Eduardo Azevedo, Clayton Featherstone, and Omer Karaduman. 2019. "Market Failure in Kidney Exchange." *American Economic Review*, 109 (11): 4026–4070.

Bozek, Danielle, Ty B. Dunn, Christian S. Kuhr, Christopher L. Marsh, Jeffrey Rogers, Susan E. Rees, Laura Basagoitia, et al. 2018. "Complete Chain of the First Global Kidney Exchange Transplant and 3-yr Follow-Up." *European Urology Focus*, 4 (2): 190–197.

Ellison, Blake. 2014. “A Systematic Review of Kidney Paired Donation: Applying Lessons from Historic and Contemporary Case Studies to Improve the US Model.” *Wharton Research Scholars Journal* Paper 107.

Held, Philip J., F McCormick, A. Ojo, and J.P. Roberts. 2016. “A Cost-Benefit Analysis of Government Compensation of Kidney Donors.” *American Journal of Transplantation*, 16 (3): 877–885.

Melcher, M. L., J. P. Roberts, A. B. Leichtman, A. E. Roth, M. A. Rees. 2016. “Utilization of Deceased Donor Kidneys to Initiate Living Donor Chains.” *American Journal of Transplantation*, 16 (5): 1367–1370.

Nikzad, Afshin, Mohammad Akbarpour, Michael A. Rees, Alvin E. Roth. 2017. “Financing Transplant Costs of the Poor: A Dynamic Model of Global Kidney Exchange.” *Semantic Scholar Corpus ID: 173722*

0.5% of Medicare Spending (0.08% of Total Health Spending)

Removing All Financial Disincentives to Living Kidney Donation

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Issue Summary: An estimated 37 million Americans suffer from chronic kidney disease (CKD) and about 726,000 have End Stage Renal Disease (ESRD) and require dialysis or transplantation (CDC 2019). Because ESRD qualifies patients for Medicare regardless of age, much of the related expenditures are funded with taxpayer money. Total Medicare expenditures for CKD and ESRD amount to $114 billion or 20% of the annual Medicare budget (CMS 2020). Patients who do not obtain a transplant receive dialysis therapy for five to 10 years before dying prematurely. Reducing the kidney shortage would have large benefits for taxpayers and society. Recent estimates indicate that each kidney transplant generates $146,000 in savings to taxpayers and $1.1 million net welfare gain to society compared to dialysis (Held et al. 2016). Increasing the number of kidney donations from living donors would reduce the shortage. However, considerable financial burdens exist that limit living kidney donation. Existing estimates suggest that living kidney donors face up to $38,000 of direct and indirect costs from the donation, and only a fraction of these costs is currently reimbursed (McCormick et al. 2019).

Policy Proposal: Remove all financial disincentives to living kidney donation. Specifically, a comprehensive set of measures would include: (a) reimbursement of all direct costs (including lost earnings and dependent care) to all living kidney donors; (b) providing donors with a comprehensive insurance "packet" including short-term life insurance, disability insurance, and health insurance for long-term medical care; and (c) providing a refundable tax credit to offset the inconvenience, pain, and anxiety associated with the surgical procedure. While the National Organ Transplant Act (NOTA) prohibits payments to organ donors, it does not preclude providing compensation that covers the costs associated with donating. The notion that financial disincentives should be removed appears to enjoy broad support in the transplant community (although there is some disagreement about precisely what types of costs should be reimbursable), and recent survey studies indicate that compensation to living kidney donors provided by a government agency would enjoy robust support from the public.

Total Savings: A comprehensive program that eliminates all financial disincentives to living kidney donation could save between $1 billion and $3 billion per year in Medicare spending (approximately 0.5% of Medicare spending). Total societal gains could exceed $7 billion per year.

Related Literature and Evidence

Living and Deceased Organ Donation Should Be Financially Neutral Acts (2015). *American Journal of Transplantation*, 15 (5): 1187–1191 (F. L. Delmonico, D. Martin, B. Domínguez-Gil, E. Muller, V. Jha, A. Levin, G. M. Danovitch, A. M. Capron).

Paying for Kidneys? A Randomized Survey and Choice Experiment (2019). *American Economic Review*, 109 (8): 2855–88 (Julio J. Elías, Nicola Lacetera, Mario Macis).

Limiting Financial Disincentives in Live Organ Donation: A Rational Solution to the Kidney Shortage (2006). *American Journal of Transplantation*, 6 (11): 2548–2555 (R. S. Gaston, G. M. Danovitch, R. A. Epstein, J. P. Kahn, A. J. Matas, and M. A. Schnitzler).

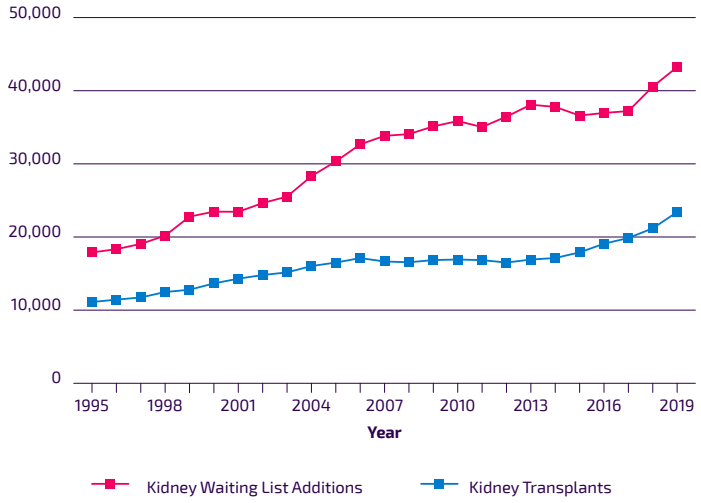
Removing Disincentives to Kidney Donation: A Quantitative Analysis (2019). *Journal of the American Society of Nephrology*, 30 (8): 1349–1357 (Frank McCormick, Philip J. Held, Glenn M. Chertow, Thomas G. Peters, and John P. Roberts).

Overview

1. The Kidney Shortage and Its Costs to Taxpayers and Society

An estimated 37 million Americans suffer from CKD, and about 726,000 have ESRD and require dialysis or transplantation (CDC 2019). Each year, approximately 125,000 new cases of ESRD are reported. In 2019, 41,105 patients were added to the kidney transplant waiting list, and 23,401 transplants were performed (OPTN 2020).[1] As shown in Figure 1, the imbalance between waiting list additions and transplants is a persistent feature of the US system. Over time, the chronic shortage of kidneys for transplantation resulted in a waiting list that currently includes approximately 92,000 patients with an average waiting time of four to five years (OPTN 2020).[2]

Figure 1: Additions to the Kidney Waiting List and Kidney Transplants (1995–2019)



Note: Data obtained from OPTN (2020).

The human and financial cost of the kidney shortage is large. ESRD patients who receive a transplant enjoy longer life expectancy and better quality of life compared to patients who remain on dialysis. According to recent estimates (Held et al. 2016), the median ESRD patient on the waiting list has an expected remaining lifetime of 12.3 years. In contrast, waitlist patients who receive a transplant can expect to live 19.3 years. The typical ESRD patient on dialysis visits a medical facility three times a week for three- to five-hour sessions. In addition to the inconvenience and disruption of daily life, dialysis causes significant physical discomfort and is debilitating (many patients stop working and go on disability when they go on dialysis), and it is associated with increased morbidity, hospitalization, and depression (Kimmel et al. 2008; Weisbord 2016; Offer et al. 2007).

In contrast, patients who receive a kidney transplant typically experience higher quality of life overall compared to dialysis, albeit lower compared to the general population. (Patients who receive a new organ must take immunosuppressive drugs that reduce the risk of organ rejection but weaken the immune system.) Estimates of quality of life range from 0.45 to 0.60 for dialysis patients and from 0.65 to 0.82 for patients who received a kidney transplant (Cook and Krawiec 2014; Held et al. 2016). Recent estimates indicate that transplant patients enjoy 6.5 additional quality-adjusted life-years (QALYs) compared to remaining on dialysis, with each kidney transplant generating net welfare gains for society of about $1.1 million (Held et al. 2016).[3] In 2019, 3,264 patients died while on the transplant waiting list, and 3,233 were removed from the waiting list because they became too sick to receive a transplant (OPTN 2020). Thus, the societal cost of the kidney shortage is in the order of $7 billion annually. The cost is much greater if we consider that a large number of ESRD patients who are not on the kidney transplant waiting list could actually benefit from receiving a transplant.[4]

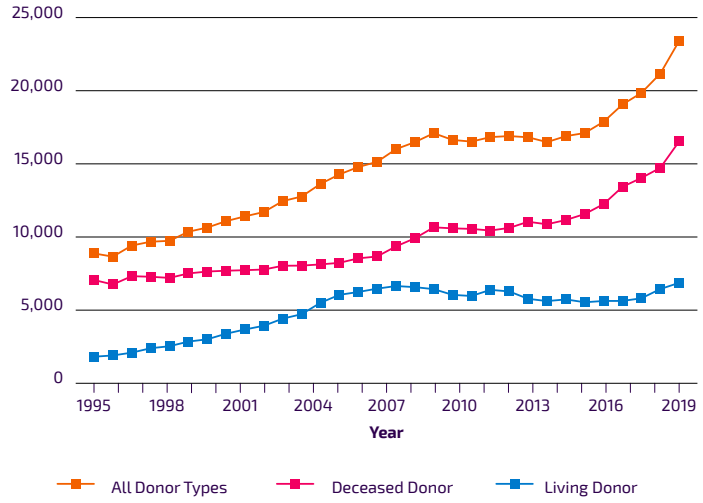
In addition to being an inferior treatment medically, dialysis is also more expensive than transplantation. According to the 2019 United States Renal Data System report (Saran et al. 2019), hemodialysis expenditures amount to $91,795 per patient per year (PPPY),[5] whereas the PPPY cost for transplant patients is $35,817. Thus, an additional benefit from transplants is the reduction in medical expenditures. Because ESRD qualifies patients for Medicare regardless of age, much of the related expenditures are funded with taxpayer money.[6] Held et al. (2016) estimate the present discounted value of taxpayer savings from each kidney transplant to be about $146,000.

2. Financial Barriers to Living Kidney Donation

Of the 23,401 kidney transplants performed in 2019, 16,534 were from deceased donors and 6,867 from living donors (see Figure 2). Although additional donations from deceased persons would be beneficial, even recovering 100% of medically suitable organs from deceased patients would not be sufficient to fill the gap between need and supply.[7] Thus, increasing the number of living kidney donations is important to solving the kidney shortage problem.[8]

Most people have two kidneys but can function normally with only one, which makes living kidney donation possible. Donating a kidney requires undergoing a surgical procedure (nephrectomy). Prior to the surgery, the prospective donor undergoes medical testing to ensure that the person is sufficiently healthy to donate; psychological and financial evaluations are also performed.[9] The surgery is performed under general anesthesia and takes three to five hours. In most cases, four to six weeks recovery time is required before kidney donors can return to normal activities.

Figure 2: Kidney Transplants, Total and by Source (1988–2019)



Note: Data obtained from OPTN (2020).

NOTA of 1984 prohibits donors from receiving "valuable consideration" for organs to be used for transplantation (42 U.S. Code § 274e). Yet, financial burdens have been identified as a critical barrier to living kidney donation. The medical costs of the donation are covered by the organ recipient's health insurance. However, there are additional sources of direct and indirect costs associated with living organ donation that are currently not (or only partially) reimbursed and that, as such, constitute financial disincentives. Prospective cohort studies have identified a set of direct and indirect costs from donating a kidney (Przech et al. 2018; Rodrigue et al. 2016), and a few studies provided quantitative estimates of costs for typical living donors in the US (Gaston et al. 2006; Becker and Elias 2007; Delmonico et al. 2015; McCormick et al. 2019). Most recently, McCormick et al. (2019) presented an especially comprehensive account of the various sources of direct and indirect costs faced by living kidney donors and quantified them either directly or by referring to existing studies. Below is a list of the main costs that have been highlighted by the studies mentioned above:

Travel and Subsistence: Estimates of living kidney donors' travel costs to the transplant center and subsistence costs (e.g., lodging, meals) range from about $2,000 (Przech et al. 2018) to $3,122 (McCormick et al. 2019). In 2006, the National Living Donor Assistance Center (NLDAC) was established with the purpose of implementing a living organ donor reimbursement program funded by the Health Resources and Services Administration (HRSA). NLDAC reimburses donors and their accompanying persons for travel costs and other qualifying subsistence expenses (lodging and meals), subject to a threshold of income eligibility for the donor and the recipient of the organ. The income threshold was set at 300% of the Health and Human Services' (HHS) Poverty Guidelines until September 2020, when a new rule issued by HRSA revised the threshold to 350% of the HHS Poverty Guidelines (42 CFR Part 121 2020). Moreover, reimbursement can only be provided when payment cannot reasonably be covered from other sources such as state programs, insurance policies, and the recipient of the organ. Between September 2014 and January 2019, NLDAC approved 2,900 applications out of 3,300 applications received (42 CFR Part 121 2019). In 2018, NLDAC approved 1,055 applications (the average reimbursement was $1,934); for comparison, in that year 6,442 transplants from living donors were performed.

Loss of Earnings: Donors who are unable to work while they prepare for and recover from the surgery suffer a loss of income due to lost earnings. Estimates of lost income range from about $3,800 (Przech et al. 2018) to about $5,000 (Rodrigue et al. 2016; McCormick et al. 2019). McCormick et al. also included in their calculations the opportunity cost from the use of sick days and vacation days that could have been used for other purposes. Until September 2020, NLDAC could reimburse eligible donors only for travel and subsistence costs. The new final rule issued by HRSA in September 2020 expanded the scope of reimbursable expenses incurred by living organ donors to include up to four weeks of lost wages associated with the surgery and recovery time, subject to the same eligibility conditions described above for travel and subsistence expenses.

