

Macromedical Regulation

BARAK D. RICHMAN* & STEVEN L. SCHWARCZ†

The COVID-19 pandemic has dramatically shown that a localized disease can be transmitted to the broader population, nationally and worldwide. This Article analyzes how to design regulation to help control that transmission. To that end, we first observe that existing healthcare regulation focuses almost exclusively on regulating individual components of the medical and healthcare industry, while lacking a capacity to address how those components work together as a system—a system that pandemics can destabilize. Indeed, one factor that contributed to COVID-19’s spread was the inability of U.S. healthcare regulation to operate on a societal level, to protect certain components from the deficiencies of others. We contend that healthcare regulation must also include what we call “macromedical” regulation: regulation that focuses on protecting the stability of the healthcare sector as a system of interconnected parts. We find some useful analogies in the Dodd-Frank Act and other post-crisis financial regulation, particularly in macroprudential regulation designed to protect the financial system as a system.

TABLE OF CONTENTS

I.	INTRODUCTION	728
II.	POST-2008 LESSONS: DEVELOPING A REGULATORY FRAMEWORK FOR SYSTEMIC RISK	733
	A. <i>The Failure to Contain Systemic Financial Risk</i>	733
	B. <i>Reforming Financial Regulation to Overcome that Failure</i>	736
III.	SHORTCOMINGS IN HEALTHCARE REGULATION: A FOCUS ON COMPONENTS RATHER THAN THE SYSTEM	741
	A. <i>A Systemic Failure to Meet Demand</i>	743
	B. <i>An Individualized Health System</i>	749
	C. <i>Prior Ad Hoc Pandemic Responses</i>	753
	D. <i>Regulating the Healthcare System as a System</i>	758

*Katharine T. Bartlett Professor of Law and Business Administration, Duke University. Visiting Scholar, Department of Medicine, Stanford University.

†Stanley A. Star Distinguished Professor of Law & Business, Duke University School of Law; Senior Fellow, the Centre for International Governance Innovation (CIGI); Liberty Fellow, University of Leeds School of Law.

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IV.	DESIGNING MACROMEDICAL REGULATION	763
	A. <i>Regulating Healthcare Entities to Avoid the Origination of Crises</i>	763
	B. <i>Regulation Enabling Healthcare Entities to Preempt the Spread of Crises</i>	767
	C. <i>Regulation Correcting Market Failures That Could Trigger and Transmit Risk to the Healthcare System</i>	769
	D. <i>Emergency Powers Enabling Regulators to Respond to Crises</i>	774
V.	CONCLUSIONS.....	775

I. INTRODUCTION¹

The financial risk that emerged during the 2008 financial crisis was frequently analogized to a “contagion,” in which the instability of one financial institution led to instability in other institutions with which it had commercial ties.² As the world recovered, scholars and policymakers recognized the need to construct a regulatory framework that accounts for systemic risk—by which we mean risk to a system, in that case to the financial system—and can respond to contagions that follow from financial shocks.³

We currently write in what, hopefully, is the tail end of the COVID-19 pandemic,⁴ a global health shock in which the term “contagion” was a literal description, not a metaphor, of the spread of harm. COVID-19’s prevalence in

¹ On June 11, 2021, several authors participated in a virtual symposium to discuss and respond to our Article, *Macromedical Regulation*. Each participant penned comments reflecting their positions as well. See Wendy Netter Epstein, *The Healthcare System Misnomer*, 82 OHIO ST. L.J. 779 (2021); Regina E. Herzlinger, *Transparency as a Solution for the Hospital Capacity Problem*, 82 OHIO ST. L.J. 787 (2021); Howell E. Jackson, *Comment on Macromedical Regulation: What Can Be Learned from Financial Regulation*, 82 OHIO ST. L.J. 795 (2021); Thomas P. Miller, *Will New Macromedical Regulation Be Prudential?*, 82 OHIO ST. L.J. 803 (2021); José Miola, *Putting the Morals Back into Medicine – Emphasizing the ‘We’ over the ‘Me’*, 82 OHIO ST. L.J. 815 (2021); Amy B. Monahan, *Two Cheers for the U.S. Health Security Infrastructure*, 82 OHIO ST. L.J. 823 (2021); Sophia S. Helland & Edward R. Morrison, *The Healthcare System and Pandemics: Where Is the Market Failure?*, 82 OHIO ST. L.J. 833 (2021); Jessica L. Roberts, *The Health Justice Potential of Macromedical Regulation*, 82 OHIO ST. L.J. 845 (2021); William M. Sage, *What the Pandemic Taught Us: The Health Care System We Have Is Not the System We Hoped We Had*, 82 OHIO ST. L.J. 857 (2021); Barak D. Richman & Steven L. Schwarcz, *On Skepticism, Modesty, and Embracing Those with Whom We Disagree: A Rejoinder*, 82 OHIO ST. L.J. 869 (2021).

² E.g., Adam J. Levitin, *In Defense of Bailouts*, 99 GEO. L.J. 435, 455 (2011).

³ See, e.g., George W. Madison, Gary J. Cohen & William A. Shirley, *Financial Regulatory Reform: Key Changes that Reduced Systemic Risk*, BANKING & FIN. SERVS. POL’Y REP. 17, 24 (2015).

⁴ Although this Article refers throughout to pandemics, its analysis should apply equally, on a national level, to epidemics.

one geographic location influences its prevalence in nearby locations, and the inability to contain the virus's original spread led to globally escalating illness.⁵ Just as we learned in 2008 that our financial system was ill-prepared for systemic financial risks, we are now learning that our health system—a term we use interchangeably with “healthcare” system⁶—has been ill-prepared for the rush of COVID-related illnesses.⁷

Many commentators have attributed the U.S. health system's failures during the COVID-19 pandemic to its private control.⁸ Because most American hospitals operate independently either as for-profits or nonprofits and rely financially on providing care to insured patients,⁹ the critique goes, healthcare providers have constructed capacity that caters to the predictable, non-emergent needs¹⁰ of a stable patient population rather than to the long-term health of the population as a whole.¹¹ When a healthcare crisis radically shifts demand for unpredicted medical services, U.S. providers find themselves unprepared to mitigate the ensuing pressing public health emergency, and their inability to provide much needed services jeopardizes the nation's health.¹² These critics argue that if the nation's health system were funded by public dollars, healthcare providers presumably would be more socially oriented and more prepared to handle population-wide health needs.¹³

⁵ See, e.g., Jessie Yeung & Sharif Paget, *China and WHO Acted Too Slowly to Contain COVID-19, Says Independent Panel*, CNN (Jan. 22, 2021), <https://edition.cnn.com/2021/01/18/asia/who-covid-review-panel-china-intl-hnk/index.html> [<https://perma.cc/8ZJC-Y9S2>].

⁶ Although this Article refers to healthcare, that term sometimes is spelled health care. This Article also interchangeably refers to healthcare regulation and health regulation and to the healthcare sector and the health sector.

⁷ See, e.g., Leslie Hook & Hannah Kuchler, *How Coronavirus Broke America's Healthcare System*, FIN. TIMES (Apr. 30, 2020), <https://www.ft.com/content/3bbb4f7c-890e-11ea-a01c-a28a3e3fbd33> (on file with the *Ohio State Law Journal*).

⁸ See, e.g., *id.*; Joseph Zeballos-Roig, *The Coronavirus Pandemic Has Exposed How Profit-Driven Decisions Undercut the US's Ability to Fight an Outbreak*, BUS. INSIDER (Apr. 12, 2020), <https://www.businessinsider.com/coronavirus-profit-decisions-healthcare-us-weak-response-ability-fight-outbreak-2020-4> [<https://perma.cc/7VUP-XV2E>] (linking limited hospital bed capacity and shortages of critical equipment such as masks and ventilators to for-profit healthcare model); Sarah Kliff, *Hospitals Knew How to Make Money. Then Coronavirus Happened.*, N.Y. TIMES (May 20, 2020), <https://www.nytimes.com/2020/05/15/us/hospitals-revenue-coronavirus.html> [<https://perma.cc/NTB6-NCC6>] (reporting on coronavirus's disruption to hospital business models, which rely on elective procedures funded by private insurance).

⁹ See Kliff, *supra* note 8.

¹⁰ We use the term “non-emergent” in the medical sense of care that is not required to avoid a serious and immediate medical crisis. *Cf.* 42 U.S.C. § 1395dd(e)(1) (defining “emergency medical condition” as a condition that, in the absence of immediate medical attention, could reasonably place the health of the woman or unborn child in serious jeopardy).

¹¹ See, e.g., Zeballos-Roig, *supra* note 8.

¹² See, e.g., *id.*

¹³ See, e.g., *id.*

However, America's private healthcare institutions should be able to respond to public health crises just as America's private banks—by which we refer to virtually all banks, other than the Federal Reserve Bank—can respond to financial crises.¹⁴ American banks can rise to the occasion in large part because they are now governed by a reformed regulatory framework that enables, and sometimes requires, them to cooperate and coordinate appropriate surge responses.¹⁵ A similar regulatory regime could redress the American hospitals' glaring failures to mobilize against a common health disaster; a wholesale transition to nationalized healthcare is not required. In this Article, we argue that not only can we apply the lessons from 2008 to pandemics, but that the specific regulatory solutions developed in response to the financial crisis also offer targeted lessons on how to improve health sector regulation without sacrificing the benefits of private ownership and market competition.

The essence of our argument is that because many public health dangers impose systemic risk, the regulation of our health system must develop institutions and strategies that can anticipate and mobilize to contain that risk.¹⁶ To illustrate the needed reforms to current healthcare regulation, we make two arguments. First, we argue that although the current health sector is heavily regulated, the existing regulatory regime suffers from some of the same limitations that hindered financial regulation prior to the last financial crisis: it focuses almost exclusively on individual components of a system. In the case of financial regulation, the limited pre-crisis focus (in retrospect, referred to as "microprudential") was on banks in their individual capacity.¹⁷ Post-crisis, the scope of financial regulation expanded to additionally focus on protecting the stability of the financial system as a system (this expanded focus is referred to as a "macroprudential" regulatory regime).¹⁸

Second, we argue that the existing micro-focus of healthcare regulation on components of the medical and healthcare system likewise should include a macro-focus on protecting the stability of that system—a system that pandemics

¹⁴ Press Release, Fed. Rsrv. Bd., Federal Reserve Board Releases Second Round of Bank Stress Test Results (Dec. 18, 2020), <https://www.federalreserve.gov/newsevents/pressreleases/bcreg20201218b.htm> [<https://perma.cc/MJ8V-AR8C>] (noting that the Federal Reserve Board will extend restrictions on bank dividends but will not reset capital requirements to ensure banks can still lend to households during COVID-19).