Unpaid Work and Dependent Care: A considerable proportion of kidney donors report being unable to perform household activities and being unable to care for dependents (young children or elderly relatives). In a prospective cohort study of Canadian living kidney donors, Przech et al. (2018) estimated median costs of lost home productivity and household and dependent care of about 6,000 Canadian dollars (about

$4,900 US). Until recently, such costs were not reimbursable by NLDAC. The new final rule issued by HRSA in September 2020 expanded the scope of reimbursable expenses to include child-care and elder-care expenses. Again, the eligibility requirements are that the household income of donor and recipient do not exceed 350% of the HHS Poverty Guidelines, and that payment of those expenses cannot be covered by other specified sources of reimbursement.

Risks from Surgery: The kidney removal surgery is associated with a set of risks including adverse reactions to anesthesia, hospital-acquired infections, deep venous thrombosis, and other conditions. Drawing on figures from Gaston et al. (2006) and McCormick et al. (2019), we estimate this cost to be about $6,500. Moreover, the surgery carries a small but not insignificant risk of dying.[10] Estimates of this cost range from about $2,000 (McCormick et al. 2019) to approximately $7,000 (Becker and Elias 2007), depending on assumptions made on the value of a statistical life.

Long-Term Health Risks from Kidney Removal: Although donating a kidney is not associated with higher long-term risk of death, kidney donors face a higher risk of developing ESRD, and women donors face a higher risk of preeclampsia (O'Keeffe et al. 2018).[11] McCormick et al. (2019) quantify the expected discounted value of these risks at about $8,000, and Becker and Elias (2007) give a value of approximately $10,000.

Other Costs: Additional costs include the inconvenience, pain, and anxiety associated with the nephrectomy. Gaston et al. (2006) quantify these costs at about $5,000. Moreover, giving a kidney to anyone now precludes the donor from donating to a friend or relative who might need a kidney in the future. McCormick et al. (2019) quantify this opportunity cost to be about $8,000.

Although the total actual cost of donating a kidney varies in the population of donors depending on individual circumstances, the available estimates suggest that these costs are substantial for many donors. Becker and Elias (2007) estimate costs ranging from $10,000 to $35,000 (depending on assumptions of the value of a statistical life and of quality-of-life deterioration due to the nephrectomy); Gaston et al. (2006) estimate costs of up to $33,000. A recent, comprehensive analysis performed by McCormick et al. (2019) suggests that the typical American living kidney donor faces a $38,000 cost from the donation.

Policy Proposal: Removing All Financial Disincentives for Organ Donation

For many Americans with ESRD, the alternative to a kidney transplant—dialysis—leaves them with poorer health outcomes and lower life expectancy, and costs taxpayers money. Increasing the number of transplants would improve health for tens of thousands of patients annually and reduce Medicare spending. Because the full demand for kidneys cannot be met with organs from deceased donors, increasing living kidney donations is important. However, as discussed above, living kidney donors incur direct and indirect costs from the donation, and the fact that only a fraction of those costs is currently reimbursed helps explain why the quantity of kidneys supplied is insufficient to meet the need.

Removing all financial disincentives to living kidney donation has the potential to increase the number of transplants and, over time, eliminate the waiting list. While NOTA prohibits payments to organ donors, it does not preclude providing compensation that covers the costs associated with donating. The discussion and references mentioned above suggest a set of measures that could achieve this policy goal:

1. Implement a system of reimbursement of all direct costs including travel and subsistence, lost earnings, and dependent care regardless of donor and recipient income levels. This objective could be achieved with a robust expansion of the NLDAC program.

2. Provide donors with short-term life insurance, disability insurance, and health insurance for long-term medical care (protecting donors from short-term post-surgical complications as well as long-term health issues). To achieve this, a comprehensive insurance "packet" could be designed and offered to all kidney donors.

3. Provide a refundable tax credit to offset the inconvenience, pain, and anxiety associated with the surgical procedure (Gaston et al. 2006 suggest either a $5,000 direct payment or a $10,000 tax deduction). This proposed measure would require a congressional amendment to NOTA.

Savings

Removing all disincentives by compensating donors for the full direct and indirect costs of giving a kidney could have a sharp effect on supply. Becker and Elias (2007) argue that compensating donors to make them indifferent between donating or not would cause the supply curve to become highly elastic, thereby generating enough kidneys to completely satisfy the need.[12] In that scenario, Held et al. (2016) suggest that savings for taxpayers would be in the order of $12 billion annually (equivalent to 2% of the annual Medicare budget). Estimates described in McCormick et al. (2019) are more conservative but still substantial. They suggest that reimbursing donors for all expenses (up to $38,000) could increase kidney transplants by 12,500 per year, which would imply savings for Medicare and Medicaid of $1.8 billion annually (savings would range between $1.0 and $2.7 billion per year, depending on the responsiveness of potential donors to the removal of disincentives).

In contrast, compensating donors for only part of their costs would have a more limited effect on supply. For instance, several US states provide paid or unpaid leave to state employees who are organ donors,[13] and some offer state tax deductions or credits to offset donors' costs. However, a few recent empirical studies found that these policies did not have a meaningful effect on organ donations (Boulware et al. 2008; Venkataramani et al. 2012; Lacetera, Macis, and Stith 2014).[14] Bilgel and Galle (2015), however, estimate that tax incentive legislation increased living unrelated kidney donations by 52% in the state of New York. More recently, Schnier et al. (2018) studied how the number of donations changed when the NLDAC began reimbursing travel expenses during the process of donation. Those authors found a 14% increase in donations as a result of an average travel reimbursement of about $2,800. However, it is difficult to extrapolate these results to a different set of policies or target populations. Ultimately, pilot randomized trials should be conducted to estimate the effects of various possible forms of reimbursement

and compensation provided to living organ donors in the US.[15, 16] It will also be important to evaluate the effects of the September 2020 NLDAC expansion measures described above.

Acceptability and Implementation

Removing financial barriers to make organ donation "financially neutral" for the donor (i.e., donors should not be made financially worse off by the donation) is a policy goal that appears to enjoy widespread support in the transplant community (Gaston et al. 2006; Delmonico et al. 2015; Salomon et al. 2015; Tushla et al. 2015; Hays et al. 2016). However, there is disagreement about the ethicality of providing reimbursement for costs associated with subjective factors such as pain and risk (Danovitch et al. 2020).

Fully removing disincentives for all living organ donors is likely consistent with NOTA. Elements (1) and (2) of the policy proposal above could potentially be accomplished with regulatory change. The recent reform introduced with HRSA's September 2020 final rule made several steps in the right direction. The definition of allowable expenses that can be reimbursed to low-income donors now includes lost wages and dependent care expenses, in addition to travel and subsistence expenses. Moreover, the rule clarified that non-directed living organ donors are also eligible beneficiaries of the NLDAC program.[17] However, as illustrated above, there are additional disincentives that are not addressed by the program. Also, the fact that the household income of both donor and recipient must be under 350% of the poverty threshold, and that the program provides reimbursement only if the expenses cannot be reasonably expected to be paid by other programs or by the organ recipient, are features that limit the potential effects on the supply of kidneys. For element (3), instead, a congressional amendment to NOTA would likely be required. The experimental survey of Elias, Lacetera, and Macis (2019) conducted on a representative sample of US residents suggests that tax deductions and refundable tax credits (and even direct payments) provided by a government agency would be perceived as ethically acceptable by the general public if they resulted in more transplants and lives saved.

Footnotes

1. These figures do not include 1,420 waitlist additions and 872 transplants involving patients who needed both a kidney and a pancreas.
2. The figure does not include about 1,700 patients who need both kidney and pancreas. Moreover, McCormick, Held, and Chertow (2019) argue that several tens of thousands of ESRD patients who are currently not on the kidney waiting list would actually benefit from a transplant.
3. Different assumptions for the dollar value of a QALY and adjustments for quality of life of dialysis patients and transplant recipients generate different estimates; however, Held-McCormick et al. (2016) show that societal gains remain large for a range of plausible values for these variables.
4. McCormick et al. (2019) estimate that an additional 43,000 patients per year should be added to the waiting list because they would benefit from receiving a kidney transplant.

5. There are two types of dialysis: hemodialysis and peritoneal dialysis. About 90% of ESRD patients are on hemodialysis. The PPPY cost of peritoneal dialysis is $78,159.

6. Medicare fee-for-service for beneficiaries with ESRD amounts to $35 billion annually, corresponding to about 6% of its entire annual budget. Adding $79 billion in expenditures for chronic kidney disease brings total Medicare expenditures for CKD and ESRD to $114 billion or 20% of its annual budget.

7. The annual shortage is currently about 18,000, and Cook and Krawiec (2014) estimate the maximum number of additional kidneys from deceased donors to be about 5,500.

8. An additional reason to increase living donations is that patient outcomes tend to be better with living donors compared to deceased donors. Specifically, the half-life of a kidney graft is 13 years if the organ is from a living donor and nine years if it is from a deceased donor (Cook and Krawiec 2014).

9. The psychological evaluation is meant to ensure that the donor is capable of making a fully informed, autonomous decision that is free of coercion or undue pressure. The financial evaluation consists of an assessment of the donor's finances and insurance coverage.

10. The risk of death within 90 days of a nephrectomy is about 3.1 deaths per 10,000 operations (Segev et al. 2010).

11. Living kidney donors show no increased risk for other major chronic diseases including type 2 diabetes, or for adverse psychosocial outcomes (O'Keeffe et al. 2018).

12. Becker and Elias (2007) argue that this is because the potential supply of kidneys is very large compared to the annual need.

13. A 1999 law grants paid leave to federal employees who are organ or marrow donors.

14. Lacetera, Macis, and Stith (2014) found a positive effect of paid leave on bone marrow donation—a less invasive and costly procedure than organ donation.

15. In June 2019, HRSA funded a study to assess the impact of lost wages reimbursement on individuals' willingness to become living organ donors, with the goal of informing HRSA "on the most effective and efficient mechanism to provide this support" (Health Resources and Services Administration). See https://www.hrsa.gov/grants/find-funding/hrsa-19-069). There are at least two ongoing randomized clinical trials of wage reimbursements to living kidney donors: "Effect of Lost Wage Reimbursement to Kidney Donors on Living Donation Rates" (https://clinicaltrials.gov/ct2/show/study/NCT03350269) and "Living Kidney Donor Lost Wages Trial" (https://clinicaltrials.gov/ct2/show/NCT03268850).

16. A bill proposed by Representative Matthew Cartwright in July 2018 would go in this direction by clarifying that "certain types of payments are not valuable consideration but are reimbursements for expenses a donor incurs" and authorizing "government-run pilot programs to test the effectiveness of providing non-cash incentives to promote organ donation" (Cartwright 2018). See https://cartwright.house.gov/media-center/press-releases/cartwright-announces-legislation-to-increase-organ-donation.

17. Directed donation occurs when the living donor donates to a specific recipient, typically a relative or friend, whereas a non-directed donation may go to anyone on the waiting list who is a match. Approximately 95% of living kidney donations are directed to a specific recipient.

References

42 CFR Part 121, 2019. "Removing Financial Disincentives to Living Organ Donation." *Federal Register*, 84 (245) 70139-70145, https://www.federalregister.gov/documents/2019/12/20/2019-27532/removing-financial-disincentives-to-living-organ-donation.

42 CFR Part 121, 2020. "Removing Financial Disincentives to Living Organ Donation." *Federal Register*, 85 (184) 59438-59445, https://www.federalregister.gov/documents/2020/09/22/2020-20804/removing-financial-disincentives-to-living-organ-donation.

42 U.S. Code § 274e – Prohibition of Organ Purchases.

Becker, G.S. and J.J. Elias, 2007. "Introducing Incentives in the Market for Live and Cadaveric Organ Donations. *Journal of Economic Perspectives*, 21 (3): 3–24.

Bilgel, F. and B. Galle. (2015). "Financial Incentives for Kidney Donation: A Comparative Case Study Using Synthetic Controls." Journal of Health Economics, 43: 103–117.

Boulware, L. E., M. U. Troll, L. C. Plantinga, N. R. Powe. 2008. "The Association of State and National Legislation with Living Kidney Donation Rates in the United States: A National Study." *American Journal of Transplantation* 8 (7): 1451–1470.

Cartwright, Matt. 2018. "Cartwright Announces Legislation to Increase Organ Donation." Last Modified July 19, 2018. https://cartwright.house.gov/media-center/press-releases/cartwright-announces-legislation-to-increase-organ-donation.

Centers for Disease Control and Prevention. 2019. "Chronic Kidney Disease in the United States, 2019." *US Department of Health and Human Services, Centers for Disease Control and Prevention*.

Centers for Medicare and Medicaid Services. 2020. "CMS Announces Transformative New Model of Care for Medicare Beneficiaries with Chronic Kidney Disease." *Centers for Medicare and Medicaid Services* https://www.cms.gov/newsroom/press-releases/cms-announces-transformative-new-model-care-medicare-beneficiaries-chronic-kidney-disease. Accessed Dec 8, 2020.

Cook, P.J. and K.D. Krawiec. 2014. "A Primer on Kidney Transplantation: Anatomy of the Shortage." *Law & Contemp. Probs.*, 77 (3): 1–23.

Danovitch, G. M. Alexander M. Capron, and Francis L. Delmonico. 2020. "The True Meaning of Financial Neutrality in Organ Donation." *American Journal of Kidney Diseases*.

Delmonico, F.L., D. Martin, B. Domínguez-Gil, E. Muller, V. Jha, A. Levin, G. M. Danovitch. 2015. "Living and deceased organ donation should be financially neutral acts." *American Journal of Transplantation*, 15 (5): 1187–1191.

Elías, J.J., N. Lacetera, and M. Macis. 2019. "Paying for Kidneys? A Randomized Survey and Choice Experiment." *American Economic Review*, 109 (8): 2855–88.

Gaston, R.S., G. M. Danocitch, R. A. Epstein, J. P. Kahn, A. J. Matas, and M. A. Schnitzler. 2006. "Limiting Financial Disincentives in Live Organ Donation: A Rational Solution to the Kidney Shortage." *American Journal of Transplantation*, 6 (11): 2548–2555.

Hays, R., J. R. Rodrigue, D. Cohen, G. Danovitch, A. Matas, J, Schold, and D. LaPointe Rudow. 2016. "Financial Neutrality for Living Organ Donors: Reasoning, Rationale, Definitions, and Implementation Strategies." *American Journal of Transplantation*, 16 (7): 1973–1981.

Health Resources and Services Administration. June 2019. "Lost Wages Support for Living Organ Donors Demonstration Project." https://www.hrsa.gov/grants/find-funding/hrsa-19-069.

Held, P.J., F. McCormick, A. Ojo, and J. P. Roberts. 2016. "A Cost-Benefit Analysis of Government Compensation of Kidney Donors." *American Journal of Transplantation*, 16 (3): 877–885.

Kimmel, P.L., Scott D. Cohen, and Steven D. Weisbord. 2008. "Quality of Life in Patients with End-Stage Renal Disease Treated with Hemodialysis: Survival Is Not Enough!" *Journal of Nephrology*, 21: S54–58.

Lacetera, N., Mario Macis, and Sarah S. Stith. 2014. "Removing Financial Barriers to Organ and Bone Marrow Donation: The Effect of Leave and Tax Legislation in the US." *Journal of Health Economics*, 33: 43–56.

McCormick, Frank, Philip J. Held, and Glenn M. Chertow. 2018. "The Terrible Toll of the Kidney Shortage." *Journal of the American Society of Nephrology*, 29 (12): 2775–2776.

McCormick, Frank, Philip J. Held, Glenn M. Chertow, Thomas G. Peters, and John P. Roberts. 2019. "Removing Disincentives to Kidney Donation: A Quantitative Analysis." *Journal of the American Society of Nephrology*, 30 (8): 1349–1357.

Offer, Daniel, Marjorie Kaiz Offer, and Susan Offer Szafir. 2007. *Dialysis without Fear: A Guide to Living Well on Dialysis for Patients and Their Families*. Oxford University Press.

O'Keeffe, Linda M., Anna Ramond, Clare Oliver-Williams, Peter Willeit, Ellie Paige, Patrick Trotter, Jonathan Evans, et al. 2018. "Mid- and Long-Term Health Risks in Living Kidney Donors: A Systematic Review and Meta-Analysis." https://doi.org/10.7326/M17-1235.

OPTN. 2020. "Organ Procurement and Transport Network Data." *Organ Procurement and Transport Network Data*. Accessed Nov 13, 2020. https://optn.transplant.hrsa.gov/data/.

Przech, S., A.X. Garg, J.B. Arnold, L. Barnieh, M.S. Cuerden, C. Dipchand, L. Feldman, et al. 2018. "Financial Costs Incurred by Living Kidney Donors: A Prospective Cohort Study." *Journal of the American Society of Nephrology*, 29 (12): 2847–2857.

Rodrigue, J.R., J. D. Schold, P. Morrissey, J. Whiting, J. Vella, L. K. Kayler, D. Katz, et al. 2016. "Direct and Indirect Costs Following Living Kidney Donation: Findings from the KDOC Study." *American Journal of Transplantation*, 16: 869–876.

Salomon, D.R., A.N. Langnas, A.I. Reed, R.D. Bloom, J.C. Magee, R.S. Gaston, and AST/ASTS Incentives Workshop Group (IWG) a. 2015. "AST/ASTS Workshop on Increasing Organ Donation in the United States: Creating an 'Arc of Change' from Removing Disincentives to Testing Incentives." *American Journal of Transplantation*, 15 (5): 1173–1179.

Saran, R., Bruce Robinson, Kevin C. Abbott, Lawrence Agodoa, Jennifer Bragg-Gresham, Rajesh Balkrishnan, Nicole Bhave, et al. 2019. "US Renal Data System 2018 Annual Data Report: Epidemiology of Kidney Disease in the United States." *American Journal of Kidney Diseases: The Official Journal of the National Kidney Foundation*, 73 (3): A7.

Schnier, K.E., R. M. Merion, N. Turgeon, and D. Howard. 2018. "Subsidizing Altruism in Living Kidney Donation." *Economic Inquiry*, 56 (1): 398–423.

Segev, Dorry L., Abimereki D. Muzaale, Brian S. Caffo, Shruti H. Mehta, Andrew L. Singer, Sarah E. Taranto, Maureen A. McBride, et al. 2010. "Perioperative Mortality and Long-Term Survival Following Live Kidney Donation." *JAMA*, 303 (10): 959–966.

Tushla, Lara, Dianne LaPointe Rudpw, Jennifer Milton, James R. Rodrigue, Jesse D. Schold, and Rebecca Hays. 2015. "Living-Donor Kidney Transplantation: Reducing Financial Barriers to Live Kidney Donation—Recommendations from a Consensus Conference." *Clinical Journal of the American Society of Nephrology*, 10 (9): 1696–1702.

Venkataramani, A. S., E.G. Martin, A. Vijayan, and J.R. Welle. 2012. "The Impact of Tax Policies on Living Organ Donations in the United States." *American Journal of Transplantation*, 12: 2133–2140.

Wang, Jeffrey H., Melissa A. Skeans, and Ajay K Israni. 2016. "Current Status of Kidney Transplant Outcomes: Dying to Survive." *Advances in Chronic Kidney Disease*, 23 (5): 281–286.

Warren, Patricia H., Kimberly A. Gifford, Barry A. Hong, Robert M. Merion, and Akinlolu O. Ojo. 2014. "Development of the National Living Donor Assistance Center: Reducing Financial Disincentives to Living Organ Donation." *Progress in Transplantation*, 24 (1), 76–81.

Weisbord, S.D., 2016, March. "Patient–Centered Dialysis Care: Depression, pain, and quality of life." *Seminars in Dialysis*, 29 (2): 158–164.

0.63% of Total Health Spending

Less Is More: Structuring Choice for Health Insurance Plans

Authors: Jason Abaluck, Yale University; Jonathan Gruber, Massachusetts Institute of Technology

Issue Summary: Insurance product choice is a central feature of health insurance markets in the United States. Individuals face a choice over plans in commercial health insurance markets, as well as over whether or not to enroll in Medicare Advantage, across Medicare Advantage plans and Medicare Part D plans, and across Medicaid managed care plans. This expansion of choice raises a number of issues. Foremost among them is the question of whether consumers can adequately choose from a variety of complicated health insurance options. A number of studies illustrate that consumers don't appear to choose plans that are best for them financially—in the extreme, even making "dominated choices" that would be worse no matter what their medical spending turns out to be.

This past literature is broadly critical of unfettered choice across insurance options but offers some important lessons for how to structure that choice. Improving individuals' choices over insurance plans can lower their premiums (choosing equally good plans with lower premiums), lower their out-of-pocket costs (choosing plans best suited to their future spending), and increase competition in insurance markets (by making it harder for poor-quality plans to persist).

Policy Proposal: Policy-makers and employers can take a number of steps to improve the environment where individuals select insurance plans. This will help individuals make better product choices. Recommendations include:

1. Restricting the choice sets individuals face (while preserving choices) by eliminating the lowest-performing plans that are bad for most beneficiaries;
2. Pairing decision support tools with agents who help individuals select products; and
3. Introducing defaults when the defaults do not force large switching costs (e.g., they do not require changes in provider networks). Defaults also can be effective when individuals enter insurance markets for the first time.

Total Savings: The savings for individuals from making more appropriate choices over their insurance products could be substantial. In the context of Medicare Part D, researchers find that only about 15% of seniors choose the lowest-cost option in their choice set and that the typical senior could save around one third of their costs by choosing that best option (Abaluck and Gruber 2011, 2016; Heiss et al. 2013). These findings extend to Medicare Advantage, where the average enrollee in a large insurance exchange leaves $1,300 on the table when choosing their plan (Gruber et al. 2020). In the employer-sponsored market, many employees make "dominated choices"; that is, they choose plans where, regardless of what they end up

spending, they could have done better, and they lose substantial amounts of money (24% of chosen plan premiums) by not avoiding dominated plans (Bhargava et al. 2017). Approximately 45 million individuals are enrolled in a Medicare Part D plan, approximately 22 million are enrolled in a Medicare Advantage plan, and 158 million have an employer-sponsored plan (Cubanski et al. 2019; Freed 2020; Kaiser Family Foundation 2019). To give a back-of-the-envelope scale of the possible savings, if each individual saved $100 per year from improved choice, this would result in $4.5 billion in savings for those in Medicare Part D, $2.2 billion for those in Medicare Advantage plans, $15.8 billion for those with employer-sponsored plans, and $22.5 billion in aggregate per year. These savings represent approximately 1% of total Medicare spending and 1.3% of total commercial health insurance spending.

Related Literature and Evidence

Choice Inconsistencies among the Elderly: Evidence from Plan Choice in the Medicare Part D Program (2011). *American Economic Review*, 101 (4): 1180–1210 (Jason Abaluck and Jonathan Gruber).

Improving the Quality of Choices in Health Insurance Markets (2016). *NBER* Working Paper No. 22917 (Jason Abaluck and Jonathan Gruber).

Choice Inconsistencies among the Elderly: Evidence from Plan Choice in the Medicare Part D Program: Reply (2016). *American Economic Review*, 106 (12): 3962–87 (Jason Abaluck and Jonathan Gruber).

What Do Consumers Consider before They Choose? Identification from Asymmetric Demand Responses (2017). *NBER* Working Paper No. 23566 (Jason Abaluck and Abi Adams).

Less Is More: Improving Choices by Limiting Choices in Health Insurance Markets (2019). Working paper (Jason Abaluck and Jonathan Gruber).

Choose to Lose: Health Plan Choices from a Menu with Dominated Option (2017). The *Quarterly Journal of Economics* 132 (3): 1319–72 (Saurabh Bhargava, George Loewenstein, and Justin Sydnor).

Background

Insurance product choice is a central feature of health insurance markets in the United States. Approximately 50% of US residents get their coverage from an employer, and 58% of those offered employer-sponsored insurance have a choice of insurance plans (Kaiser Family Foundation 2019). Those who buy private insurance under the state and federal exchanges established by the Affordable Care Act (ACA) had an average of 20 plans per county being offered on the exchanges in 2016 (Abaluck and Gruber 2019). The Medicare program provides insurance coverage to approximately 60 million elderly and disabled Americans (Kaiser Family Foundation 2020). Within the Medicare program, enrollees have a choice between the traditional Medicare program and an average of 21 "Medicare Advantage" plans that provide a private alternative (Jacobson et al. 2015). In the Medicare prescription drug program, which was added in 2006, enrollees have a choice of more than 40 private prescription drug insurance plans (Kaiser Family Foundation 2020).

The lowest-income Americans who are insured through Medicaid typically can choose from a variety of managed care plans for their coverage, with 290 total managed care organizations operating in 38 states and Washington, DC, and an average choice set of eight plans per state (Kaiser Family Foundation 2018, Abaluck and Gruber 2019).

This expansion of choice raises a number of issues, as reviewed in Gruber (2017). Foremost among them is the question of whether consumers can adequately choose from a variety of complicated health insurance options. A number of studies illustrate that consumers don't appear to choose plans that are best for them financially—in the extreme, even making "dominated choices" that would be worse no matter what their medical spending turns out to be (Bhargava et al. 2017). This past literature is broadly critical of unfettered choice across insurance options but offers some important lessons for how to structure that choice. In this note, we discuss those important lessons.

Lesson #1: Individuals Struggle When Choosing Insurance Plans

A wide variety of studies have examined choice in government plans such as Part D and Medicare Advantage, in the ACA exchanges, and in employer insurance. The broadly shared conclusion is that choices are poor and that individuals leave a lot of money on the table through these poor choices.

The studies that examine this question typically proceed by comparing the total enrollee spending, including both premiums and out-of-pocket medical costs, in the chosen plan versus what they would spend if enrolled in other plans in their "choice set" (the set of plans available). To measure these counterfactual costs in other plans, researchers use the observed spending in the previous year and ask: Given past spending, what would be the expected costs for enrollees in each plan they could choose?[1] They then compute the "foregone savings" from the individual's choice relative to the lowest-cost option in the choice set.

The findings of these studies are striking and consistent. In the context of Medicare Part D, researchers find that only about 15% of seniors choose the lowest-cost option in their choice set and that the typical senior could save around one third of their costs by choosing that best option (Abaluck and Gruber 2011, 2016; Heiss et al. 2013). These findings extend to Medicare Advantage, where the average enrollee in a large insurance exchange leaves $1,300 on the table when choosing their plan (Gruber et al. 2020).

Perhaps most striking is evidence from employer-sponsored insurance. Numerous studies document large foregone savings in this setting. But most damning is the evidence that many employees make "dominated choices"; that is, they choose plans where, *regardless of what they end up spending, they could have done better*, and they lose substantial amounts of money (24% of chosen plan premiums) by not avoiding dominated plans (Bhargava et al. 2017).

What is driving these poor choices? Three key phenomena have been identified:

1. Enrollees are highly inertial and don't change plans nearly enough when either their medical spending changes or better new options are added to the choice set.

2. Enrollees pay too much attention to differences across plans in the regular monthly premium that they pay and not enough attention to the differences in the out-of-pocket medical costs they will face with each choice.