¹⁵ See, e.g., Kern Alexander & Steven L. Schwarcz, *The Macroprudential Quandary: Unsystematic Efforts to Reform Financial Regulation*, in RECONCEPTUALISING GLOBAL FINANCE AND ITS REGULATION 127, 133 (Ross P. Buckley, Emiliios Avgouleas & Douglas W. Arner eds., 2016).

¹⁶ A prior article co-authored by one of us examined how a pandemic can create and transmit "systemic" risk that jeopardizes the financial system. See generally Howell E. Jackson & Steven L. Schwarcz, *Pandemics and Systemic Financial Risk* (Duke L. Sch. Pub. L. & Legal Theory Series, Working Paper No. 26, 2020), <https://ssrn.com/abstract=3580425> (on file with the *Ohio State Law Journal*).

¹⁷ Luca Enriques, Alessandro Romano & Thom Wetzer, *Network-Sensitive Financial Regulation*, 45 J. CORP. L. 351, 357 (2020).

¹⁸ *Id.* at 360.

can destabilize. To be sure, there already is significant investment in the control and containment of infectious disease, primarily through the Centers for Disease Control and Prevention (“CDC”), the National Institutes for Health, and assorted local public health departments.¹⁹ And policymakers, specifically the President and state governors, enjoy emergency powers to contain behavior that otherwise would cause infections to spread.²⁰ But none of the primary actors in the national health system—hospitals, physicians, health insurers, or pharmaceutical and device manufacturers—is directly responsible for combatting contagious disease, other than the individualized responsibility to care for the individuals who come through the doors to seek care.²¹ In short, these private actors are not organized to respond to a systemic threat to the healthcare sector even though, as the ultimate caretakers to those suffering from a contagious illness, they are perhaps the ones who would benefit most from an effective response. The severe shortcomings of our national efforts to prepare for known surges of demand from COVID-19 illnesses—let alone to contain COVID-19—reveal these structural gaps in national health policy.²² One might further observe that these same shortcomings were exposed when the nation failed to contain opioid-related deaths²³ and other public health crises that were

¹⁹ *But see generally* MICHAEL LEWIS, *THE PREMONITION: A PANDEMIC STORY* (2021) (documenting the despairing incompetence and incapacity of the CDC and local public health departments, in large part driven by political incentives and funding limitations, to provide effective policy leadership in the face of a health crisis).

²⁰ *See* Lawrence O. Gostin, James G. Hodge Jr. & Lindsay F. Wiley, *Presidential Powers and Response to COVID-19*, 323 *JAMA* 1547, 1547–48 (2020).

²¹ Inst. of Clinical Bioethics, *Health Care Reform: Duties and Responsibilities of the Stakeholders*, SAINT JOSEPH’S UNIV. (Sept. 6, 2011), <https://sites.sju.edu/icb/health-care-reform-duties-and-responsibilities-of-the-stakeholders/> [<https://perma.cc/BU65-Y9JW>].

²² *See* Sarah Mervosh, Mike Baker, Patricia Mazzei & Mark Walker, *One Year, 400,000 Coronavirus Deaths: How the U.S. Guaranteed Its Own Failure*, *N.Y. TIMES* (Mar. 18, 2021), <https://www.nytimes.com/2021/01/17/us/covid-deaths-2020.html> [<https://perma.cc/EDN7-NRQM>] (citing failure to create a testing and contact tracing network); David Leonhardt & Lauren Leatherby, *The Unique U.S. Failure to Control the Virus*, *N.Y. TIMES* (Aug. 8, 2020), <https://www.nytimes.com/2020/08/06/us/coronavirus-us.html> [<https://perma.cc/4LMW-AVYY>] (noting issues in developing a COVID test and inconsistent mask information); Andrew Jacobs, *Health Care Workers Still Face Daunting Shortages of Masks and Other P.P.E.*, *N.Y. TIMES* (Dec. 20, 2020), <https://www.nytimes.com/2020/12/20/health/covid-ppe-shortages.html> [<https://perma.cc/NCD5-TCYL>] (highlighting the federal government’s failure to regulate medical supply chains and the resulting stockpiles by wealthy hospitals).

²³ *See* Abby Goodnough & Margot Sanger-Katz, *As Tens of Thousands Died, F.D.A. Failed to Police Opioids*, *N.Y. TIMES* (Dec. 31, 2019), <https://www.nytimes.com/2019/12/30/health/FDA-opioids.html> [<https://perma.cc/EVM8-8E5P>] (stressing that the federal government failed to regulate opioid manufacturers because the FDA’s review process did not produce sufficient data).

fueled by documented epidemiological (if not pathogenic) contagions.²⁴ Equally important, we do not have any prospective regulatory frameworks in which we might harness these healthcare entities to act proactively to address the next pandemic.

Part II of this Article recounts the core lessons from the last financial crisis about developing a regulatory framework to address systemic risk. Although this recounting will be familiar to most financial scholars, this starting point illustrates—especially for health policy scholars—how a regulatory regime that governs private parties can account for collective dangers of contagion. Part III then shows that existing healthcare regulation, like much financial regulation prior to 2008, focuses almost exclusively on regulating individual components of the healthcare system while neglecting the interconnections and interdependencies among those components. It also shows that the healthcare system, and specifically the nation’s hospital system, is a “system” whose components are better understood as interlinking than as separate, and therefore should be directed to mitigate systemic risk. Part IV of the Article undertakes to design what we call “macromedical” regulation,²⁵ to regulate the healthcare system as a system that can systematically respond to spreading health crises. Among other things, macromedical regulation could prepare private healthcare providers for health shocks that require coordinated reallocations of resources and collective priorities.

We harbor no illusions that the financial sector achieved an optimal regulatory regime after the 2008 financial crisis,²⁶ nor do we suggest that the health sector’s manifold problems will all be solved by implementing some of the financial sector’s lessons. We also do not presume that any smartly designed regulatory regime can overcome the incompetence of its leaders. We do believe, however, that the twenty-first century’s two most severe threats to the nation’s wellbeing have similar features, that lessons learned from one can apply to the other, and that the nation can and should garner the collective wisdom from having undergone these painful crises.²⁷

²⁴ See ANNE CASE & ANGUS DEATON, DEATHS OF DESPAIR AND THE FUTURE OF CAPITALISM 108 (2020) (“Across these countries suicide rates are correlated with deaths from alcohol, just as is true across the states of the US. . . . They are countries that are simply not delivering an acceptable life for a substantial fraction of their people. It is no exaggeration to compare the long-standing misery of these Eastern Europeans with the wave of despair that is driving suicides, alcohol, and drug abuse among less educated white Americans.”).

²⁵ The original idea of macromedical regulation was conceived in Jackson & Schwarcz, *supra* note 16, at 28.

²⁶ See *infra* note 84 and accompanying text (discussing concerns about potential inadequacy of the post-financial-crisis regulatory regime).

²⁷ Although we focus our analysis to the U.S. healthcare system and polity, its analysis generally should be applicable to any healthcare sector, whether subnational, national, or even global, with interlocking systemic features.

II. POST-2008 LESSONS: DEVELOPING A REGULATORY FRAMEWORK FOR SYSTEMIC RISK

Although a full narration of the events of 2008 is unnecessary, we begin with the general causes of and primary responses to the financial crisis. Because there is widespread agreement that the economic havoc was a product of a regulatory failure,²⁸ learning lessons from that painful experience requires a retelling of its causes and the kinds of regulations that could have mitigated its harm. We show that pre-2008 financial regulation failed to address systemic risk, that regulatory design should anticipate and mitigate systemic risk, and that many policies enacted in response to the financial crisis offer models for how to contain systemic risk.

A. *The Failure to Contain Systemic Financial Risk*

The 2008 financial crisis is best remembered for the dramatic failures and, but for government bailouts, near-failures of major financial firms.²⁹ Many also remember that financial crisis as having its roots in a series of poor financial investments in the nation's housing market.³⁰ However, the financial crisis was much more than a series of poor investment decisions by large companies. It instead is better conceptualized as a failure of regulators and industry players to account for the systemic risks that underlay much of the entire financial sector.

Bad investments were certainly at the genesis of the financial crisis. Investors and issuers of financial products miscalculated the capacity of individual borrowers (many of whom were victims to overzealous lenders and brokers) to make continued mortgage payments and the sustainability of the rise in housing prices.³¹ A general overestimate of the safety and lucrativeness of the mortgage market, in part encouraged by government assurances, led both to a surge in loans to finance and refinance home purchases as well as a dramatic increase in leverage of financial firms.³² Similar thinking underlay the default

²⁸ No less than former Fed Chair Ben Bernanke, who was at the regulatory helm when the financial crisis erupted, attributed primary blame to systemic regulatory failures, not to the imprudence of private financial actors. *See* Ben S. Bernanke, Chairman, Fed. Rsrv. Bd., Monetary Policy and the Housing Bubble, Address at the 2010 Annual Meeting of the American Economic Association (Jan. 3, 2010) (transcript available at <https://www.federalreserve.gov/newsevents/speech/bernanke20100103a.htm> [<https://perma.cc/36KW-982M>]) (“The crisis revealed not only weaknesses in regulators’ oversight of financial institutions, but also, more fundamentally, important gaps in the architecture of financial regulation around the world.”).

²⁹ Portions of this Part II.A discussion are based on Howell E. Jackson & Steven L. Schwarcz, *Protecting Financial Stability: Lessons from the COVID-19 Pandemic*, HARV. BUS. L. REV. (forthcoming 2021), <https://ssrn.com/abstract=3644417> (on file with the *Ohio State Law Journal*).

³⁰ *See id.* (manuscript at 4).

³¹ *Id.*

³² *Id.*

models of credit-rating agencies³³ and the pricing behavior of global markets, not just for the underlying mortgage loans but also for the mortgage-backed securities (MBS) into which these loans were packaged and the derivatives that guaranteed their value by reference to MBS pricing.³⁴

The instability of these unwise investments was revealed in 2007, when housing prices dropped precipitously and borrowers began defaulting on mortgage loans.³⁵ As defaults mounted, several well-known subprime mortgage lenders filed for bankruptcy,³⁶ financial institutions began selling or hedging against subprime mortgage assets, and rating agencies downgraded hundreds of MBS credit ratings.³⁷ The downgrading impacted even the most highly rated MBS transactions, with some AAA-rated securities being downgraded to “junk” status.³⁸

As investors lost confidence in the accuracy of credit ratings, not only for MBS but also for corporate debt securities,³⁹ the capital markets that firms rely upon for continued funding started drying up.⁴⁰ At the same time, counterparties began fearing for the solvency of major financial institutions, like Bear Stearns

³³ Cf. *infra* note 75 and accompanying context (discussing credit-rating agencies).

³⁴ Cf. CORELOGIC, EVALUATING THE HOUSING MARKET SINCE THE GREAT RECESSION 4 (Feb. 2018) (finding that, prior to the last financial crisis, rating agency S&P modeled that housing prices could fall as much as twenty percent, whereas they actually fell around thirty-three percent).