3. To the extent that enrollees pay attention to medical spending, they focus on general plan characteristics (does the plan have a high hospital deductible?) and not to the plan characteristics that impact their own expected spending (because the person is unlikely to use the hospital).

These struggles with choosing the best-matched insurance plan highlight the savings available from improving individuals' choices.

Lesson #2: Structuring Choices Can Improve Decision-Making

The first public exchange was the Massachusetts Connector. At its inception in 2006, the Connector specified three tiers (gold, silver, bronze) with defined levels of insurance generosity (or "actuarial value") (Ericson et al. 2017). Within each tier, insurance companies were completely free to set their cost-sharing structure, and this varied widely, resulting in 25 different plan structures across six different companies (with additional differences across companies in network restrictions). Due to public dissatisfaction with the confusing array of choices, in 2010 the Connector decided to structure the set of choices much more tightly, allowing only seven different options for plan structure (although networks still differed widely).

Research on this change shows that it substantially impacted choices. Prior to the reform, consumers overwhelmingly chose low-premium plans. After the reform, they were more likely to choose plans with more generous coverage (Ericson and Starc 2016).

Recommendation: Limiting the structure of plans that can be offered can lead individuals to be less likely to make suboptimal choices.

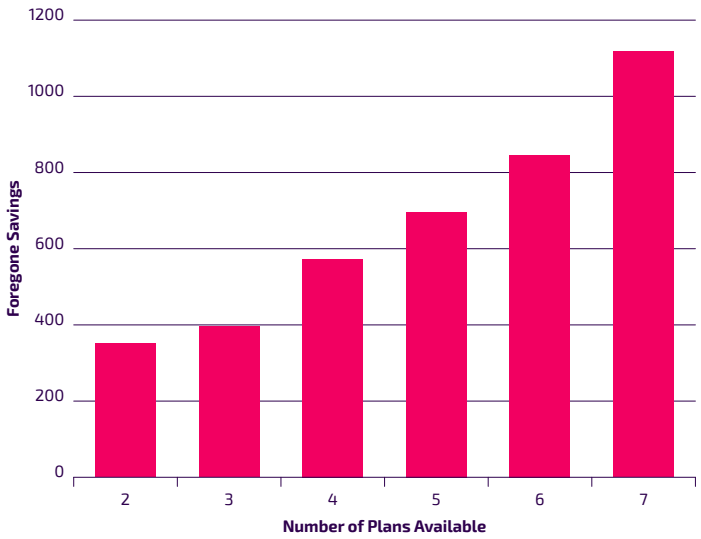
Lesson #3: Fewer Options Are Better (If Competition Is Maintained)

One way to prevent bad choices is to limit the number of choices available to enrollees, specifically by removing bad options. A large body of literature has shown that individuals are more reluctant to participate in markets where there are a large number of choices, perhaps because they feel overwhelmed. Recent work on the employer insurance options available to school district employees in Oregon shows that individuals also make worse choices when the choice set is larger (Abaluck and Gruber 2019). Employees faced a range of insurance options that all included the same physician network but differed in the generosity of the financial coverage across plans, ranging from a plan with fairly complete coverage to a high-deductible option.

Overall, there were large foregone savings that averaged more than $500 per employee. More striking, however, is the variation in that foregone savings by choice set size, shown in Figure 1.[2] Foregone savings rise from $352 in plans with two choices to $1,118 in plans with seven choices (Abaluck and Gruber 2019).

And this does not just reflect the best option getting better; the plans in which beneficiaries actually enrolled cost more in larger choice sets. Enrollees end up enrolled in less suitable plans when there are more options.

Figure 1: Forgone Savings by Choice Set Size



Why are fewer choices better? A typical explanation is "choice overload": individuals facing too many choices do a bad job choosing. But, in fact, that isn't the explanation—individuals seem to do an equally bad job choosing regardless of the number of insurance options that are available (Abaluck and Gruber 2019). Rather, the problem seems to be with the set of available plans. When administrators allow choice from more plans, they include plans which are unsuitable for many beneficiaries. This leads to worse choices.

Given this, one might ask why the optimal outcome isn't always to just offer one option. But this discussion has ignored the supply side of the equation—with only one option, there will be no competition, and as a result, premiums might be too high. In principle, this problem could be resolved by having competition be the single option offered to enrollees—that is, plans could bid to be the single option. But this has the consequence that, once an insurer is entrenched as an option, individuals will be reticent to start over year after year, so there won't be fair competition between the inside insurer and potential outside options.

Recommendation: Restricting the number of plans on offer in a market can make selecting a plan easier. Policy-makers should consider a first-stage bidding process to be able to offer plans on an exchange.

Lesson #4: In Choosing Plans, Focus on What Is Best on Average

Even with a more limited set of plan choices, administrators still need to decide which plans to offer. Administrators face tension between meeting the diverse demands of their constituents and trying to reduce the foregone savings that arise with a wide variety of choices. Research findings suggest a simple resolution to this problem: choose the plans that are best on average, and don't add additional plans just because they meet the needs of a small subset of enrollees.

Consider an administrator that is offering a few common options and is deciding whether to offer a new option that is particularly valuable for some enrollees. In a perfect world, by adding that plan, the administrator meets the needs of those employees without making anyone else worse off. However, when that plan is added, many of those who might actually benefit won't choose it—and others for whom it might be worse may choose it.

Recommendation: Administrators should focus on adding insurance plan choices that are better, on average, than existing options rather than just adding plans that appeal to small segments of the market.

Lesson #5: Agents Help a Little, and Decision Support Helps a Little, but Putting Them Together Helps a Lot

There are two approaches to improving choices given the available choice set. One is to provide skilled agents who can help enrollees choose, and the other is to provide decision support tools that enrollees can use when enrolling. Studies of these tools suggest that each may induce a small improvement separately, but can pay big dividends when combined (Ericson et al. 2017).

Several studies have investigated how decision support tools impact enrollee choices. The main finding is that such tools are not widely used by enrollees, even when available and use is encouraged (Abaluck and Gruber 2016).

Medicare Advantage enrollees through exchanges often have agents available to assist with choices. One study found that enrollees using agents don't appear to choose much better than those who aren't using agents in other contexts (Gruber et al. 2020). However, that same study then provided those agents with a decision support tool and mandated that they use it to assist enrollees. Choices improved substantially, with a one-third reduction in foregone savings for enrollees (Gruber et al. 2020).

Recommendation: Collectively, the evidence suggests that an effective approach for improving choices would be to offer access to skilled agents who are equipped with decision support software.

Lesson #6: Defaults Can Improve Choice, but Use with Caution

As noted above, many beneficiaries are inertial. Evidence suggests that much of this inertia arises due to inattention—consumers do not actively make a choice and are defaulted into whatever option they previously had (Abaluck and Adams 2017). This suggests that changing defaults could be a powerful tool to direct consumers into more appropriate plans (Handel and Kolstad 2015).

Research suggests that better defaults can lead to better choices; however, defaults must be used with care. In many environments, consumers have real costs of switching plans; the cost savings from an alternative plan may not be worth it if consumers must also switch care providers.

Defaults can most effectively be used in settings where these switching costs are likely to be small and where the benefits of better defaults are large. For example, for general medical insurance plans, one might only consider defaulting beneficiaries into plans where all of their existing providers remain in network.

For prescription drug insurance plans, there is no concern that consumers will have to switch providers, but there may be costs of learning to navigate a new plan (e.g., coordinating mail-order drug delivery). Research suggests that these costs can be substantial, but defaults can still lead to better choices, especially if they are focused on the beneficiaries with the largest benefits. For example, rather than defaulting all beneficiaries, one might default only beneficiaries who stand to save at least $500 by choosing an alternative plan since the costs of navigating a new plan are unlikely to be that large.

Recommendation: Policy-makers should consider defaulting individuals into good options when they enter a new market. Likewise, defaulting individuals into good plans can be effective when the switch to a new plan does not have high costs (e.g., a change in a provider network or a change in the way prescriptions are filled).

Footnotes

1. Note that research also uses other approaches. All yield similar results.
2. There are several different ways to model foregone savings depending on the model of enrollee expectations. We show one set of results here that are very representative of the findings for all models.

References

Abaluck, Jason and Jonathan Gruber. 2011. "Choice Inconsistencies among the Elderly: Evidence from Plan Choice in the Medicare Part D Program." *American Economic Review*, 101 (4): 1180–1210.

Abaluck, Jason and Jonathan Gruber. 2016. "Improving the Quality of Choices in Health Insurance Markets." *NBER* Working Paper No. 22917.

Abaluck, Jason and Jonathan Gruber. 2016. "Choice Inconsistencies among the Elderly: Evidence from Plan Choice in the Medicare Part D Program: Reply." *American Economic Review*, 106 (12): 3962–87.

Abaluck, Jason and Abi Adams. 2017. "What Do Consumers Consider Before They Choose? Identification from Asymmetric Demand Responses." *NBER* Working Paper No. 23566.

Abaluck, Jason and Jonathan Gruber. 2019. "Less Is More: Improving Choices by Limiting Choices in Health Insurance Markets." Working paper.

Bhargava, Saurabh, George Loewenstein, and Justin Sydnor. 2017. "Choose to Lose: Health Plan Choices from a Menu with Dominated Option." *The Quarterly Journal of Economics* 132 (3): 1319–72.

Cubanski, Juliette, Anthony Damico, and Tricia Neuman. 2019. "10 Things to Know about Medicare Part D Coverage and Costs in 2019." *Kaiser Family Foundation*. Accessed Nov 20, 2020. https://www.kff.org/medicare/issue-brief/10-things-to-know-about-medicare-part-d-coverage-and-costs-in-2019/.

Ericson, Keith M. Marzilli, Jon Kingsdale, Tim Layton, and Adam Sacarny. 2017. "Nudging Leads Consumers in Colorado to Shop but Not Switch ACA Marketplace Plans." *Health Affairs* 36 (2): 311–19.

Ericson, Keith M. Marzilli and Amanda Starc. 2016. "How Product Standardization Affects Choice: Evidence from the Massachusetts Health Insurance Exchange." *Journal of Health Economics* 50 (December): 71–85.

Freed, Meredith, Anthony Damico, and Tricia Neuman. 2020. "A Dozen Facts about Medicare Advantage in 2020." *Kaiser Family Foundation*. Accessed Nov 20, 2020. https://www.kff.org/medicare/issue-brief/a-dozen-facts-about-medicare-advantage-in-2020/.

Gruber, Jonathan. 2017. "Delivering Public Health Insurance through Private Plan Choice in the United States." *Journal of Economic Perspectives*, 31 (4): 3–22.

Gruber, Jonathan, Ben Handel, Sam Kina, and Jonathan Kolstad. 2020. "Managing Intelligence: Skilled Experts and AI in Markets for Complex Products." *NBER* Working Paper No. 27038.

Handel, B. and J. Kolstad. 2015. "Getting the Most from Marketplaces: Smart Policies on Health Insurance Choices." *Brookings Institution*. Washington, DC.

Heiss, Florian, Adam Leive, Daniel McFadden, and Joachim Winter. 2013. "Plan Selection in Medicare Part D: Evidence from Administrative Data." *Journal of Health Economics*, 32 (6): 1325–1344.

Jacobson, Gretchen, Anthony Damico, and Tricia Neuman. 2015. "What's In and What's Out? Medicare Advantage Market Entries and Exits for 2016 Appendix." *Kaiser Family Foundation*. Accessed Nov 19, 2020. https://www.kff.org/report-section/whats-in-and-whats-out-medicare-advantage-market-entries-and-exits-for-2016-appendix/.

Kaiser Family Foundation. 2017. "2017 Employer Health Benefits Survey Section 4: Types of Plan Offered." *Kaiser Family Foundation*. Accessed Nov 19, 2020. https://www.kff.org/report-section/ehbs-2017-section-4-types-of-plans-offered/.

Kaiser Family Foundation. 2018. "Total Medicaid MCOs." *Kaiser Family Foundation*. Accessed Nov 19, 2020. https://www.kff.org/medicaid/state-indicator/total-medicaid-mcos/view/print/?currentTimeframe=0&print=true&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D.

Kaiser Family Foundation. 2019. "Health Insurance Coverage of the Total Population." *Kaiser Family Foundation*. Accessed Nov 19, 2020. https://www.kff.org/other/state-indicator/total-population/?dataView=1&currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D.

Kaiser Family Foundation. 2020. "Overview of the Medicare Part D Prescription Drug Benefit." *Kaiser Family Foundation*. Accessed Nov 19, 2020.https://www.kff.org/medicare/fact-sheet/an-overview-of-the-medicare-part-d-prescription-drug-benefit/.

Kling, Jeffrey R., Sendhil Mullainathan, Eldar Shafir, Lee C. Vermeulen, and Marian V. Wrobel. 2012. "Comparison Friction: Experimental Evidence from Medicare Drug Plans." *The Quarterly Journal of Economics* 127 (1): 199–235.

Designing Smart Commercial Insurer Networks

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Issue Summary: There is extensive variation in provider prices within narrow geographic areas for health care services, like planned lower-limb MRI scans, where quality does not vary meaningfully. The Centers for Medicare and Medicaid Services (CMS) has designated 70 health care services as "shoppable." These are services that can be scheduled in advance, that are routinely provided in non-urgent settings, and where quality is relatively undifferentiated. Services include imaging studies, routine joint replacements, therapy services, and maternity services. The California Public Employees Retirement System (CalPERS) has experimented with establishing a "reference price" for a subset of shoppable services, like joint replacements, and only offering reimbursements at or below that reference price. If CalPERS beneficiaries choose to attend care locations with services priced over the reference price, the beneficiary is responsible for the difference between the reference price and the provider's price. This difference does not count toward an individual's deductible or out-of-pocket maximum. Evidence from CalPERS suggests that reference pricing can effectively steer policyholders toward lower-priced options and nudge providers with prices above the reference price to lower their prices. Collectively, this has resulted in reductions in health spending. This brief describes a proposal that would extend this type of reference pricing program to all of the CMS shoppable services, and then quantifies the scale of the savings from this proposal.

Policy Proposal: Commercial insurers could introduce "smart networks," which offer broad networks for differentiated services (e.g., cancer care) but have reference prices for the CMS list of 70 shoppable services. CMS has introduced regulations requiring providers to post their negotiated reimbursements for the 70 shoppable services. Under a smart network plan, insurers would only offer reimbursements on the 70 CMS services that were equal to the median commercial reimbursement in each hospital referral region. Patients who chose to attend a provider with prices above the median rate in their hospital referral region would be responsible for all costs above the median reimbursement amount. Any patient spending above the median would not count toward their deductible or out-of-pocket maximum. A patient's internist could request an exemption from the reference pricing plan if there were appropriate clinical justifications.

Total Savings: Based on our analysis of data from the Health Care Cost Institute (HCCI), the 70 CMS shoppable services account for approximately 10% of commercial health spending (exclusive of prescription drug spending). If all the care for those 70 services that were currently being delivered at locations with above median reimbursements were reimbursed at the median rate, it would lower health spending in the HCCI commercially insured population by approximately 2.8% (exclusive of prescription drug spending). Generalized across the universe of the commercially insured, this type of policy would generate savings of approximately $30 billion. This proposal does not account for wider reductions in provider prices that could occur from this type of program—nor for potential offsets in prices of non-shoppable services by providers.

Related Literature and Evidence

CMS-specified shoppable services accounted for 12% of 2017 health care spending among individuals with employer-sponsored insurance (2020). *Health Care Cost Institute*. (Aaron Bloschichak, Anna Milewski, Katie Martin). Accessed Nov 18, 2020. https://healthcostinstitute.org/hcci-research/cms-specified-shoppable-services-made-up-12-of-2017-health-care-spending-among-people-with-employer-sponsored-insurance-1

What if Price Transparency Reduced Commercial Price Variation? (2020). *Health Care Cost Institute*. (Kennedy, Kevin, William Johnson, John Hargraves). Accessed Nov 18, 2020. https://healthcostinstitute.org/hcci-research/what-if-price-transparency-reduced-commercial-price-variation

Increases in Consumer Cost Sharing Redirect Patient Volumes and Reduce Hospital Prices for Orthopedic Surgery. (2013). *Health Affairs* 32 (8): 1392-1397 (Robinson, James C. and Timothy T. Brown).

Introduction and Background

Commercial health insurance companies in the US construct networks of providers for their policyholders. In general, insurance plans that limit the breadth of their networks are able to negotiate lower prices with providers than plans with broad networks. These lower reimbursements are generally passed along to policyholders in the form of lower premiums and lower out-of-pocket costs (Gruber and McKnight 2016). Research suggests that such narrow provider networks can deliver care of equal quality at significantly lower costs—but that insurers may use them to deter enrollment of particularly sick enrollees (Shepard 2016).

As a result, potential enrollees may prefer broad networks because of the option-value of accessing high-quality specialists if they are severely ill and out of concern for receiving a surprise medical bill in an emergency. However, providers with a strong reputation tend to be able to negotiate higher prices (Cooper et al. 2019b). These prices get passed along to consumers in the form of higher insurance premiums.

Rather than relying on either narrow or broad networks, insurance plans could integrate reference pricing for health care services where quality does not vary and patients can plan care in advance. This would allow providers to offer network breadth for services that are emergent or where quality varies and maintain choice but drive lower spending for services where care is relatively routine. This type of blended network—what is referred to here as a "smart network"—would seek to achieve savings by steering patients toward lower-priced providers for the range of potentially "shoppable" services outlined by the CMS.

There is substantial variation in the price of routine health care services across providers in narrow geographic areas. For planned lower-limb MRI scans, for example, where service quality does not vary substantially, provider prices for patients with commercial insurance can vary by a factor of five or more within cities (Cooper et al. 2019a; Cooper et al. 2019b). There is a growing body of work which suggests that if insurers cap their reimbursements at a market average, equip patients with pricing information, and require patients to cover any reimbursements over the insurer's contribution—generally referred to as

"reference pricing"—patients are less likely to attend high-priced providers, providers respond by lowering their prices, and health spending goes down as a result (Robinson et al. 2013).

The most prominent example of this sort of reference pricing program has been introduced by CalPERS. Research on the CalPERS reference pricing program for orthopedic surgery has found that, after a reference pricing program was introduced, surgical volume increased by 21% at low-priced facilities and decreased by 34.3% at high-priced facilities, and the average prices of providers dropped by between 4.6% and 18% in response to the program (Robinson et al. 2013). A similar program for screening colonoscopies increased the rate at which patients sought care from an ambulatory surgical center (rather than accessing that care in the more-expensive hospital setting) by 14.6% (Aouad 2019).

Recently, CMS designated 70 health care services as potentially shoppable and required health care providers to post their negotiated prices for these procedures (see Appendix 1 for a complete list of these services). These services include certain physician office visits, certain lab and pathology services, outpatient radiology services, and a basket of planned medical and surgical services. This proposal analyzes the potential savings if insurers introduced a reference pricing plan for the 70 health care services designated as shoppable by CMS.

Smart Networks Policy Proposal

Under a smart networks plan, insurers would preserve choice and a broad network for high-acuity and unplanned medical services, but introduce a reference pricing plan for the 70 services deemed shoppable by CMS. For those 70 services, insurers would reimburse up to the median negotiated amount per service per hospital referral region. Patients could attend providers with prices over the designated reference price, but if they did, they would be responsible for all payments above the reference price. Those payments would not count toward a patient's deductible or out-of-pocket maximum. Patients could receive an exemption from the reference pricing program via a written request from their internist, which would be reviewed by the payer.

Calculating Potential Savings

For each shoppable service, we used data from the HCCI to identify the savings if all such services currently delivered at an above-median priced provider were reimbursed at the median allowed amount for that hospital referral region. As Table 1 illustrates, the universe of CMS shoppable services accounts for approximately 10% of health care spending on the commercially insured in the HCCI database. Under a smart networks plan, spending on those services would decrease by 28%, which would lower total non-drug health spending by 2.8%. If these savings were applied across all commercial health plans, a back-of-the-envelope estimate is that such a proposal would reduce health spending by approximately $30 billion annually.

There are a few caveats to this estimate. First of all, it does not account for any higher out-of-pocket costs to patients who choose to go to providers that charge above the median price. The total savings to the health care system should include these patient costs. On the other hand, as the CalPERS example suggests, such a plan would cause prices to fall at the most expensive facilities—which would lower not just covered but out-of-pocket costs and may spill over beyond the commercially insured to other populations. Finally, if providers see a sizeable reduction in revenues from this policy, they may compensate to some extent by raising prices on non-shoppable services. Such an approach would be most constructive within a broader framework that more systematically addresses high prices in the health care sector.

Table 1: Savings if All Cases above the Median Price in Each HRR Were Paid at the Median

	Share of Total Health Spending	Savings from Capping Prices at the Median	Savings, as a Share of Total Health Spending, from Capping Prices at the Median
Evaluation and Management	1.28%	25.68%	0.321%
Radiology Services	1.88%	39.28%	0.739%
Medicine and Surgery Services	6.82%	25.51%	1.74%
Total			2.8%

Note: For each procedure/visit that the CMS designated as shoppable (exclusive of lab testing), we calculated the amount spent per procedure/visit as a percentage of total health spending in the HCCI data exclusive of pharmaceutical spending. We then estimated the savings on each procedure/visit if the payments for these services were capped at the median price paid per HRR. We then calculated the total reduction in health spending from imposing these caps. In Appendix 1, we note the savings per individual procedure.

Appendix 1: Savings per CMS Shoppable Procedure/Visit

	Share of Total Health Spending	Savings from Capping Prices at the Median	Savings, as a Share of Total Health Spending, from Capping Prices at the Median
Evaluation and Management Services			
Psychotherapy (30 minutes)	0.01%	40.02%	0.002%
Psychotherapy (45 minutes)	0.01%	40.05%	0.002%
Psychotherapy (60 minutes)	0.10%	14.92%	0.015%

	Share of Total Health Spending	Savings from Capping Prices at the Median	Savings, as a Share of Total Health Spending, from Capping Prices at the Median
Family Psychotherapy w/o patient	0.00%	25.11%	0.001%
Family Psychotherapy with patient	0.02%	18.53%	0.004%
Group Psychotherapy	0.01%	57.04%	0.008%
New Patient Office Visit or other outpatient visit (30 minutes)	0.36%	27.09%	0.098%
New Patient Office Visit or other outpatient visit (45 minutes)	0.26%	25.31%	0.065%
New Patient Office Visit or other outpatient visit (60 minutes)	0.07%	31.6%	0.022%
Initial New Patient Preventative Evaluation age 18–39	0.11%	22.89%	0.025%
Initial New Patient Preventative Evaluation age 40–64	0.08%	20.58%	0.016%
Radiology Services			
CT Scan, Head or Brain w/o contrast	0.35%	43.83%	0.154%
MRI Scan of brain before and after contrast	0.21%	36.12%	0.077%
X-ray, lower back, minimum four views	0.03%	51.93%	0.014%
MRI Scan of lower spinal canal	0.14%	35.02%	0.047%
CT Scan, Pelvis, with contrast	0.00%	43.00%	0.002%
MRI Scan of leg joint	0.15%	31.73%	0.048%
CT scan of abdomen and pelvis with contrast	0.50%	44.58%	0.224%
Ultrasound of abdomen	0.06%	45.95%	0.028%

	Share of Total Health Spending	Savings from Capping Prices at the Median	Savings, as a Share of Total Health Spending, from Capping Prices at the Median
Abdominal ultrasound of pregnant uterus, greater or equal to 14 weeks, 0 days, single or first fetus	0.04%	33.16%	0.014%
Ultrasound pelvis through vagina	0.15%	46.06%	0.071%
Mammography of one breast	0.04%	35.84%	0.014%
Mammography of both breasts	0.04%	24.98%	0.010%
Mammography, screening, bilateral	0.16%	22.27%	0.036%
Medicine and Surgery Services			
Spinal fusion except cervical without major comorbid conditions or complications	0.44%	24.79%	0.110%
Major joint replacement or reattachment of lower extremity without major comorbid conditions or complications	1.14%	19.45%	0.222%
Cervical spinal fusion without major comorbid conditions or complications	0.11%	22.23%	0.025%
Uterine or adnexa procedures for non-malignancy without major comorbid conditions or complications	0.15%	23.02%	0.034%
Removal of one or more breast growths, open procedure	0.03%	22.69%	0.007%
Shaving of shoulder bone using an endoscope	0.24%	21.80%	0.053%
Removal of one knee cartilage using an endoscope	0.21%	29.23%	0.063%
Removal of tonsils and adenoid glands, patient younger than age 12	0.07%	20.88%	0.015%

	Share of Total Health Spending	Savings from Capping Prices at the Median	Savings, as a Share of Total Health Spending, from Capping Prices at the Median
Diagnostic examination of esophagus, stomach, and/or upper small bowel using an endoscope	0.07%	32.64%	0.023%
Biopsy of the esophagus, stomach, and/or upper small bowel using an endoscope	0.67%	27.69%	0.185%
Diagnostic examination of large bowel using an endoscope	0.37%	24.03%	0.090%
Biopsy of large bowel using an endoscope	0.64%	25.34%	0.162%
Removal of polyps or growths of large bowel using an endoscope	0.39%	23.51%	0.093%
Ultrasound examination of lower large bowel using an endoscope	0.00%	13.65%	0.000%
Removal of gallbladder using an endoscope	0.24%	22.79%	0.054%
Repair of groin hernia, patient age 5 or older	0.06%	20.30%	0.012%
Biopsy of prostate gland	0.03%	33.21%	0.011%
Surgical removal of prostate and surrounding lymph nodes using an endoscope	0.02%	23.66%	0.004%
Routine obstetric care for vaginal delivery, including pre- and post-delivery care	0.31%	13.07%	0.041%
Routine obstetric care for cesarean delivery, including pre- and post-delivery care	0.20%	12.03%	0.024%
Routine obstetric care for vaginal delivery after prior cesarean delivery, including pre- and post-delivery care	0.01%	12.36%	0.001%

	Share of Total Health Spending	Savings from Capping Prices at the Median	Savings, as a Share of Total Health Spending, from Capping Prices at the Median
Removal of recurring cataract in lens capsule using laser	0.01%	25.69%	0.002%
Removal of cataract with insertion of lens	0.15%	24.80%	0.037%
Electrocardiogram, routine, with interpretation and report	0.37%	33.68%	0.124%
Insertion of catheter into left heart for diagnosis	0.00%	28.99%	0.001%
Sleep Study	0.07%	31.79%	0.021%
Physical Therapy, therapeutic exercise	0.80%	40.58%	0.325%

Note: For each procedure/visit that the CMS designated as shoppable (exclusive of lab testing), we calculated the amount spent per procedure/visit as a percentage of total health spending in the HCCI data exclusive of pharmaceutical spending. We then estimated the savings on each procedure/visit if the payments for these services were capped at the median price paid per HRR. We then calculated the total reduction in health spending from imposing these caps.

References

Aouad, Marion, Timothy T. Brown, Christopher Whaley. 2019. "Reference Pricing: The Case of Screening Colonoscopies." *Journal of Health Economics* 65: 246-259. https://doi.org/10.1016/j.jhealeco.2019.03.002.