³⁵ Steven L. Schwarcz, *The Financial Crisis and Credit Unavailability: Cause or Effect?*, 72 BUS. LAW. 409, 410 (2017) [hereinafter Schwarcz, *Financial*]; Michael M. Grynbaum, *Home Prices Fell in '07 for First Time in Decades*, N.Y. TIMES (Jan. 24, 2008), <https://www.nytimes.com/2008/01/24/business/24cnd-home.html> [<https://perma.cc/FAS9-CPX9>].

³⁶ See, e.g., Julie Creswell, *New Century Files for Bankruptcy*, N.Y. TIMES (Apr. 2, 2007), <https://www.nytimes.com/2007/04/02/business/03lend.web.html> [<https://perma.cc/V8EN-KRZ3>]. American Home Mortgage, a large non-subprime mortgage lender, filed for bankruptcy in August 2007 as the market for mortgage debt collapsed. See Associated Press, *American Home Mortgage Seeks Chapter 11 Bankruptcy Protection*, N.Y. TIMES (Aug. 7, 2007), <https://www.nytimes.com/2007/08/07/business/07home.html> [<https://perma.cc/9AQX-2TDE>].

³⁷ See U.S. FIN. CRISIS INQUIRY COMM'N, THE FINANCIAL CRISIS INQUIRY REPORT 242 (2011).

³⁸ See, e.g., Aparajita Saha-Bubna & Carrick Mollenkamp, *CDO Ratings Are Whacked by Moody's*, WALL ST. J. (Oct. 27, 2007), <https://www.wsj.com/articles/SB119340698261172889> (on file with the *Ohio State Law Journal*) (reporting on Moody's downgrading of several MBS transactions from AAA to junk bonds). A “junk” rating is one that is below BBB-, which is less than so-called investment grade. U.S. FIN. CRISIS INQUIRY COMM'N, *supra* note 37, at 71.

³⁹ See, e.g., Serena Ng & Ruth Simon, *Ratings Cuts by S&P, Moody's Rattle Investors*, WALL ST. J. (July 11, 2007), <https://www.wsj.com/articles/SB118408289722162161> (on file with the *Ohio State Law Journal*); Steven L. Schwarcz, *Systematic Regulation of Systemic Risk*, 2019 WIS. L. REV. 1, 31–32 [hereinafter Schwarcz, *Systematic*].

⁴⁰ See Steven L. Schwarcz, *Keynote Address: Understanding the Subprime Financial Crisis*, 60 S.C. L. REV. 549, 552 (2009) [hereinafter Schwarcz, *Understanding*].

and Lehman Brothers, that held substantial MBS portfolios.⁴¹ By early 2008, counterparties in short-term credit markets stopped doing business with Bear Stearns, deeming it too risky.⁴² Lacking liquidity, the firm collapsed and was purchased by JP Morgan, with federal government backing.⁴³ Plagued by similar liquidity constraints, Lehman Brothers filed for bankruptcy in September 2008.⁴⁴

The Lehman bankruptcy panicked investors, halting trading even in the short-term commercial paper markets.⁴⁵ Shortly after Lehman filed for bankruptcy, the federal government bailed out American International Group (AIG), the nation's largest insurance company, to avoid its failure from endangering its counterparty financial institutions and to try to avoid further panic.⁴⁶ AIG had sold billions of dollars of credit-default swap (CDS) protection, effectively insuring certain investors in MBS transactions against default;⁴⁷ it was becoming unable, however, to post the increasing amounts of collateral contractually required to assure those investors that it could pay its CDS obligations.⁴⁸ Notwithstanding AIG's bailout, the illiquidity and uncertainty led to massive contagion effects.⁴⁹ Commercial banks failed in significant numbers, with 25 banks failing in 2008, 140 failing in 2009, and 157 failing in 2010.⁵⁰ The financial system collapsed, resulting in a worldwide recession.⁵¹

The mechanisms of financial contagion are worth emphasizing. A panoply of financial products combined and interlinked mortgages and mortgage-related investments together. Although the intention was to diversify risk, a byproduct linked losses from some bad investments to broader instruments and thereby harmed broader markets. When investors realized the unreliability of MBS credit ratings and other sources of market information, they had little ability to distinguish poor investments from sound ones. This informational failure led to

⁴¹ Cf. U.S. FIN. CRISIS INQUIRY COMM'N, *supra* note 37, at xix–xx (noting that by 2007, Bear Stearns, Lehman Brothers, Goldman Sachs, Merrill Lynch, and Morgan Stanley were borrowing significant amounts of money in overnight markets and were operating with leverage ratios as high as forty to one, such that a three percent devaluation in assets could cause the firm's failure). Bear Stearns began to falter when two of its hedge funds holding significant MBS assets failed. *Id.* at 238–42.

⁴² *See id.* at 286–88.

⁴³ *See id.* at 289–90.

⁴⁴ *See id.* at 326, 338–39.

⁴⁵ *See* Schwarcz, *Understanding*, *supra* note 40, at 552.

⁴⁶ *See* U.S. FIN. CRISIS INQUIRY COMM'N, *supra* note 37, at 339, 347–50.

⁴⁷ *See* William K. Sjostrum, Jr., *The AIG Bailout*, 66 WASH. & LEE L. REV. 943, 956–57 (2009).

⁴⁸ *Id.* at 959–61.

⁴⁹ Schwarcz, *Financial*, *supra* note 35, at 410–11.

⁵⁰ *Bank Failures in Brief—Summary 2001 Through 2021*, FDIC, <https://www.fdic.gov/bank/historical/bank/> [<https://perma.cc/TY29-24M5>].

⁵¹ *See* Schwarcz, *Financial*, *supra* note 35, at 410–11.

a general devaluation—what market watchers call a “lack of confidence”—of the broader debt market.

B. *Reforming Financial Regulation to Overcome that Failure*

The primary regulatory lessons of the financial crisis impressed the importance of anticipating and trying to address the dangers of systemic risk. These lessons spurred several relevant approaches to macroprudential regulation. Most of these approaches are entity-based, designed to protect against, or to mitigate the systemic impact of, the failure of systemically important financial institutions (“SIFIs”), but they also apply to systemic elements of the financial system.⁵²

One category of financial regulation is devised to prevent the very onset of a financial crisis. These entity-based regulations are chiefly motivated by concern that SIFIs may engage in morally hazardous risk-taking because they deem themselves “too big to fail,” and thus they restrain the amount of risk SIFIs may assume.⁵³ For example, capital-adequacy regulation protects SIFIs against unexpected losses⁵⁴ by requiring them to hold minimum levels of equity so they cannot become excessively leveraged.⁵⁵ Many SIFIs also are required to establish risk committees to help protect against failure.⁵⁶ Entity-based regulation also includes liquidity requirements, which are designed to assure that SIFIs keep sufficient cash on hand to protect them against becoming unable to pay their debts when due.⁵⁷ This helps to safeguard against the risk that maturity transformation—the funding of long-term investments through short-term borrowing—will cause SIFI defaults that trigger systemic shocks.⁵⁸

Entity-based regulations have also been extended to what has been called “ring-fencing,” which refers to steps taken “to protect a firm from becoming subject to liabilities and other risks associated with bankruptcy; to help ensure that a firm is able to operate on a standalone basis even if its affiliated firms fail; to protect a firm from being taken advantage of by affiliated firms, thereby preserving the firm’s business and assets; and to limit a firm from engaging in risky activities.”⁵⁹

⁵² See Jeremy C. Kress, Patricia A. McCoy & Daniel Schwarcz, *Regulating Entities and Activities: Complementary Approaches to Nonbank Systemic Risk*, 92 S. CAL. L. REV. 1455, 1458 (2019).

⁵³ Schwarcz, *Systematic*, *supra* note 39, at 5.

⁵⁴ Alexander & Schwarcz, *supra* note 15, at 136.

⁵⁵ Hervé Hannoun, Deputy Gen. Manager, Bank for Int’l Settlements, *The Basel III Capital Framework: A Decisive Breakthrough* (Nov. 22, 2010), <http://www.bis.org/speeches/sp101125a.pdf> [<https://perma.cc/X6AM-JS7V>]; Schwarcz, *Systematic*, *supra* note 39, at 5 (defining minimum capital adequacy ratios as the ratio of a SIFI’s capital to its risk-weighted assets).

⁵⁶ Schwarcz, *Systematic*, *supra* note 39, at 7.

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ Steven L. Schwarcz, *Ring-Fencing*, 87 S. CAL. L. REV. 69, 81–82 (2013).

A second form of regulation, which is also entity-based, is devised to ensure that SIFIs are sufficiently robust as to survive sudden market disruptions.⁶⁰ If the first category of regulations focuses on preventing the onset of financial crises, this second category is designed to prevent the rapid spread of crisis. One significant example of this second category is stress tests. These examine a SIFI's response to hypothetical "stressed" adverse financial conditions, such as high unemployment, stock-market crashes, liquidity shortages, and debt defaults.⁶¹ The Dodd-Frank Act mandates that SIFIs engage in periodic stress testing.⁶² This stress testing is now considered the "most powerful prudential tool . . . for safeguarding the resilience of the financial system."⁶³

A third category of macroprudential financial regulation effectively focuses on correcting market failures that could trigger and transmit risk to the financial system.⁶⁴ To minimize agency problems, for example, one relevant post-2008 approach focuses on aligning public and private interests when creating the types of transactions and products believed to be responsible for causing the

⁶⁰ Kress, McCoy & Schwarcz, *supra* note 52, at 1472–80.

⁶¹ Robert Weber, *A Theory for Deliberation-Oriented Stress Testing Regulation*, 98 MINN. L. REV. 2236, 2238–39 (2014).

⁶² 12 U.S.C. § 5365(i).

⁶³ Stephen G. Cecchetti, *On the Separation of Monetary and Prudential Policy: How Much of the Precrisis Consensus Remains?*, 66 J. INT'L MONEY & FIN. 157, 167 (2016); see also Charles A. E. Goodhart, *In Praise of Stress Tests*, in *STRESS TESTING AND MACROPRUDENTIAL REGULATION: A TRANSATLANTIC ASSESSMENT* 141, 150 (Ronald W. Anderson ed., 2016); Vitor Constâncio, *The Role of Stress Testing in Supervision and Macroprudential Policy*, in *STRESS TESTING AND MACROPRUDENTIAL REGULATION: A TRANSATLANTIC ASSESSMENT* 51, 51–55, 59–60 (Ronald W. Anderson ed., 2016).

⁶⁴ Another macroprudential regulatory approach, regulating monetary policy, does not appear to be relevant to macromedical regulation. *But cf.* Joseph C. Sternberg, *Three Economic Comorbidities for the Coronavirus*, WALL ST. J. (May 22, 2020), <https://www.wsj.com/articles/three-economic-comorbidities-for-the-coronavirus-11590100196> (on file with the *Ohio State Law Journal*) (discussing bad monetary policy as one of these comorbidities).

Finding [a new normal] is the task of hundreds of millions of individuals making decisions about production and consumption. The world's major central banks are making this task all but impossible. . . . Clear price signals, for both goods and capital, are vital to making these judgments. Yet central banks' correct instinct to smooth out a potential liquidity panic in March has morphed into ad hoc economic management. Consider the Federal Reserve's willingness to buy so-called fallen-angel corporate debt—bonds that boasted an investment-grade credit rating before the pandemic but have declined to junk status now. The Fed has no idea how many of these companies will recover quickly—or at all—after the virus. . . . Doctors now believe that in many patients, coronavirus goads the body's immune system into destructive overdrive. So too with monetary policy, the economy's first immune response to a crisis. The comorbidity is a monetary system already prone to violent overreactions to negative stimuli. Voters are right to ask whether the economic fallout from Covid-19 is something the virus does to us or something we do to ourselves.

Id.

financial crisis.⁶⁵ These transactions and products included certain securitization and derivative transactions and home-mortgage loans.⁶⁶ Macroprudential regulation addressed securitization transactions by imposing risk-retention requirements to try to align incentives between originators of loans that are intended to be sold off in those transactions and the parties buying them.⁶⁷ Macroprudential regulation addressed derivatives transactions by requiring most standardized derivative contracts to be cleared through central counterparties,⁶⁸ which are well-capitalized entities that serve as “buyer to every seller and seller to every buyer.”⁶⁹ They absorb counterparty risk and also help to net offsetting payment obligations among its members.⁷⁰ Macroprudential regulation addressed home-mortgage loans not only by imposing risk-retention requirements to try to reduce moral hazard in the origination of mortgage loans⁷¹ but also by setting conditions to help ensure that mortgage-loan borrowers are able to repay their loans.⁷² Under one such ability-to-repay requirement, for example, mortgage lenders must make a “reasonable and good faith determination . . . that, at the time the loan is consummated, the consumer has a reasonable ability to repay the loan”⁷³

⁶⁵ Schwarcz, *Systematic*, *supra* note 39, at 10.

⁶⁶ *See id.* at 10–11.

⁶⁷ *See id.* at 10 (discussing the risk-retention requirement); *see also* Dodd-Frank Wall Street Reform and Consumer Protection Act, 15 U.S.C. § 78o-11(c)(1)(B) (imposing that requirement); *Proposal for a Regulation of the European Parliament and of the Council Laying Down Common Rules on Securitisation and Creating a European Framework for Simple, Transparent and Standardised Securitisation and Amending Directives*, at 14, 31–32, COM (2015) 472 final (Sept. 30, 2015) (proposing a similar risk-retention requirement for securitizations in the European Union). The media often refers to risk-retention requirements as maintaining “skin in the game.” *See, e.g.*, Andrew M. Faulkner, *Despite Challenges, Risk Retention Rules Set to Impact All Asset-Backed Securities by End of 2016*, SKADDEN (Apr. 26, 2016), <https://www.skadden.com/insights/publications/2016/04/despite-challenges-risk-retention-rules-set-to-imp> [<https://perma.cc/JE29-EM6N>].

⁶⁸ *See, e.g.*, Paul M. McBride, *The Dodd-Frank Act and OTC Derivatives: The Impact of Mandatory Central Clearing on the Global OTC Derivatives Market*, 44 INT’L LAW. 1077, 1101–05 (2010).

⁶⁹ Richard Heckinger, *Derivatives Overview*, in UNDERSTANDING DERIVATIVES: MARKETS AND INFRASTRUCTURE 1, 8 (2014).

⁷⁰ *See id.* at 8.

⁷¹ *See supra* note 67 and accompanying text.

⁷² *See* Ryan Bubb & Prasad Krishnamurthy, *Regulating Against Bubbles: How Mortgage Regulation Can Keep Main Street and Wall Street Safe—From Themselves*, 163 U. PA. L. REV. 1539, 1542 (2015).

⁷³ 15 U.S.C. § 1639c. An additional form of entity-based regulation is resolution, which “includes reorganizing the capital structure of, or else liquidating with minimal systemic impact, SIFIs that become financially troubled.” *See* Schwarcz, *Systematic*, *supra* note 39, at 9. The Dodd-Frank Act, for example, requires SIFIs to create “living wills” to facilitate their liquidation with minimal systemic risk, in the event of financial distress. Jessica Silver-Greenberg & Nelson D. Schwartz, *‘Living Wills’ for Too-Big-to-Fail Banks Are Released*, N.Y. TIMES (July 3, 2012), <https://www.nytimes.com/2012/07/04/business/living-wills-of->

Macroprudential financial regulation also focuses on correcting market failures that arise from information asymmetries.⁷⁴ The organizations that assessed, and continue to assess, the quality of securities are referred to as credit-rating agencies, even though they are private for-profit companies.⁷⁵ These organizations were criticized for contributing to the financial crisis by giving unduly high ratings to complex and highly leveraged MBS and subsequently downgrading those ratings, causing large market-value losses and a rapid drying up of liquidity.⁷⁶ The Dodd-Frank Act authorized the Securities and Exchange Commission to supervise rating agencies' internal record-keeping processes and to regulate their potential conflicts of interest.⁷⁷

Finally, macroprudential financial regulation relies heavily on emergency powers, invested in the Federal Reserve, to intervene directly at the source of contagion. The Fed's emergency powers are authorized by section 13(3) of the Federal Reserve Act, which empowers the Fed to act as a lender of last resort to banks and other financial firms.⁷⁸ The Federal Reserve Board has a variety of tools at its disposal to secure liquidity in times of financial stress, including aggressively purchasing financial assets, establishing secured lending facilities designed to support commercial paper and money market funds, and taking a host of other actions authorized for unusual and exigent circumstances under section 13(3).⁷⁹

how-to-unwind-big-banks-are-released.html [https://perma.cc/S8PZ-HVZP]. Some SIFIs are required to issue a minimum portion of their debt securities as contingent convertible "CoCo" bonds, which facilitate the conversion of debt to equity under specified conditions and decrease the firm's indebtedness. CEYLA PAZARBASIOGLU, JIANPING ZHOU, VANESSA LE LESLÉ & MICHAEL MOORE, INT'L MONETARY FUND, CONTINGENT CAPITAL: ECONOMIC RATIONALE AND DESIGN FEATURES 4 (2011), <https://www.imf.org/external/pubs/ft/sdn/2011/sdn1101.pdf> [https://perma.cc/6QC9-AFMC]. We remark on this regulation only in passing because of its limited applicability to the health sector.

⁷⁴ See, e.g., Bubb & Krishnamurthy, *supra* note 72, at 1629.

⁷⁵ Schwarcz, *Systematic*, *supra* note 39, at 12. Standard & Poor's and Moody's epitomize credit-rating agencies. See Christopher M. Bruner, *States, Markets, and Gatekeepers: Public-Private Regulatory Regimes in an Era of Economic Globalization*, 30 MICH. J. INT'L L. 125, 132–33 (2008).

⁷⁶ See, e.g., Amadou N.R. Sy, *The Systemic Regulation of Credit Rating Agencies and Rated Markets* 3 (Int'l Monetary Fund, Working Paper No. 09/129, 2009), <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/The-Systemic-Regulation-of-Credit-Rating-Agencies-and-Rated-Markets-23030> [https://perma.cc/HL3X-5W89].

⁷⁷ 15 U.S.C. § 78o-7; *Credit Rating Agencies*, SEC (Sept. 5, 2014), <https://www.sec.gov/spotlight/dodd-frank/creditratingagencies.shtml> [https://perma.cc/SLU6-9X9Y].

⁷⁸ Federal Reserve Act of 1913 § 13(3), 12 U.S.C. § 343.

⁷⁹ The language of section 13(3) places relatively few limitations on the Fed's discretion. MARC LABONTE, CONG. RSCH. SERV., FEDERAL RESERVE: EMERGENCY LENDING 16 (2020). But cf. Alexander Mehra, *Legal Authority in Unusual and Exigent Circumstances: The Federal Reserve and the Financial Crisis*, 13 U. PA. J. BUS. L. 221, 236 (2010) (arguing that the Fed-created special purposes vehicles to affect the purchase of the assets of Bear Stearns may have exceeded the statutory authority of section 13(3)).

The COVID pandemic provided a more current illustration of the Fed's emergency powers. The Treasury Secretary and the Fed have worked closely in unison during the pandemic to extend emergency protections.⁸⁰ These actions are reminiscent of actions taken over the course of the last financial crisis.⁸¹ "In some cases, the programs actually bear the same acronyms as those used in the last financial crisis, updated with new model numbers ([e.g.], TALF 2.0), and in certain cases, such as haircut requirements for TALF 2.0 collateral, the new term sheets track those used in the last financial crisis."⁸² Moreover, "the CARES legislation includes a number of temporary reversals of Dodd-Frank Act limitations on uses of the Treasury Department's Exchange Fund and the FDIC's powers to increase bank guarantees."⁸³

We do not claim that the post-2008 macroprudential financial regulation is perfect. Indeed, regulators and scholars worry that vulnerabilities still remain,⁸⁴ and others have noted that many of the most egregious perpetrators of financial irresponsibility escaped the 2008 crisis without punishment or financial

⁸⁰ LABONTE, *supra* note 79, at 9, 18. For some of these emergency protections, the Fed needs approval of the Secretary of the Treasury because Dodd-Frank Act section 1101 limited the Fed's lending power under the guise of avoiding costly public bailouts and reducing moral hazard (the risk that banks will engage in risky conduct under the belief that the damage from their failure will be mitigated by the Fed's safety net). See Schwarcz, *Systematic*, *supra* note 39, at 45.

⁸¹ For a helpful summary of these actions, see generally *The Federal Reserve's Actions to Address the Coronavirus Crisis*, DAVIS POLK (May 22, 2020), https://www.davispolk.com/sites/default/files/the_federal_reserves_actions_address_coronavirus_crisis.pdf [<https://perma.cc/RNK5-VH5K>].

⁸² Jackson & Schwarcz, *supra* note 29 (manuscript at 11–12).

⁸³ *Id.* at 12. For a helpful summary of the CARES Act provisions, see *Congress Passes the CARES Act Fiscal Stimulus Package to Combat the Coronavirus Pandemic's Economic Impact*, DAVIS POLK (Mar. 27, 2020), https://www.davispolk.com/files/2020-03-26_senate_passes_cares_act_fiscal_stimulus_package.pdf [<https://perma.cc/3VHA-A2D4>]. It is possible that the Federal Reserve's pandemic-related responses have overexposed it to credit risks. The Fed might be following the last playbook in which it arguably profited by its emergency actions. However, the uncertain duration and intensity of the current economic crisis make it possible that the models and assumptions used to justify the pandemic-related responses will prove inaccurate. Conceivably that might prompt some Fed critics to push for further restrictions on the Fed's Section 13(3) powers. *But cf.* Kathryn Judge, *Congress Should Endorse the Federal Reserve's Extraordinary Measures*, CLS BLUE SKY BLOG (Mar. 24, 2020), <https://clsbluesky.law.columbia.edu/2020/03/24/congress-should-endorse-the-federal-reserves-extraordinary-measures/> [<https://perma.cc/EW8Q-G9F6>] (suggesting that Congress inoculate the Fed by endorsing the Fed's use of its Section 13(3) powers in the current crisis).