Bloschichak, Aaron, Anna Milewski, Katie Martin, 2020. "CMS-specified shoppable services accounted for 12% of 2017 health care spending among individuals with employer-sponsored insurance." *Health Care Cost Institute*. Accessed Nov 18, 2020. https://healthcostinstitute.org/hcci-research/cms-specified-shoppable-services-made-up-12-of-2017-health-care-spending-among-people-with-employer-sponsored-insurance-1.

Cooper, Zack, Michael Chernew, Eugene Larson-Hallock, Fiona Scott Morton. 2019a. "Are Health Care Services Shoppable? Evidence from the Consumption of Lower-Limb MRI Scans." *NBER Working Paper No. 24869*.

Cooper, Zack, Stuart V Craig, Martin Gaynor, John Van Reenen. 2019b. "The Price Ain't Right? Hospital Prices and Health Spending on the Privately Insured." *The Quarterly Journal of Economics* 134 (1): 51–107. https://doi.org/10.1093/qje/qjy020.

Gruber, Jonathan and Robin McKnight. 2016. "Controlling Health Care Costs through Limited Network Insurance Plans: Evidence from Massachusetts State Employees." *American Economic Journal: Economic Policy* 8 (2): 219-50.

Kennedy, Kevin, William Johnson, John Hargraves. 2020. "What if Price Transparency Reduced Commercial Price Variation?" *Health Care Cost Institute*. Accessed Nov 18, 2020. https://healthcostinstitute.org/hcci-research/what-if-price-transparency-reduced-commercial-price-variation.

"Medicare and Medicaid Programs: CY 2020 Hospital Outpatient PPS Policy Changes and Payment Rates and Ambulatory Surgical Center Payment System Policy Changes and Payment Rates. Price Transparency Requirements for Hospitals to Make Standard Charges Public." 2019. *Federal Register*, 84 (229): 65524- 65606.

Robinson, James C. and Timothy T. Brown. 2013. "Increases in Consumer Cost Sharing Redirect Patient Volumes and Reduce Hospital Prices for Orthopedic Surgery." *Health Affairs* 32 (8): 1392-1397. https://doi.org/10.1377/hlthaff.2013.0188.

Shepard, Mark. 2016. "Hospital Network Competition and Adverse Selection: Evidence from the Massachusetts Health Insurance Exchange." *NBER Working Paper No. 22660*.

3.6% of Commercial Health Care Spending (1.25% of Total Health Spending)

Real-Time Adjudication for Health Insurance Claims

Authors: Peter Orszag, Lazard; Rahul Rekhi, Lazard

Issue Summary: Claims administration and adjudication constitute roughly 3% to 6% of revenues for providers and payers, represent an outsized share of administrative spending in the US, and are the largest category of payer administrative expenses outside of general administration. These costs are driven mostly by the complexity of prevailing adjudication processes, which vary across payers (e.g., through lack of claims standardization), continue to rely on manual input and review, and involve significant time delays for patients. Standardized, real-time submission and adjudication of claims from clinical records—along with streamlining associated processes—offer the potential to reduce these costs substantially, as well as to promote price transparency around payments for medical care. Despite these advantages, however, uptake of real-time adjudication (RTA) remains low, with coordination failures between providers, health plans, and health IT services vendors presenting major barriers absent policy intervention.

Policy Proposal: We propose overcoming this coordination failure through a series of interventions for payers, providers, and relevant vendors, including: (1) standardization of claims forms and adjudication processes across all providers and payers; (2) new standards for reducing coding complexity; and (3) incentives for adoption of RTA by providers and payers. Relevant mandates could draw on authority from a range of federal programs and statutes, including Medicare, Medicare Advantage, Medicaid, the Affordable Care Act (ACA) exchanges, federal employee health benefits, and other public insurance participation requirements (e.g., Conditions of Participation); Office of the National Coordinator Electronic Health Records certification (currently voluntary); tax exemptions for nonprofit providers and health plans; sections 1104 and 10109 of the ACA; and alternative payment model bonus payments under MACRA (The Medicare Access and CHIP Reauthorization Act), among others.

Total Savings: We estimate potential savings of $15 per claim on average or a total of $45 billion annually—a figure broadly consistent with earlier calculations of $30 to $40 billion from prior analysts. This constitutes approximately 3.6% of commercial health spending. For illustrative purposes, assuming savings for only outpatient and professional services claims (i.e., excluding inpatient claims) implies an estimated "run-rate" savings of $20 to $30 billion per year.

Related Literature and Evidence

2019 CAQH INDEX® A Report of Healthcare Industry Adoption of Electronic Business Transactions and Cost Savings (2020). (Council for Affordable Quality Healthcare.)

Real Time Adjudication of Healthcare Claims (2008). (HIMSS Financial Systems—Financial Transactions Toolkit Task Force.)

Peering into the Black Box: Billing and Insurance Activities in a Medical Group (2009). *Health Affairs* 28 (Supplement 1): w544–w554 (Sakowski, Julie Ann, James G. Kahn, Richard G. Kronick, Jeffrey M. Newman, and Harold S. Luft).

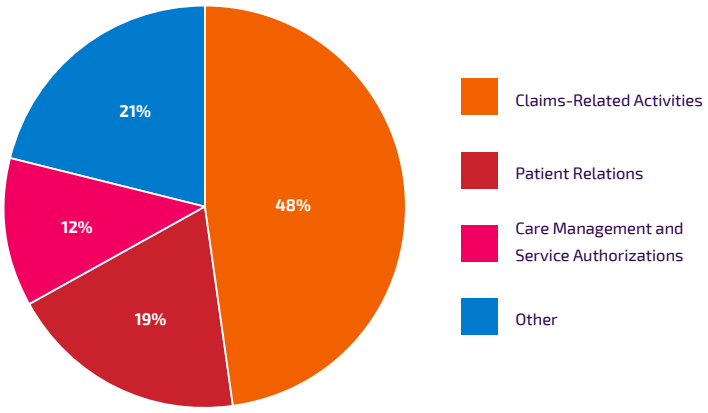
Billing and Insurance-Related Administrative Costs in United States' Health Care: Synthesis of Micro-Costing Evidence (2014). *BMC Health Services Research* 14 (556): 1–9 (Jiwani, Aliya, David Himmelstein, Steffie Woolhandler, and James G. Kahn).

Real Time Adjudication Business Process Model (2010). (WEDI/X12.)

Introduction and Background

Administrative costs associated with health care delivery and insurance present a key target for addressing excessive US health spending (Papanicolas, Woskie, and Jha 2018; Himmelstein, Campbell, and Woolhandler 2020), and the largest source of these costs is the creation and processing of health insurance claims (Sherlock Company 2009, Sakowski et al. 2009). Claims are generated by health care providers to document medical services rendered to patients, and they are sent to insurers for billing following clinical encounters (e.g., medical office visits). To this end, claims adjudication serves as the basis for virtually all fee-for-service reimbursements from health insurers to providers—and ultimately for bills to patients from providers for services not fully reimbursed. Accordingly, health insurers in the US adjudicate over three billion medical claims each year across commercial and governmental lines of business: an average of 10 per enrollee (CAQH 2020). Though estimates vary, expenditures associated with claims adjudication across providers and payers constitute as much as 3% to 6% of practice revenues and premiums, respectively, or about $150 to $300 billion annually when scaled to corresponding national health spending (Sherlock Company 2009, Kahn 2010, Jiwani et al. 2014).

Figure 1. Allocation of Providers' Administrative Staff Time by Activity (2006)



Source: Authors' calculations based on Sakowski et al. (2009).

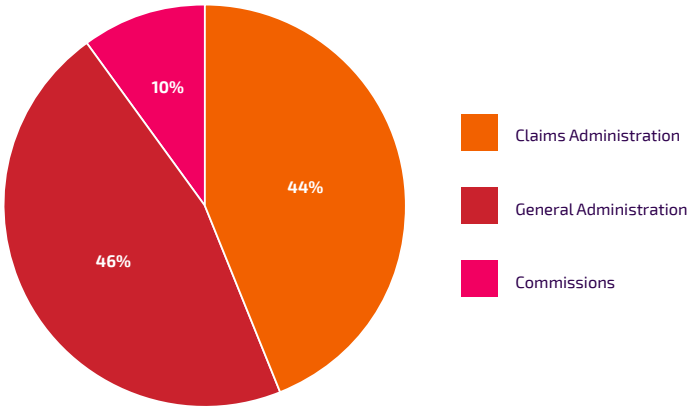
Limitations of Claims Adjudication Today

The steep costs of adjudication today stem from the complex, fragmented, and manual nature of the core processes involved: on the one hand, for providers to originate and submit claims and, on the other, for payers to process claims and issue payments. On the provider side, for example, generating a claim typically involves extensive review by clinicians and billing administrators in order to "code" services rendered in a manner that maximizes reimbursable fee-for-service revenue, subject to payer-specific coverage guidelines. Industry surveys indicate that each claim submission requires an average of three to four minutes of provider staff time, not including time spent creating the claim itself,[1] and related transactions such as eligibility verifications and prior authorizations can take over 10 minutes each on average (CAQH 2020, Tseng et al. 2018). With an average specialist office visit length of 20 minutes, the administrative burden on providers can infringe upon physician-patient interaction (Shaw et al. 2014). The time burden, furthermore, translates directly into staff costs. One study of a large multispecialty physician group in 2006 estimated that clinician time spent recording procedure codes alone could amount to 0.5% to 2.3% of practice revenues, and including other claims-related activities by clinicians and non-clinicians can increase this figure to 6% or more (Sakowski et al. 2009). Lack of standardization among provider claims forms and information prolongs this process. Though most providers submit claims pursuant to national standards set forth under the Health Insurance Portability and Accountability Act (HIPAA) and promulgated by the Department of Health and Human Services (HHS) (e.g., 837P and Form 1500 for professional services claims), there is significant variation in submission formats due to differences in provider- and payer-specific practices. Survey data in 2017 from the National Uniform Claim Committee shows that while nearly a quarter of providers submit all claims per the standard outpatient Form 1500, another 40% of providers submit fewer than 10% of claims per this standard.

Similarly, on the payer side, claims undergo substantial review for accuracy, standardization, and determination of payment amounts given services rendered. Roughly 80% of received claims today are adjudicated automatically with limited manual review,[2] but 20% require manual inspection—and these include the highest-cost and most complex claims (Larsson 2017). Whereas auto-adjudicated claims are processed in minutes and for pennies on the dollar, claims undergoing manual review take several days or weeks for processing and as much as $20 per claim to do so (Miller 2013). Here, too, lack of process and format standardization increases costs of review for payers, such as by contributing to provider errors in claims submission. A recent estimate in commercial insurance by the American Medical Association put the error rate in adjudication at 7% of claims (Morse 2016). More broadly, because the claims review process can result in payers reducing reimbursement of a claim, it fosters a zero-sum "arms race" in adjudication between providers and payers, with each side spending to enhance capabilities around billing codes and audits, respectively.

Furthermore, despite the widespread adoption of electronic medical records in recent years spurred by the Health Information Technology for Economic and Clinical Health (HITECH) Act (Adler-Milstein and Jha 2017), both providers and insurers continue to rely heavily on paper-, email-, and fax-based submissions for adjudication and related processes. Even as most claims are submitted electronically through online provider portals or through claims clearinghouses, about 5% continue to be handled manually, for which the costs per submitted claim can be more than double (CAQH 2020). Moreover, many processes outside of claim submission that are central to the adjudication process—including verification of patient benefits, prior authorization of medical services, etc.—exhibit comparatively high rates of manual transmission. Nearly one in three claims status inquiries, for instance, continues to be manually conducted, and fewer than 15% of prior authorizations are fully electronic.

Figure 2. Allocation of Insurers' Administrative Costs by Activity (2009)



Source: Authors' calculations based on Sherlock Consulting (2009).

Beyond the cost burden for the system, an important consequence of this process complexity for patients is a lack of timeliness and transparency around billing. Unlike other consumer transactions, medical bills, in most instances, are unavailable at the time and point of service. In fact, the modal claim is outstanding for five to 10 days following its corresponding clinical encounter, leaving patients in the interim without reliable price estimates, and this figure can stretch to 30 days or more (Benton 2014). For providers, adjudication delays often trigger unpaid-for medical bills, as bills are sent to patients weeks or months after a clinical encounter rather than at the point of service, resulting in half or more of billed services being sent to collections (Fletcher 2016). This dynamic has been exacerbated by changes in health insurance benefit design, including the emergence of high-deductible plans.[3] The delays also inhibit flexible benefit structures to, for example, waive cost sharing in real time to incentivize patients' use of high-value health care services, consistent with value-based insurance design principles.

Potential for Real-Time Adjudication and Barriers to Adoption

RTA offers a path to comprehensively address the limitations of claims administration today—and, in doing so, materially reduce national health care spending. Under RTA, claims would be generated, submitted, and processed electronically at the point of service (i.e., before the end of a clinical encounter), allowing for payment assurance for providers and transparent prices for patients on a timeline consistent with payments for other consumer services. A national system for RTA would be built around four main advances relative to the status quo. First is the automatic generation and submission of claims by providers directly off of the electronic medical record data.[4] The second is pre-established, simplified payment and data-sharing frameworks between payers and providers to define allowable reimbursements with minimal manual review, including the exchange of clinical data to auto-validate services rendered. The third is complete auto-adjudication by payers of standardized claims, consistent with the pre-established payment framework. And the fourth is a shift to fully electronic submission and handling of ancillary processes like eligibility verification, prior authorization, claims status inquiries, and payment notices.