⁸⁴ See, e.g., Schwarcz, *Systematic*, *supra* note 39, at 14, 26–34 (identifying and explaining various inadequacies of post-2008 macroprudential regulation); Binyamin Appelbaum, *Policy Makers Skeptical on Preventing Financial Crisis*, N.Y. TIMES (Oct. 4, 2015), <https://www.nytimes.com/2015/10/05/business/economy/policy-makers-skeptical-on-preventing-financial-crisis.html> [<https://perma.cc/JL23-WY9D>] (reporting, as the consensus view of an international conference of regulators at the Federal Reserve Bank of Boston, that regulators have made "little progress in figuring out how they might actually" prevent another financial crisis).

reckoning.⁸⁵ But the regulatory regime devised to preempt, mitigate, and respond to contagious financial panic that was assembled after 2008's painful lessons has been credited with providing needed stability when financial markets falter.⁸⁶ The taxonomy of macroprudential regulations can be grouped in the categories described above: entity-based regulation devised to avoid the origination of crises; regulation devised to preempt the spread of crises; regulation focusing on correcting market failures that could trigger and transmit risk to the financial system; and emergency powers that enable regulators to respond to crises.

Part III next illustrates that, even though—as our current moment shows too painfully—the U.S. health sector is also vulnerable to contagion, healthcare regulation offers few powers to prevent or respond to contagion. This is in spite of the health sector being perhaps the most heavily regulated U.S. industry.

III. SHORTCOMINGS IN HEALTHCARE REGULATION: A FOCUS ON COMPONENTS RATHER THAN THE SYSTEM

The American health system has no lack of regulations or government presence. Even though the U.S. health system is often characterized as being distinctively market-oriented, i.e., that the public sector plays a less controlling role in the United States than in other nations,⁸⁷ government fiscal and

⁸⁵ See *Bank of America Home Loans*, WIKIPEDIA, https://en.wikipedia.org/wiki/Bank_of_America_Home_Loans [<https://perma.cc/FA6B-LWN9>] (reporting without irony that Countrywide Financial generated 23,000% returns from 1982–2003, was by 2006 financing 20% of all mortgages in the United States, at a value of about 3.5% of United States GDP, and was acquired in a \$4.1 billion purchase by Bank of America in 2008; then later noting that “Bank of America was forced to agree to a near-\$17 billion deal to settle claims against it relating to the sale of toxic mortgage-linked securities, a large percentage of which had been sold by Countrywide”). Compare MICHAEL LEWIS, *FLASH BOYS: A WALL STREET REVOLT* 1 (2014) (“I’d thought it strange, after the financial crisis, in which Goldman played such an important role, that the only Goldman Sachs employee who had been charged with any sort of crime was the employee who had taken something from Goldman Sachs.”), with Steven L. Schwarcz, *Excessive Corporate Risk-Taking and the Decline of Personal Blame*, 65 EMORY L.J. 533 (2015) (using the last financial crisis to provide perspective, examining how law should control excessive corporate risk-taking without impeding broader economic progress, and also analyzing the extent to which corporate risk-taking should be regarded as excessive and the extent to which personal liability should be used to control that risk-taking).

⁸⁶ See, e.g., Kelly Anne Smith, *How the Dodd-Frank Act Protects Your Money*, FORBES (July 20, 2020), <https://www.forbes.com/advisor/investing/dodd-frank-act/> [<https://perma.cc/W7FN-Q75J>].

⁸⁷ See Ryan Nunn, Jana Parsons & Jay Shambaugh, *A Dozen Facts About the Economics of the U.S. Health-Care System*, BROOKINGS (Mar. 10, 2020), https://www.brookings.edu/wp-content/uploads/2020/03/HealthCare_Facts_WEB_FINAL.pdf [<https://perma.cc/K8GU-CYZJ>] (“The United States has a health-care system that largely consists of private providers and private insurance, but as health care has become a larger

regulatory involvement is pervasive throughout the provision and delivery of American healthcare.⁸⁸ It is also worth noting that the United States spends nearly twenty percent of its economy on healthcare services, a vast amount compared both to what is spent on other industries and what other nations spend on their own healthcare,⁸⁹ with much of its financing coming from public funding sources.⁹⁰ If measured by public funding as a percent of the overall economy, the American health system is run by its government as much as many so-called “socialist” health systems.⁹¹

Yet despite this outsized role of government, current U.S. healthcare regulation, much like financial regulation prior to 2008, reflects little attention to system-wide needs. Nearly all public governance focuses exclusively on regulating individual components of the healthcare system, neglecting the interconnections and interdependencies among those components that create the system. This means that while many rules and regulators are in place to ensure that hospitals can deliver quality care to the individual patient, there is little direction or support to ensure that the nation’s hospital system can care for its population.

This Part reviews the failures of the U.S. hospital system in the time of COVID. To be sure, the COVID pandemic has exposed failures at virtually every delivery point in the health system, from intensive care to primary care to

part of the economy, a higher share of health-care funding has been provided by government.”).

⁸⁸ See, e.g., Robert I. Field, *Why Is Health Care Regulation So Complex?*, 33 PHARMACY & THERAPEUTICS 607, 607 (2008).

⁸⁹ For all years from 2010 to 2018, U.S. healthcare expenditures accounted for between 16.1% and 16.8% of annual GDP, the highest percentage of any other OECD nation during the same years. Germany had the next highest healthcare expenditures as a percentage of GDP, spending 11.5% of GDP on healthcare in 2018. Of the other thirty-seven OECD nations, twenty-six spent less than 10% of GDP on healthcare expenditures in 2017. See *Health Expenditure and Financing*, ORG. FOR ECON. COOP. & DEV. (May 27, 2020), <https://stats.oecd.org/Index.aspx?QueryId=107340> [<https://perma.cc/7UEL-BCR6>]. The U.S. budget represents 31% of GDP. *Spending and GDP*, DATA LAB, <https://datalab.usaspending.gov/americas-finance-guide/spending/> [<https://perma.cc/5PET-AZXX>]. Of that budget, 19.2% is spent on national defense, 15.9% on Medicare, and 14.9% on social security including unemployment compensation, housing assistance, and federal employment retirement and disability. *Spending Explorer: FY 2021, Q1*, USASPENDING (Nov. 30, 2020), https://www.usaspending.gov/explorer/budget_function [<https://perma.cc/39DX-VT2H>].

⁹⁰ Nunn, Parsons & Shambaugh, *supra* note 87, at 3–4 (noting increased government funding for health care); Rabah Kamal, Daniel McDermott, Giorlando Ramirez & Cynthia Cox, *How Has U.S. Spending on Healthcare Changed over Time?*, PETERSON-KKF HEALTH SYS. TRACKER (Dec. 23, 2020), <https://www.healthsystemtracker.org/chart-collection/u-s-spending-healthcare-changed-time/#item-usspendingvertime> [<https://perma.cc/L8XB-Y8N8>] (reporting that government spending represents forty-five percent of all spending on health expenditures including administration of insurance, health research, and public health).

⁹¹ See, e.g., Roosa Tikkanen & Melinda K. Abrams, *U.S. Health Care from a Global Perspective, 2019: Higher Spending, Worse Outcomes?*, COMMONWEALTH FUND (Jan. 30, 2020), <https://www.commonwealthfund.org/publications/issue-briefs/2020/jan/us-health-care-global-perspective-2019> [<https://perma.cc/U56A-NJ3B>].

public health initiatives. We focus, however, on the hospital system because it aptly illustrates the shortcoming of individualized regulation and the need to account for system-wide dynamics and also because it offers a fruitful analog to our banking system and thus a ripe opportunity to apply the lessons from post-2008 reforms.

A. A Systemic Failure to Meet Demand

For better or worse, the United States has a health system that primarily responds to individual needs, not one that actively promotes a healthy population. Therefore, although the primary failure of U.S. healthcare policymakers has been to contain the spread of the COVID virus, the primary failure of the nation's healthcare providers has been its inability to keep up with COVID-related demands.⁹² True to the adage that “an ounce of prevention equals a pound of cure,” most critics reserve their harshest criticism at public health officials who failed to implement containment strategies.⁹³ Nonetheless, there has also been a very real failure by healthcare providers, most notably the nation's hospital system, whose job it is to handle the needs of the sick, even if they are spared responsibility for preserving the healthy.

The purpose of this discussion is not to recount the many failures, some of which devastating in impact,⁹⁴ in the nation's COVID response. It also is not to

⁹² See, e.g., Shane Harris, Justin Sondel & Gregory S. Schneider, *Cash-Starved Hospitals and Doctor Groups Cut Staff Amid Pandemic*, WASH. POST (Apr. 9, 2020), https://www.washingtonpost.com/health/starved-for-cash-hospitals-and-doctor-groups-cut-staff-amid-pandemic/2020/04/09/d3593f54-79a7-11ea-a130-df573469f094_story.html (on file with the *Ohio State Law Journal*).

⁹³ See, e.g., Adam Cancryn, ‘It’s Complicated’: Biden Team Weighs Whether to Retain Deborah Birx, POLITICO (Nov. 18, 2020), <https://www.politico.com/news/2020/11/18/biden-coronavirus-team-deborah-birx-437923> [<https://perma.cc/X97V-CWUF>] (highlighting criticism of Dr. Brix); Ashley Collman, *The Rise and Fall of White House COVID-19 Advisor Dr. Scott Atlas, a Lockdown Skeptic Who Had Trump’s Ear and Fought with Experts like Fauci*, BUS. INSIDER (Dec. 1, 2020), <https://www.businessinsider.com/scott-atlas-new-medical-adviser-anti-lockdown-pro-schools-reopening-2020-8> [<https://perma.cc/5CRW-X24J>] (highlighting criticism of Dr. Scott Atlas); Brett Murphy & Letitia Stein, *How the CDC Failed Public Health Officials Fighting the Coronavirus*, USA TODAY (Jan. 26, 2021), <https://www.usatoday.com/in-depth/news/investigations/2020/09/16/how-cdc-failed-local-health-officials-desperate-covid-help/3435762001/> [<https://perma.cc/G74Z-RD9Y>] (detailing CDC failure).

⁹⁴ See Christina Jewett, *Some Hospitals Fail to Separate COVID-19 Patients, Putting Others at Risk*, NPR (Sept. 10, 2020), <https://www.npr.org/sections/health-shots/2020/09/10/911165550/some-hospitals-fail-to-set-covid-19-patients-apart-putting-others-at-risk> [<https://perma.cc/GPM3-VE9R>] (reporting deaths at a California nursing home resulting from comingling of COVID patients and the general population); Kavitha Surana, *A Pinellas Memory Care Unit Treated COVID-19 Patients On-site. More than Half Were Infected*, TAMPA BAY TIMES (June 26, 2020), <https://www.tampabay.com/news/health/2020/06/26/a-pinellas-memory-care-unit-treated-covid-19-patients-on-site-more-than-half-were-infected/>

demean individual healthcare providers, many of whom were no less than heroic during the pandemic and have had to endure enormous physical and emotional strain.⁹⁵ Instead, it is to illustrate how the lack of communication and coordination of healthcare providers, as a sector, prevented some effective responses.

By all accounts, our national healthcare system was woefully unprepared for the surge of COVID patients. Many hospitals in hotspot areas were unable to provide an adequate supply of hospital beds.⁹⁶ These hospital bed shortages took place even as the United States spends far more on health care relative to its GDP than other OECD nations (seventeen percent of GDP for the United States versus about ten percent for the OECD average).⁹⁷ But the additional spending has not meant more hospital beds. The United States has no more beds per capita than the United Kingdom and Canada, about 2.8 hospital beds per 1,000 population and far fewer than Germany.⁹⁸

Perhaps more troubling, even when those hospitals were filled to capacity, they suffered severe revenue losses.⁹⁹ Hospitals during the pandemic have lost

[<https://perma.cc/78G4-RR65>] (reporting onsite testing at a Florida nursing spread the virus among residents).

⁹⁵ See Lesley McClurg, *As Pandemic Persists, Health Care Heroes Beginning to Crack Under the Strain*, NPR (Aug. 22, 2020), <https://www.npr.org/2020/08/22/904695784/as-pandemic-persists-health-care-heroes-beginning-to-crack-under-the-strain> [<https://perma.cc/CK9L-2E7Q>] (reporting that doctors and nurses suffer from isolation and are at risk because of supply shortages); Paul Moakley & Karl Vick, *Eye of the Storm*, TIME, <https://time.com/paramedic-coronavirus-diary/> [<https://perma.cc/2CCJ-KY8T>] (chronicling the daily routine of a New Jersey EMT on the COVID frontlines).

⁹⁶ Russell Gold & Melanie Evans, *Why Did Covid Overwhelm Hospitals? A Yearslong Drive for Efficiency*, WALL ST. J. (Sept. 17, 2020), <https://www.wsj.com/articles/hospitals-for-years-banked-on-lean-staffing-the-pandemic-overwhelmed-them-11600351907> [<https://perma.cc/4S64-BDXT>]; *Hospitals Across Texas Prepare to Hit Capacity amid Surge in Coronavirus Cases*, CBS (July 7, 2020), <https://www.cbsnews.com/news/coronavirus-texas-hospitals-capacity-surge-cases/> [<https://perma.cc/M4XZ-2LFN>]; Lissandra Villa, *As U.S. Braces for Coronavirus to Spread, Hospitals Worry About Shortages*, TIME (Mar. 16, 2020), <https://time.com/5804335/coronavirus-hospitals-shortages/> [<https://perma.cc/JY6A-XU9V>].

⁹⁷ *Health Expenditure and Financing*, ORG. FOR ECON. COOP. & DEV., <https://stats.oecd.org/viewhtml.aspx?datasetcode=SHA&lang=en> [<https://perma.cc/A68F-QT6V>].

⁹⁸ Regina Herzlinger & Barak Richman, *Preparing Hospitals for the Next Pandemic*, HARV. BUS. REV. (June 10, 2021), <https://hbr.org/2021/06/preparing-hospitals-for-the-next-pandemic> [<https://perma.cc/5RNA-AYNR>] (citing *Hospital Beds*, ORG. FOR ECON. COOP. & DEV. tpls. 1, 2 & 3., <https://data.oecd.org/healthq/hospital-beds.htm> [<https://perma.cc/6CEK-MGFT>]).

⁹⁹ Robert King, *CommonSpirit Health Posts \$550M Operating Revenue Loss in Fiscal Year due to COVID-19*, FIERCE HEALTHCARE (Oct. 5, 2020), <https://www.fiercehealthcare.com/hospitals/commonspirit-posts-550m-operating-revenue-loss-fiscal-year-due-to-covid-19> [<https://perma.cc/5RY5-2S5P>] (noting \$550 million in operating losses); Ayla Ellison, *Allina's Annual Net Income Drops 73%*, BECKER'S HOSP. REV. (Feb. 16, 2021), <https://www.beckershospitalreview.com/finance/allina-s-annual-net-income-drops-73.html> [<https://perma.cc/Z3SR-5CWZ>] (reporting losses in Allina's annual income).

billions of dollars, and their employees lost hundreds of thousands of jobs.¹⁰⁰ Why have hospital revenues gone down while illnesses went up? “In no well-working market should demand exceed supply while revenue falls.”¹⁰¹

The grave dysfunctions exposed by the COVID-19 pandemic are best characterized as a systemic failure to meet a surge in demand. Most industries have mechanisms to address supply shortages: sellers of gasoline can obtain emergency supplies in assorted downstream exchanges;¹⁰² banks lend cash to each other to maintain systemic liquidity;¹⁰³ demand surges for professional services are met by firms with temporary or mobile workers.¹⁰⁴ But hospitals failed to divert COVID patients in need of intensive care to facilities that had remaining capacity, or even to establish productive communication to help overwhelmed facilities.¹⁰⁵

The poor coordination of regional hospital systems provides an unfortunate comedy of errors. Perhaps the central cause is that inter-hospital transfers are misaligned with hospital administrators’ incentives to generate revenues.¹⁰⁶ Public hospitals, though overwhelmed, were reluctant to send away patients to whom revenue is attached, and private hospitals were unwilling to receive patients without private health insurance.¹⁰⁷ Bureaucracy, turf battles, and communication failures also hampered transfers to overflow hospitals such as the Billie Jean King field hospital in New York City, which only served 79 patients in total.¹⁰⁸ For example, Billie Jean King’s ambulances were not allowed to pick up transfers because hospitals had exclusive contracts with ambulance companies.¹⁰⁹

¹⁰⁰ See, e.g., Kelly Gooch, *312,400 Healthcare Jobs Added in May; Hospital Job Losses Continue*, BECKER’S HOSP. REV. (June 8, 2020), <https://www.beckershospitalreview.com/workforce/312-400-healthcare-jobs-added-in-may-hospital-job-losses-continue.html> [<https://perma.cc/WL3U-WDQX>] (reporting that hospital employees lost 134,900 jobs in April 2020 and 26,700 the following month).

¹⁰¹ Herzlinger & Richman, *supra* note 98.

¹⁰² See Jim Glassman, *The Oil Crisis that Never Happened*, JPMORGAN CHASE (Oct. 2, 2019), <https://www.jpmorgan.com/commercial-banking/insights/the-oil-crisis-that-never-happened> [<https://perma.cc/KR28-TMFG>].

¹⁰³ Herzlinger & Richman, *supra* note 98.

¹⁰⁴ See *id.*

¹⁰⁵ See Gold & Evans, *supra* note 96.

¹⁰⁶ The Daily, *The Mistakes New York Made*, N.Y. TIMES (July 27, 2020), <https://www.nytimes.com/2020/07/27/podcasts/the-daily/new-york-hospitals-covid.html?searchResultPosition=1> (on file with the *Ohio State Law Journal*) (noting that financial pressures precluded cooperation and better allocation of resources, even among public hospitals).

¹⁰⁷ *Id.*

¹⁰⁸ Brian M. Rosenthal, *This Hospital Cost \$52 Million. It Treated 79 Virus Patients.*, N.Y. TIMES (Oct. 23, 2020), <https://www.nytimes.com/2020/07/21/nyregion/coronavirus-hospital-usta-queens.html> [<https://perma.cc/QZ9P-GQCV>].

¹⁰⁹ *Id.*

Another explanation is the lack of an interoperable and modernized health information systems, which could enable coordination.¹¹⁰ In this sense, the hospital sector's failure to respond as a robust system, including to redistribute medical resources to address varying demands among different hospitals, reflects poor sharing of data, such as I.C.U. bed counts and available supplies of protective personal equipment (PPE).¹¹¹ Further, the fragmented health information system hindered case reporting and contact tracing, which are crucial to controlling the contagion.¹¹² Public health departments have experienced difficulties compiling COVID testing data due to the lack of a uniform and modernized data standard.¹¹³

Hospital beds were not the only scarce resource that was overwhelmed by demand shocks. Multiple parts of the country suffered from shortages in

¹¹⁰ Mackenzie Bean, *1 New York Hospital Faced 'Apocalyptic' Conditions While Others Had Thousands of Free Beds*, BECKER'S HOSP. REV. (May 20, 2020), <https://www.beckershospitalreview.com/care-coordination/1-new-york-hospital-faced-apocalyptic-conditions-while-others-had-thousands-of-free-beds.html> (on file with the *Ohio State Law Journal*); see also Daniel Joseph Finkenstadt, Robert Handfield & Peter Guinto, *Why the U.S. Still Has a Severe Shortage of Medical Supplies*, HARV. BUS. REV. (Sept. 17, 2020), <https://hbr.org/2020/09/why-the-u-s-still-has-a-severe-shortage-of-medical-supplies> [<https://perma.cc/5RNH-M9ZV>] (envisioning a virtual "control tower" that tracks supply inventory and expiration dates to coordinate supply flow).

¹¹¹ See, e.g., Kristen Schorsch, *Illinois Hospitals Have a Patchwork System for Transferring COVID-19 Patients. Some State Lawmakers Say that Should Change.*, WBEZ CHI. (July 14, 2020), <https://www.wbez.org/stories/lawmakers-want-to-change-covid-transfer-system/1572eff2-79d0-43fd-b8e4-9c10b8f9059d> [<https://perma.cc/XK9Z-T8BR>] (reporting that incomplete data about hospitals' capacity to treat patients hindered overburdened and under-resourced hospitals from finding available beds).

¹¹² Ed Pilkington, *'Flying Blind': US Failure to Report Vital Coronavirus Data Is Hobbling Response*, GUARDIAN (July 21, 2020), <https://www.theguardian.com/world/2020/jul/21/coronavirus-data-flying-blind-trump-us-failure> [<https://perma.cc/WU26-L5VA>].