National implementation of RTA would represent a step change from today's system of medical claims. Virtually no medical claims are currently adjudicated in real time. However, retail pharmacy claims are already real-time adjudicated—partly for reasons discussed further below—and therefore offer a test case for successful RTA implementation in the health system, notwithstanding important differences between the delivery of medical services and prescription drugs.[5] Adjudication costs for pharmacy claims are admittedly difficult to compare directly to those of medical claims. Based on data from industry and the Medicare Part D program, however, these costs appear to be considerably lower than their analogues on the medical side.

At the same time, with adoption spreading of interoperable electronic medical records, sophisticated practice management software, and other modern IT capabilities (e.g., transcription services) in the delivery system, the toolbox of point solutions for implementing RTA is increasingly well stocked. In fact, a range of RTA initiatives have launched in recent years as part of small-scale insurer-provider collaborations and demonstrations by health IT vendors, with early results highlighting the potential for differentiated

savings and improvements to the patient experience (Grubmuller 2009; Wikler, Bausch, and Cutler 2012; Premera Blue Cross 2018; Blue Shield of California 2018; InstaMed). These pilot initiatives corroborate the viability of RTA from both a technological and an operational perspective, and the variation among them also showcases flexibility on implementation within the RTA paradigm.[6]

Despite the promise of these models, they face a number of barriers to wider adoption absent statutory and regulatory change. These barriers lie largely along business-model dimensions rather than technological ones and are rooted primarily in coordination challenges among market participants not unlike those facing electronic medical record adoption prior to federal action in 2009 (HIMSS 2008). For instance, providers and insurers are understandably reluctant to invest in RTA-compatible technology and processes (e.g., data sharing) absent long-term commitments from counterparties to pursue RTA implementation coupled with economic incentives to do so.[7] Additionally, the lack of fully realized industry-wide standards for claims (e.g., formats, submission processes, etc.) and interfaces for data exchange creates mutual incompatibilities between provider and payer workflows that preempt low-cost electronic interchange. Above all, establishing frameworks for predetermined payment levels to providers—thereby mitigating the adjudication "arms race"—is challenging in a market environment oriented around conventional fee-for-service incentives, where claims are subject to regular disputes between providers and insurers regarding billable charges for services rendered, and in one where coding complexity continues to increase (with, for example, the phase-in of ICD-10).

Potential Savings from Real-Time Adjudication

Industry estimates suggest that overall administrative costs—across providers and payers and including ancillary services like prior authorization—associated with claims adjudication today average $50 to $100 per claim.[8] Under RTA, a portion of savings stems from the conversion of all manual transactions to electronic interchange; across transaction types, this is estimated by the Council for Affordable Quality Healthcare (CAQH) to represent approximately $10 billion in potential savings, or $3 per claim. Additional savings arise from full auto-adjudication; for the 20% of manually reviewed claims today and assuming a $10 difference in per-claim processing cost, this amounts to another $2 per claim on average in potential savings. More challenging to estimate on the provider side is the impact of auto-generation of claims, on the reduction of coding practice intensity, and on related administrative processes (e.g., the reduced need for claims status inquiries). RTA could similarly reduce insurers' general administrative overhead, such as call center time for addressing claims inquiries. A conservative approach to the former is to assume savings amounting to half of the roughly 1.5% of practice revenues allocated to coding on average (near the midpoint of the 0.5% to 2.3% range cited previously), which would not encompass savings from related processes. When scaled over national inpatient and outpatient provider revenues, this represents potential savings of $10 per claim. In sum, these savings average about $15 per claim, for a total of $45 billion annually—a figure broadly consistent with earlier calculations of $30 to $40 billion from other analysts for related proposals (Wikler, Basch, and Cutler 2012; UnitedHealth 2009).[9]

An important caveat is that the complexity and cost of certain claims, including most inpatient claims, may ultimately continue to be best served with partial manual review rather than full RTA. For illustrative purposes, assume that RTA generates savings only for outpatient claims,[10] based on the relative simplicity of such claims; the result would imply an estimated "run-rate" savings of $20 to $30 billion per year, if savings scale about proportionally based on share of spending. The estimates also do not account for one-time costs of transition and R&D for new software and processes of providers and insurers. Savings estimates assume other spending patterns are held fixed and represent a reduction in overall national expenditures, some portion of which would likely accrue to the federal budget via reduced outlays in public health insurance programs (including federal employee health benefits), as well as on increased income tax revenues as wages become less burdened by the costs of providing employer-sponsored health insurance.

Policy Options to Promote Adoption

In order to spur adoption of RTA and realize associated savings, Congress and HHS should work to address coordination challenges of market participants by developing and promulgating industry-wide adjudication standards, as well as by enacting financial incentives for adoption by payers, providers, and relevant vendors. This would effectively mean building on progress toward administrative and billing simplification first established via transaction and electronic data exchange standards as part of HIPAA in 1996 and more recently expanded under sections 1104 and 10109 of the ACA. The ACA provisions established a public-private standards-setting entity (i.e., CAQH CORE) and timeline for developing common operating rules for a subset of common transactions, such as eligibility and claims status inquiries, electronic payment notices, and electronic funds transfers, among others.

In principle, HHS adoption of the ACA-mandated administrative operating rules (i.e., for mandatory compliance by HIPAA-covered entities) has the potential to play a role akin to the one that the promulgation of the National Council for Prescription Drug Programs (NCPDP) Telecommunication and related standards have played in achieving RTA of pharmacy claims.[11] Nevertheless, for the time being, the operating rules' purview is constrained in two crucial ways. First, a number of operating rules that have been developed by CAQH CORE, including those pertaining to health claims, have yet to be formally adopted by HHS. Second, the ACA did not mandate a certification process for providers to demonstrate compliance with the adopted operating rules; it did so only with health plans. Congress and HHS should further develop and disseminate standards on transactions that bear on the adjudication process, including the ACA-mandated operating rules that HHS has not adopted, along with comprehensive mechanisms to evaluate compliance across health plans, providers, and relevant vendors (e.g., expanded certification).

As part of this rules-setting process, policy makers could also work with market participants to define standards for paring down the number of payment tiers associated with diagnostic and procedural billing codes for adjudication purposes, thereby curbing complexity in coding practices over time. Such standards would be analogous to the recent, albeit withdrawn Centers for Medicare and Medicaid Services (CMS) proposal to restructure coding requirements for evaluation and management services in the Physician

Fee Schedule of Medicare Part B. In the context of the aforementioned "arms race" between insurers and providers, they could function as drawdown agreements around particular services by attenuating, at the margin, the impact of coding changes in claims on provider payment levels. A related and complementary approach would be to promote billing processes that diminish the reliance on billing codes for determining payment levels—for example, by insurers mapping electronic medical record documentation onto payment tiers with machine learning and other data analytics tools. This would be analogous to CMS's use of clinical data in validating risk adjustment data in Medicare Advantage.

To set economic incentives for adoption of RTA based in part on the above standards, including technology grants (e.g., as under meaningful use in HITECH) and penalties for noncompliance (e.g., as in HIPAA), federal policy makers can exercise broad authority per a combination of existing levers, such as HIPAA, Medicare conditions of participation, payment model incentives under MACRA, interoperability provisions under the 21st Century Cures Act, tax exemptions for nonprofit providers and health insurers, and CMS's broad programmatic authority over public health insurance programs. Incentives can be aligned to an adoption schedule that gradually phases in the benefits of RTA over time as network effects take hold and take into account the input of market participants on transition costs. This schedule could, for instance, focus on adoption of RTA in outpatient claims, which are generally simpler than inpatient claims and therefore more amenable to RTA. It could also start with targeting larger providers and payers that can more readily make the requisite capital investments and whose administrative software (e.g., practice management software) is more readily RTA-compatible. At a minimum, policy makers should drive RTA across public health insurance programs, including Medicare—both in traditional fee-for-service Medicare through Medicare Administrative Contractors and in Medicare Advantage through contracted payers. One predicate is the Administrative Simplification Compliance Act enacted in 2003, which mandated electronic claims submissions in Medicare.

More broadly, as policy makers continue to shift health care delivery and financing away from fee-for-service and toward value- and risk-based payment models, reliance on claims adjudication writ large would be expected to wane over time. (This is also true of vertically integrated insurer-provider entities like Kaiser Permanente.[12]) However, because value-based models are, for the most part, built on fee-for-service chassis, this transition does not attenuate the imperative to develop and disseminate RTA. In fact, as providers increasingly take on risk, payers and providers should be more inclined to agree to pre-established business rules that delineate payment levels (in the case of episodic payments) or covered services (to determine patient cost sharing in episodic and population-based models) at the point of care. Clinical data sharing of RTA would also serve as the foundation for more tightly integrated care coordination between risk-sharing providers and insurers.

Regardless of the specific form that RTA ultimately takes, there is significant unrealized opportunity and benefit for all involved—insurers, providers, patients, and the government—in finding more efficient ways to adjudicate health insurance claims, reflecting both policy objectives and robust market-based approaches.

Footnotes

1. Also, this estimate does not include time allocated by third-party administrative vendors (e.g., clearinghouses).
2. A subset of auto-adjudicated claims is remanded to providers for resubmission.
3. The plans depend on claim adjudication to determine progress toward the annual deductible before the provider can bill patients directly.
4. Claim generation would be conducted with the aid of natural-language processing and other tools to, for example, transcribe clinical notes and map these notes onto corresponding billable service codes.
5. For example, prescription drugs are more readily mapped onto identifying codes than are medical services.
6. In particular, variation is seen among the types of claims covered (inpatient vs. outpatient), the basis of the payment framework (rules-based vs. probabilistic), and the means of payer-provider interchange (portal vs. electronic transaction).
7. This reluctance stems from uncertainty as to both (a) whether a specific counterparty will make the corresponding investments to enable RTA and (b) whether RTA is adopted more widely outside of a particular payer-provider contract. Many provider practices employ legacy practice management software without the capabilities required to achieve RTA.
8. This average of $50 to $100 per claim, multiplied by three billion claims annually, results in $150 to $300 billion in annual spending.
9. Because administrative costs are thought to be among the fastest-growing categories of health care spending, this level of savings would likely grow over time relative to the current baseline (i.e., rather than representing a one-time cost reduction).
10. Per the Health Care Cost Institute, outpatient and professional services spending comprises 75% of inpatient, outpatient, and professional services spending.
11. RTA adoption for pharmacy claims also likely benefited from a market structure featuring large national players among pharmacies and benefit managers alike.
12. There is evidence that vertical integration between payers and providers can result in lower administrative costs, presumably in part due to reduced dependence on claims administration (Orszag and Rekhi 2020). For this reason, promoting vertically integrated care and financing models may be an alternative approach for policy targeting of claims-related expenses.

References

Adler-Milstein, Julia and Ashish K Jha. 2017. "HITECH Act Drove Large Gains in Hospital Electronic Health Record Adoption." *Health Affairs* 36 (8): 1416–1422.

Benton, Lindy. 2014. "Speeding Up the Claims Adjudication Process with Electronic Attachments." *Healthcare Business Today*. https://www.healthcarebusinesstoday.com/speeding-up-claims-adjudication-process-with-electronic-attachments/.

Blue Shield of California. 2018. "Blue Shield of California Invests in Innovative Technology to Advance Real-Time Claims Payments." San Francisco, California.

Council for Affordable Quality Healthcare (CAQH). 2020. "2019 CAQH INDEX® A Report of Healthcare Industry Adoption of Electronic Business Transactions and Cost Savings." *Council for Affordable Quality Healthcare*.

Cutler, David M., Elizabeth Wikler, and Peter Basch. 2012. "Reducing Administrative Costs and Improving the Health Care System." *New England Journal of Medicine*, 367 (20).

Fletcher, Holly. 2016. "Why more than half of hospital bills don't get paid." *USA Today*. https://www.tennessean.com/story/money/industries/health-care/2016/03/07/why-more-than-half-hospital-bills-dont-get-paid/81297202/.

Grubmuller, John. "Health Care Payment Reform: A Proven Model for Addressing Escalating Health Care Costs." First Data Corporation, 2009.

Himmelstein, David U., Terry Campbell, and Steffie Woolhandler. 2020. "Health Care Administrative Costs in the United States and Canada, 2017." *Annals of Internal Medicine*, 172 (2): 134-142.

HIMSS Financial Systems—Financial Transactions Toolkit Task Force. "Real Time Adjudication of Healthcare Claims." 2008.

InstaMed. *Getting 'Real' about Claims Processing*. n.d. https://www.instamed.com/news-and-events/article-getting-real-about-claims-processing/.

Jiwani, Aliya, David Himmelstein, Steffie Woolhandler, and James G. Kahn. 2014. "Billing and insurance-related administrative costs in United States' health care: Synthesis of micro-costing evidence." *BMC Health Services Research* 14 (1): 1-9.

Kahn, James G. 2010. "Excess Billing and Insurance-Related Administrative Costs." The Healthcare Imperative: Lowering Costs and Improving Outcomes. https://www.ncbi.nlm.nih.gov/books/NBK53942/.

Larsson, Amy. 2017. "Reinventing Claims Payment for a Value-Based World." *Morning Consult*. https://morningconsult.com/opinions/reinventing-claims-payment-value-based-world/.

Merlis, Mark. "Simplifying Administration of Health Insurance." National Academy of Social Insurance, 2009.

Miller, Julie. 2013. "Billing process continues to improve." *Managed Healthcare Executive*.

Morse, Susan. 2017. "Claims Processing Is in Dire Need of Improvement, but New Approaches Are Helping." *Healthcare Finance*. https://www.healthcarefinancenews.com/news/claims-processing-dire-need-improvement-new-approaches-are-helping.

Morse, Susan. 2016. "If Only the Claims Were Clean: Payers, Providers Lose Big on Inaccuracies, Poor Workflows." *Healthcare Finance*. https://www.healthcarefinancenews.com/news/if-only-claims-were-clean-payers-providers-lose-big-inaccuracies-poor-workflows.