¹¹³ Sarah Kliff & Margot Sanger-Katz, *Bottleneck for U.S. Coronavirus Response: The Fax Machine*, N.Y. TIMES (July 13, 2020), <https://www.nytimes.com/2020/07/13/upshot/coronavirus-response-fax-machines.html> [<https://perma.cc/RJ59-D33D>] (reporting that public health departments in Texas were overwhelmed by testing data coming in different formats including fax paper and that plenty of data feeds lacked critical tracking information).

respiratory ventilators,¹¹⁴ PPE,¹¹⁵ testing capacity,¹¹⁶ adequately protected healthcare workers,¹¹⁷ medical personnel to administer vaccines,¹¹⁸ telemedicine for patients,¹¹⁹ and other materials needed to combat COVID spread. Moreover, the impact was unevenly distributed. The impact of these supply shortages was especially painful to small practitioners and nursing homes with fewer resources.¹²⁰ FEMA tried to meet some emergency needs, yet

¹¹⁴ See Megan L. Ranney, Valerie Griffeth & Ashish K. Jha, *Critical Supply Shortages—The Need for Ventilators and Personal Protective Equipment During the Covid-19 Pandemic*, NEW ENG. J. MED. (Apr. 30, 2020), <https://www.nejm.org/doi/full/10.1056/NEJMp2006141> [<https://perma.cc/HP99-NDHA>] (highlighting the federal government’s crucial role of coordinating efforts to increase the medical supply and ensure hard-hit areas received needed equipment); see also Melissa Healy, *Ventilators for Coronavirus Patients Are in Short Supply. How Scientists Might Pivot*, L.A. TIMES (Apr. 7, 2020), <https://www.latimes.com/science/story/2020-04-07/researchers-look-for-ways-to-divert-patients-from-ventilators-as-shortage-looms> (on file with the *Ohio State Law Journal*) (“The United States has roughly 173,000 ventilators scattered across the country, according to the Center for Health Security at Johns Hopkins University. It may sound like a lot, but there could be 31 times as many patients who need one, experts from Harvard Medical School predict.”).

¹¹⁵ German Lopez, *Why America Ran Out of Protective Masks—And What Can Be Done About It*, VOX (Mar. 27, 2020), <https://www.vox.com/policy-and-politics/2020/3/27/21194402/coronavirus-masks-n95-respirators-personal-protective-equipment-ppe> (on file with the *Ohio State Law Journal*).

¹¹⁶ Christopher Weaver & Rebecca Ballhaus, *Coronavirus Testing Hampered by Disarray, Shortages, Backlogs*, WALL ST. J. (Apr. 19, 2020), <https://www.wsj.com/articles/coronavirus-testing-hampered-by-disarray-shortages-backlogs-11587328441> (on file with the *Ohio State Law Journal*).

¹¹⁷ Zoë Schlanger, *Begging for Thermometers, Body Bags, and Gowns: U.S. Health Care Workers Are Dangerously Ill-Equipped to Fight COVID-19*, TIME (Apr. 20, 2020), <https://time.com/5823983/coronavirus-ppe-shortage/> [<https://perma.cc/3LKG-Y7C2>].

¹¹⁸ Tina Bellon & Melissa Fares, *U.S. States Enlist Medical, Nursing Students to Give Out COVID-19 Vaccine*, REUTERS (Dec. 24, 2020), <https://www.reuters.com/article/us-health-coronavirus-vaccine-nurses/u-s-states-enlist-medical-nursing-students-to-give-out-covid-19-vaccine-idUSKBN28Y124> [<https://perma.cc/7HJ4-J6LU>].

¹¹⁹ Eli Cahan, *Why Telehealth Can’t Significantly Flatten the Coronavirus Curve—Yet*, TECHCRUNCH (Apr. 4, 2020), <https://techcrunch.com/2020/04/04/why-telehealth-cant-significantly-flatten-the-coronavirus-curve-yet/> [<https://perma.cc/5WCN-ERF6>] (reporting that “only 36 states mandated coverage of telehealth services in insurance plans as of April 2019”).

¹²⁰ Shawn Radcliffe, *Why We May Run into PPE Shortages Again*, HEALTHLINE (July 16, 2020), <https://www.healthline.com/health-news/why-we-may-run-into-ppe-shortages-again> [<https://perma.cc/6NML-D5HV>].

its intervention was at times confusing¹²¹ and inadequate.¹²² Widespread shortages illustrated the severity of the health sector's fragmentation.¹²³

Supply shortages cannot be an accepted feature of the nation's hospital sector. In markets with elastic demand, supply shortages are self-corrected by price increases.¹²⁴ In the market for intensive care, however, unmet demand leads to unnecessary deaths,¹²⁵ overworked and strained healthcare providers,¹²⁶ and in the case of a pandemic, avoidable transmissions.¹²⁷ Accordingly, the nation's hospitals cannot be viewed simply as a collection of independent competitors but instead must be regarded as a system that needs certain collaborations to maintain stability. Independent banks recognize the collective need to avoid individual bank failures and have established mechanisms to avoid supply shortages. The COVID-19 pandemic suggests that hospitals need to adopt similar mechanisms to secure system-wide vitality.¹²⁸

¹²¹ Bob Bland, *I Sent Masks to Health Workers but the Trump Administration Seized Them Instead of Helping*, USA TODAY (May 17, 2020), <https://www.usatoday.com/story/opinion/voices/2020/05/16/trump-team-seized-my-masks-for-coronavirus-health-workers-column/5191035002/> [<https://perma.cc/YG5X-QUN7>].

¹²² Jordan Rau, *Nursing Homes Run Short of COVID-19 Protective Gear as Federal Response Falters*, NPR (June 11, 2020), <https://www.npr.org/sections/health-shots/2020/06/11/875335588/nursing-homes-run-short-of-covid-19-protective-gear-as-federal-response-falters> [<https://perma.cc/DL33-53WZ>] (reporting that FEMA's shipments of medical supplies to nursing homes were often delayed and of flimsy quality).

¹²³ On the need for elastic supply chains, and their absence in many healthcare markets, see CIVICA, <https://civicarx.org/> [<https://perma.cc/8Q9R-69C3>], and Herzlinger & Richman, *supra* note 98.

¹²⁴ Adam Hayes, *Elasticity*, INVESTOPEDIA, <https://www.investopedia.com/terms/e/elasticity.asp> [<https://perma.cc/T3B5-4MNA>].

¹²⁵ See Andrew Jacobs, *Grave Shortages of Protective Gear Flare Again as COVID Cases Surge*, N.Y. TIMES (July 8, 2020), <https://www.nytimes.com/2020/07/08/health/coronavirus-masks-ppe-doc.html> [<https://perma.cc/HR84-UPD2>] (attributing healthcare worker deaths to PPE shortages); Juliet Linderman & Martha Mendoza, *U.S. Medical Supply Chains Failed, and COVID Deaths Followed*, ASSOCIATED PRESS (Oct. 6, 2020), <https://apnews.com/article/virus-outbreak-pandemics-ap-top-news-global-trade-fresno-4354f8e8026cf8135b74fa19f0d0f048> [<https://perma.cc/C37B-CE5E>].

¹²⁶ Ed Yong, *'No One Is Listening to Us,'* ATLANTIC (Nov. 13, 2020), <https://www.theatlantic.com/health/archive/2020/11/third-surge-breaking-healthcare-workers/617091/> [<https://perma.cc/DJC3-9VBJ>] (noting healthcare workers are working up to thirty-six-hour shifts).

¹²⁷ Jacobs, *supra* note 125; Linderman & Mendoza, *supra* note 125.

¹²⁸ Interestingly, it seems that there were some occasions in which organized policies led to a reduction in the supply of hospital beds. For example, the Commission on Health Care Facilities in the twenty-first century (also known as "Berger Commission") initiated a hospital closure plan to lower unnecessary healthcare expenditures of New York State. See COMM'N ON HEALTH CARE FACILITIES IN THE 21ST CENTURY, A PLAN TO STABILIZE AND STRENGTHEN NEW YORK'S HEALTH CARE SYSTEM 6 (Dec. 2006), <https://nyhealthcarecommission.health.ny.gov/docs/final/commissionfinalreport.pdf> [<https://perma.cc/BQT2-5DPS>] (identifying the excess capacity of hospitals as "a fundamental driver of the

B. *An Individualized Health System*

It has been said that the U.S. health system is like everything else: you get what you pay for.¹²⁹ Despite spending more on healthcare, by any measure, than any other nation on earth, the U.S. health sector failed to meet the challenge of the COVID pandemic in large part because of how it spends that money. The problem can be put succinctly: the United States pays for individual services, not system-wide capabilities.

The United States spent a total of \$3.6 trillion on health expenditures in 2018, amounting to an average of \$11,172 per person.¹³⁰ Private health insurers paid for \$1.2 trillion of healthcare costs, representing thirty-four percent of national healthcare spending.¹³¹ Private out-of-pocket spending covered an additional ten percent of healthcare costs.¹³² Most of the remaining health spending came from government healthcare programs, including Medicare, Medicaid, the Children's Health Insurance Program, and the Department of Veteran's Affairs, which accounted for a collective forty-one percent of total source funding.¹³³ Third-party payers and other programs, including Workers' Compensation, covered around eight percent of healthcare spending.¹³⁴

crisis" in New York's healthcare delivery system). As a result of the Berger Commission plan and subsequent closure efforts, the number of hospital beds in New York has dropped from 73,931 by 2000 to 58,349 by 2018. Carl Campanile, Julia Marsh, Bernadette Hogan & Nolan Hicks, *New York Has Thrown Away 20,000 Hospital Beds, Complicating Coronavirus Fight*, N.Y. POST (Mar. 17, 2020), <https://nypost.com/2020/03/17/new-york-has-thrown-away-20000-hospital-beds-complicating-coronavirus-fight/> [<https://perma.cc/E7T3-78NW>]. Such coordinated and preemptive policies to reduce hospital beds are commendable, but those policies would be substantially strengthened if there were similarly premeditated policies that address the possible needs for rapid increases in supply.

¹²⁹ See David Hyman, *Health Care Fragmentation: We Get What We Pay For 2* (Univ. of Ill. L. & Econ. Rsch. Paper, Paper No. LE09-012, 2009).

¹³⁰ Micah Hartman, Anne B. Martin, Joseph Benson, Aaron Catlin & The Nat'l Health Expenditure Accts. Team, *National Health Care Spending in 2018: Growth Driven by Accelerations in Medicare and Private Insurance Spending*, 39 HEALTH AFFS. 8, 8 (2020).

¹³¹ *Id.* at 12.

¹³² *Id.* at 9 (showing that private out-of-pocket spending for healthcare was \$375.6 billion in 2018, as compared to \$3.6 trillion total health expenditures in that same year).

¹³³ CTRS. FOR MEDICARE & MEDICAID SERVS., NATIONAL HEALTH EXPENDITURES ACCOUNTS: METHODOLOGY PAPER, 2019 3 (2019), <https://www.cms.gov/files/document/definitions-sources-and-methods.pdf> [<https://perma.cc/3SGP-JYPN>] [hereinafter CMS REPORT] ("The two largest government health care programs, Medicare and Medicaid, purchased \$1.4 trillion in health care in 2019, accounting for 37 percent of total health care spending. Finally, the Children's Health Insurance Program (CHIP), the Department of Defense (DOD), and the Department of Veterans Affairs (VA) accounted for a combined 4 percent.").