Orszag, Peter R. and Rahul Rekhi. 2020. "The Economic Case for Vertical Integration in Health Care." *NEJM Catalyst: Innovations in Care Delivery* 1 (3): 1–20.

Papanicolas, Irene, Liana R Woskie, and Ashish K. Jha. 2018. "Health Care Spending in the United States and Other High-Income Countries." *JAMA* 319 (10): 1024–1039.

Premera Blue Cross. 2018. "Premera and MultiCare Form Alliance to Make Healthcare Simpler and Easier for Patients." Mountlake Terrace, Washington.

Sakowski, Julie Ann, James G. Kahn, Richard G. Kronick, Jeffrey M. Newman, and Harold S. Luft 2009. "Peering into the Black Box: Billing and Insurance Activities in a Medical Group." *Health Affairs* 28 (Supplement 1): w544–w554.

Shaw, M. K., Scott A. Davis, Alan B. Fleischer, Jr, Steven R. Feldman. 2014. "The Duration of Office Visits in the United States, 1993 to 2010." *The American Journal of Managed Care* 20 (10): 820.

Sherlock, Douglas B. 2009. "Administrative Expenses of Health Plans." Sherlock Consulting.

Tseng, Phillip, Robert S. Kaplan, Barak D. Richman, Mahek A. Shah, and Kevin A. Schulman. 2018. "Administrative Costs Associated with Physician Billing and Insurance-Related Activities at an Academic Health Care System." *JAMA* 319 (7): 691–697.

UnitedHealth Center for Health Reform & Modernization. 2009. "Health Care Cost Containment—How Technology Can Cut Red Tape and Simplify Health Care Administration."

WEDI/X12. 2010. "Real Time Adjudication Business Process Model." WEDI/X12.

Wikler, Elizabeth, Peter Bausch, and David M. Cutler. 2012. "Paper Cuts: Reducing Health Care Administrative Costs." *Center for American Progress*.

Improving Auto-Assignment in Medicaid Managed Care

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Issue Summary: The Medicaid program accounts for approximately 28% of state budgets, covers 77 million people, and represents 16% of US health care spending. Approximately 70% of Medicaid enrollees are now enrolled in Medicaid managed care plans operated by private firms. There is a growing body of work illustrating that insurance plan design (including the design of Medicaid managed care plans) can have a substantial influence on enrollee health, satisfaction, and spending. In particular, health plan networks can be structured so as to meaningfully reduce health spending without harming quality or satisfaction. Currently, a significant portion of Medicaid managed care plan enrollees do not make an active choice to enroll in a particular plan, and instead are assigned to a plan by the state via a process known as "auto-assignment." Assuming auto-assignment rates are stable over the next decade, states will auto-assign approximately 25 million Medicaid enrollees to their respective Medicaid managed care plans during this time. This creates an opportunity to develop novel methods for auto-assignment that capitalize on differences in plan quality and networks to reduce Medicaid spending without adversely impacting enrollee health or satisfaction.

Policy Proposal: We encourage states to adopt smart defaults when auto-assigning Medicaid enrollees to managed care plans. States have an opportunity to leverage auto-assignment as a tool to better understand the efficiency of the plans in their market and then as a tool to steer enrollees into plans that constrain spending without reducing enrollee satisfaction or health. For example, research suggests that auto-assigning Medicaid enrollees into narrower network plans that include their usual providers can lower cost without harming enrollee satisfaction or health.

Potential Savings: Based on evidence from one of the largest Medicaid managed care programs in the United States, we estimate the adoption of smarter defaults would lower spending in Medicaid by approximately 1%. This translates to $3.7 to $9.2 billion in annual savings, or a 0.10% to 0.24% reduction in national health expenditures in the US.

Related Literature and Evidence

What Does a Provider Network Do? Evidence from Random Assignment in Medicaid Managed Care (2020). (Jacob Wallace). Mimeo accessible via: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3544928.

Are All Managed Care Plans Created Equal? Evidence from Random Plan Assignment in Medicaid (2020). *NBER* Working Paper No. 22762 (Michael Geruso, Timothy Layton, and Jacob Wallace).

Association of Medicaid-Focused or Commercial Medicaid Managed Care Plan Type with Outpatient and Acute Care (2020). *JAMA Internal Medicine*, 180 (12): 1672–1679 (Shailender Swaminathan, Chima Ndumele, Sarah Gordon, Yoojin Lee, and Amal Trivedi).

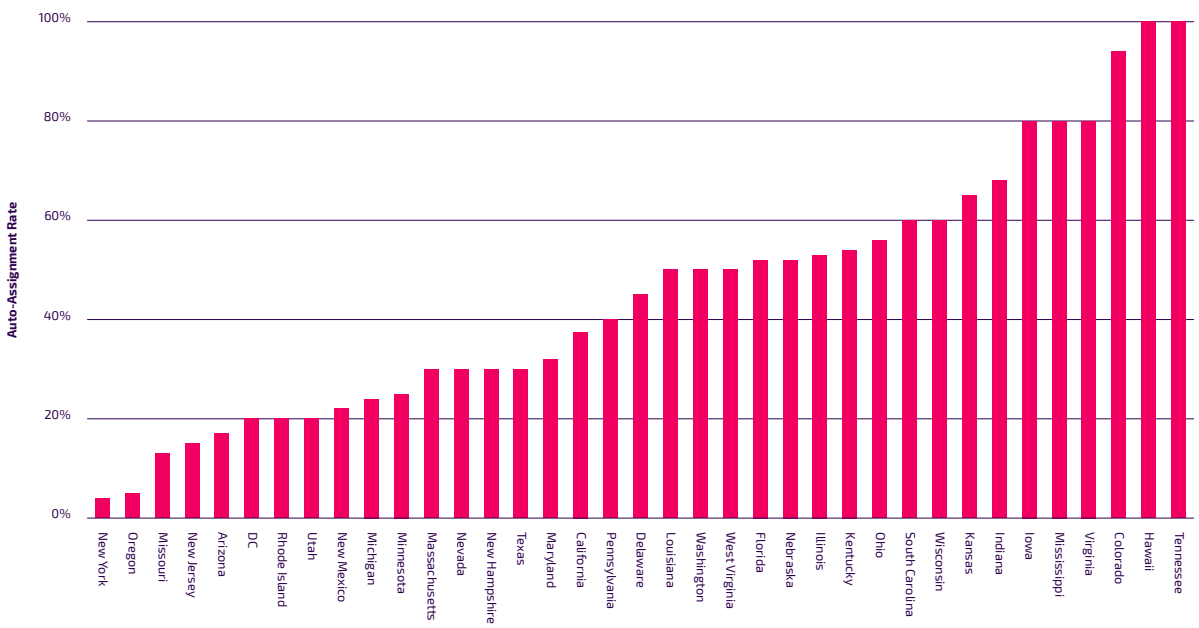
Overview

The Medicaid program provides health insurance coverage to over 77 million individuals and accounts for approximately 16% of US health spending at a cost of $613.5 billion per year. A significant portion of Medicaid costs are borne by states, with Medicaid program costs now accounting for approximately 28.7% of state governments' expenditures. The vast majority of states now rely primarily on risk-based managed care plans operated by private firms to provide benefits to Medicaid enrollees. At present, approximately 70% of Medicaid enrollees are in a risk-bearing managed care plan.

There is a growing body of work suggesting that insurance plans can have a substantial impact on enrollee health spending and outcomes. These effects can be on a similar scale as—or larger in magnitude than—the effects of demand-side interventions like patient copayments or deductibles. Much of the academic research suggests that the differences in enrollee outcomes across insurance plans are the result of differences in the networks of participating providers across plans. Recent evidence from New York State, for example, illustrates that if enrollees are assigned to narrower network plans that include their usual providers, health spending can be reduced by 2% to 5% without adversely impacting enrollee satisfaction or health.

A large share of Medicaid enrollees do not make an active choice to enroll in a particular Medicaid managed care plan. As we illustrate in Figure 1, in some states, all of the state's Medicaid enrollees are auto-assigned to a plan. The best estimates are that nationwide, 25 million individuals will need to be auto-assigned to a Medicaid managed care plan over the next decade. As a result, there is significant scope for state Medicaid programs to structure auto-assignment to plans in ways that make their Medicaid programs more efficient.

Figure 1. Auto-Assignment Rate by State



Note: Hawaii and Tennessee auto-assign all beneficiaries to a health plan and then offer an opportunity to change plans. Author calculations based on Kaiser Family Foundation (KFF 2015, 34).

The Effects of Medicaid Managed Care Plans on Enrollee Outcomes and Health Spending

There is significant variation in how states currently auto-assign Medicaid enrollees to managed care plans, reflecting the lack of a clear consensus on best practice. It is common for states to include logic that keeps family members together or assigns enrollees to plans they've previously chosen. However, many auto-assignees are allocated to plans via algorithms that attribute them at random to qualifying plans. In some states, the allocation of auto-assignees is equal across plans, but in others plans with larger market shares receive more (or fewer) auto-assignees. While the diversity of approaches likely reflects, in part, the competing priorities of policy makers in different states, the lack of a clear best practice indicates that substantial potential exists to improve the efficiency of the Medicaid program with smarter default policies.

When states randomly assign Medicaid enrollees to plans, they offer researchers the opportunity to identify how Medicaid managed care plans *causally* impact enrollee outcomes and health spending. Here, academic research suggests that the lowest-spending Medicaid managed care plans can reduce health spending by over 30% (Geruso, Layton, and Wallace 2020). Unfortunately, in some instances, these lower-spending

plans constrain cost by reducing enrollees' utilization of both needed and unneeded services, rather than simply eliminating the use of wasteful services.

However, recent research suggests that narrower network plans could reduce enrollee spending without harming consumer satisfaction or increasing the likelihood of adverse health events. Wallace (2020) studies auto-assignment in New York and finds that enrollment in a narrower network plan can reduce enrollee spending by approximately 10%. Although these reductions are driven by decreases in the quantity of care consumed, including some preventive services, they do not appear to increase the likelihood of adverse health events. While narrower networks do reduce enrollee satisfaction, the evidence suggests this effect can be mitigated by ensuring that enrollees retain access to their preferred providers.

The experience in New York suggests that the potential for auto-assignment to influence outcomes is substantial and that there are opportunities to lower cost without sacrificing enrollee satisfaction. Relative to a policy that randomly assigns enrollees to plans, a smarter default for auto-assignees could reduce spending by nearly 3% while maintaining enrollee satisfaction. These savings come via shifting enrollees to narrower network plans (to reduce spending) that include the enrollees' usual sources of care (which increases satisfaction).

Policy Recommendation

Because Medicaid managed care is mandatory in most states, but many Medicaid enrollees do not actively choose a managed care plan within a designated choice period, policy makers need a method to auto-assign enrollees to plans. Whenever possible, policy makers should structure these auto-assignments in ways that improve health, maintain enrollee satisfaction, and reduce health spending. Early evidence suggests that one mechanism to lower spending without adversely impacting quality or enrollee satisfaction is to auto-assign enrollees to narrower network plans that include the enrollees' usual providers within their networks. Going forward, more work should be done to determine how to most efficiently match enrollees to plans in ways that increase the efficiency of state Medicaid programs.

Potential Savings

Based on evidence from one of the largest state Medicaid programs in the United States, we estimate that the adoption of smarter defaults in state auto-assignment algorithms could lower total spending in Medicaid by approximately 1%. This translates to approximately $3.7 to $9.2 billion in annual savings, or a 0.10% to 0.24% reduction in current national health expenditures in the US. The range in spending comes from different assumptions about the potential cost savings that could be achieved via smart defaults. The more conservative projection assumes that smarter defaults will only leverage the comparative advantage of plans, reassigning enrollees to maximize efficiency without changing plan market shares. The more aggressive projections relax the constraint that plan shares be maintained. Without this constraint, the projected savings are larger, but so is the potential for reshaping the market in unintended ways. Hence, states may initially prefer a more incremental approach.

References

Center for Medicare and Medicaid Services. 2020. "NHE Fact Sheet." *Centers for Medicare and Medicaid Services*. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet#:~:text=Projected%20NHE%2C%202019%2D2028%3A&text=Because%20national%20health%20expenditures%20are,to%2019.7%20percent%20in%202028.

Geruso, Michael, Timothy Layton, and Jacob Wallace. 2020. "Are All Managed Care Plans Created Equal? Evidence from Random Plan Assignment in Medicaid." *NBER Working Paper 22762*.

Kaiser Family Foundation. 2015. "Medicaid Reforms to Expand Coverage, Control Costs and Improve Care: Results from a 50-State Medicaid Budget Survey for State Fiscal Years 2015 and 2016." *Kaiser Family Foundation*. http://files.kff.org/attachment/report-medicaid-reforms-to-expand-coverage-control-costs-and-improve-care-results-from-a-50-state-medicaid-budget-survey-for-state-fiscal-years-2015-and-2016.

Kaiser Family Foundation. 2020. "Total Monthly Medicaid and CHIP Enrollment." *Kaiser Family Foundation*. https://www.kff.org/health-reform/state-indicator/total-monthly-medicaid-and-chip-enrollment/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D.

MACPAC. 2016. "Medicaid's Share of State Budgets." *Medicaid and CHIP Payment and Access Commission*. https://www.macpac.gov/subtopic/medicaids-share-of-state-budgets/.

Swaminathan, Shailender, Chima Ndumele, Sarah Gordon, Yoojin Lee, and Amal Trivedi. 2020. "Association of Medicaid-Focused or Commercial Medicaid Managed Care Plan Type with Outpatient and Acute Care." *JAMA Internal Medicine*, 180 (12): 1672–1679.

Wallace, Jacob. 2020. "What Does a Provider Network Do? Evidence from Random Assignment in Medicaid Managed Care." Mimeo accessible via: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3544928.