¹³⁴ *Id.* at 3–4. The remaining seven percent of spending is by federal, state, and local governments on research, infrastructure, equipment, and public health. See *id.* at 4 (listing expenditures on public health and other investments).

It is important to parse what those enormous funds actually purchase. The majority of national healthcare spending goes to individualized treatment of patients: hospital stays, physician and clinical services, and prescription drugs.¹³⁵ A significant portion of this individualized treatment is federally funded.¹³⁶ Altogether, the federal government spends more than twenty-six percent of its annual budget on healthcare programs.¹³⁷ Medicare alone covers twenty-five percent of all spending on hospital care, twenty-three percent of spending on physician services, and thirty percent of spending on prescription drug sales.¹³⁸

On a relative basis, however, very little money is devoted to public health activities.¹³⁹ Of the \$3.6 trillion of U.S. health expenditures in 2018,¹⁴⁰ less than 2.5% went towards public health.¹⁴¹ The federal government spends only \$13 billion to fund public health activities annually, much of which is allocated to the CDC to be used for immunization programs, infectious disease control, and

¹³⁵ Hartman et al., *supra* note 130, at 15 (finding that hospital care, physician and clinical services, and retail prescription drug spending represented thirty-three percent, twenty percent, and nine percent, respectively, of total healthcare spending).

¹³⁶ *Id.* at 11.

¹³⁷ See Juliette Cubanski, Tricia Neuman & Meredith Freed, *The Facts on Medicare Spending and Financing*, KAISER FAM. FOUND. (Aug. 20, 2019), <https://www.kff.org/medicare/issue-brief/the-facts-on-medicare-spending-and-financing/> [<https://perma.cc/82PM-ZHFV>] (showing that Medicare represents fifteen percent of the federal budget while Medicaid, ACA, and CHIP represent a combined eleven percent of the federal budget); see also Nunn, Parsons & Shambaugh, *supra* note 87, at 1 (calculating that the healthcare sector “accounts for 24 percent of government spending”).

¹³⁸ See Cubanski, Neuman & Freed, *supra* note 137 (“Medicare plays a major role in the health care system, accounting for 20 percent of total national health spending in 2017, 30 percent of spending on retail sales of prescription drugs, 25 percent of spending on hospital care, and 23 percent of spending on physician services.”).

¹³⁹ See TR. FOR AM.’S HEALTH, THE IMPACT OF CHRONIC UNDERFUNDING ON AMERICA’S PUBLIC HEALTH SYSTEM 3 (Apr. 2019) [hereinafter *IMPACT OF CHRONIC UNDERFUNDING*] (noting the chronic underfunding of public health initiatives); see also David Himmelstein & Steffie Woolhandler, *Public Health’s Falling Share of U.S. Health Spending*, 106 AM. J. PUB. HEALTH 56, 56 (2016) (“Despite widespread rhetorical endorsement of prevention, public health programs have received less attention and far less funding than personal medical services.”).

¹⁴⁰ See *supra* note 130 and accompanying text.

¹⁴¹ See *IMPACT OF CHRONIC UNDERFUNDING*, *supra* note 139, at 3 (“In 2017, public health represented just 2.5 percent—\$274 per person—of all health spending in the country.”); see also CMS REPORT, *supra* note 133, at 4 (showing 2019 expenditures on public health activities as \$97 billion).

other programs.¹⁴² The vast majority of public health funding, collectively around \$84 billion annually, comes from state and local governments.¹⁴³

The individual, rather than systemic, emphasis is also reflected in how the United States regulates the health sector. The health sector is among the most thoroughly regulated in the United States, with a panoply of federal and state laws designed, ostensibly, to protect the public.¹⁴⁴ Critically, these laws generally focus on the delivery of healthcare to individual patients, not on the general health of populations. At least to that extent, health law and regulation can be broadly characterized as micro-level regulation, focused on protecting individuals and not populations.

Among the most critical health sector regulations are those charged with protecting the quality of healthcare services. But rather than focusing on population metrics or population health, these regulations almost exclusively aim to benefit individual patients and to monitor individual procedures. The underpinning of healthcare quality assurance lies in state licensure regimes that regulate entry into the medical profession and monitor the healthcare services provided both by licensees¹⁴⁵ and by healthcare facilities.¹⁴⁶ Similarly, private organizations monitor the quality of care through the accreditation of facilities, board certification of physicians, and intra-institutional staff privilege credentialing.¹⁴⁷ Finally, the torts of medical malpractice and negligence disincentivize physicians from providing substandard care.¹⁴⁸ All of these quality assurance mechanisms hold professionals and facilities responsible for the medical care they provide to individual patients. An injured party can bring a tort suit, for example, or a medical error might trigger disciplinary sanctions by a professional board.

Public initiatives to improve population health also operate on an individual level. Medicare and Medicaid provide health insurance redeemable by

¹⁴² See CMS REPORT, *supra* note 133, at 4 (listing federal expenditures on public health); IMPACT OF CHRONIC UNDERFUNDING, *supra* note 139, at 4 (finding that the CDC's 2018 budget was \$8.229 billion).

¹⁴³ See CMS REPORT, *supra* note 133, at 4 (listing state and local expenditures on public health). Not all federal spending is spent on individuals. One exception (which might prove the rule, given its relative insignificance) is the Public Health Service Act (PHSA), which authorizes funding to states for disease prevention and control activities, as well as direct service programs for medically underserved areas and populations. See Eleanor D. Kinney, *Assessing Hospitals and Health Professionals*, in THE OXFORD HANDBOOK OF U.S. HEALTH LAW 119, 136 (I. Glenn Cohen, Allison K. Hoffman & William M. Sage eds., 2017).

¹⁴⁴ See, e.g., Field, *supra* note 88, at 607.

¹⁴⁵ BARRY R. FURROW, THOMAS L. GREANEY, SANDRA H. JOHNSON, TIMOTHY STOLTZFUS JOST & ROBERT L. SCHWARTZ, HEALTH LAW 2–3 (3d ed. 2015).

¹⁴⁶ *Id.* at 48–49.

¹⁴⁷ Sandra H. Johnson, *Structure of Governmental Oversight of Quality in Healthcare*, in THE OXFORD HANDBOOK OF U.S. HEALTH LAW 489, 491 (I. Glenn Cohen, Allison K. Hoffman & William M. Sage eds., 2017).

¹⁴⁸ FURROW, GREANEY, JOHNSON, JOST & SCHWARTZ, *supra* note 145, at 3–4.

individuals for specific medical services.¹⁴⁹ Even these insurance programs are structured to pay healthcare providers for individual services,¹⁵⁰ in a much-maligned fee-for-service system.¹⁵¹ In addition, the Emergency Medical Treatment and Labor Act (EMTALA)¹⁵² and nondiscrimination regulations¹⁵³ ensure the access—or prohibit the discriminatory denial—of individual patients to specific medical services.¹⁵⁴

¹⁴⁹ See MARK A. HALL & DAVID ORENTLICHER, *HEALTH CARE LAW AND ETHICS IN A NUTSHELL* 9 (4th ed. 2020) (“Traditionally, health insurance has been structured on a piece-work basis known as ‘fee-for-service,’ whereby doctors, hospitals and other providers are paid a separate amount for each discrete item of service.”). Health insurance programs pay little for public health, with the exception of vaccinations. See, e.g., MEDICAID & CHIP PAYMENT & ACCESS COMM’N, *MACSTATS: MEDICAID AND CHIP DATA BOOK 50* (Dec. 2019) (showing that Medicaid spent \$4,389 million on the Vaccines for Children program in 2018).

¹⁵⁰ Some Medicaid programs have started to cover services deemed to be part of the “social determinants of health,” such as transportation and housing. See, e.g., SAMANTHA ARTIGA & ELIZABETH HINTON, KAISER FAM. FOUND., *BEYOND HEALTH CARE: THE ROLE OF SOCIAL DETERMINANTS IN PROMOTING HEALTH AND HEALTH EQUITY* 5 (May 2018), <https://www.kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity> [<https://perma.cc/42UY-PWLT>] (“For example, Colorado and Oregon are implementing Medicaid payment and delivery models that provide care through regional entities that focus on integration of physical, behavioral, and social services as well as community engagement and collaboration.”); cf. Barak D. Richman, *Behavioral Economics and Health Policy: Understanding Medicaid’s Failure*, 90 CORNELL L. REV. 705, 710 (2005) (attributing Medicaid’s failure to mitigate health disparities to policymakers’ narrow focus on healthcare services and poor understanding of behavioral factors’ influence on health outcomes).

¹⁵¹ Despite the rising prevalence of alternative payment methods, fee-for-service remains the dominant payment method in the United States. See APOORVA RAMA, AM. MED. ASS’N, *PAYMENT AND DELIVERY IN 2018: PARTICIPATION IN MEDICAL HOMES AND ACCOUNTABLE CARE ORGANIZATIONS ON THE RISE WHILE FEE-FOR-SERVICE REVENUE REMAINS STABLE* 6 (2019), <https://www.ama-assn.org/system/files/2019-09/prp-care-delivery-payment-models-2018.pdf> [<https://perma.cc/T9QG-MF3W>] (“In 2018, an average of 70.3 percent of practice revenue came from FFS compared to only 29.7 percent from APMs.”).

¹⁵² See FURROW, GREANEY, JOHNSON, JOST & SCHWARTZ, *supra* note 145, at 280–81 (providing that EMTALA mandates a medical screening test and stabilizing treatment to any individual who visits an emergency department and observing that the EMTALA enforcement process is driven by complaints from individuals).

¹⁵³ See *id.* at 293–95 (discussing major nondiscrimination statutes, such as Title VI of the Civil Rights Act of 1964 and the Americans with Disabilities Act, which enable individuals to sue healthcare facilities for instances of discrimination); see also Ruqaiyah Yearby, *Breaking the Cycle of “Unequal Treatment” with Health Care Reform: Acknowledging and Addressing the Continuation of Racial Bias*, 44 CONN. L. REV. 1281, 1315 (2012) (“The [ACA] focuses mainly on individual solutions, which, unfortunately, will never fully eradicate racial disparities because there are systemic problems with the U.S. health care system beyond access to insurance that must be fixed.”).

¹⁵⁴ See FURROW, GREANEY, JOHNSON, JOST & SCHWARTZ, *supra* note 145, at 279.

However, none of these regulatory or financing mechanisms focuses on whether the health system, as a totality, is meeting the population's health needs, and none holds healthcare providers accountable for the population's health (this is painfully apparent now, amidst a pandemic in which the health and economic costs of COVID exacerbate long-present health disparities and population inequalities). The presumption behind this policy strategy is that financing care for individuals and assuring the quality of individual services is sufficient to enable supply to adequately meet demand. The year 2020 has revealed the strategy's failure and has illustrated the need for systemic regulation to complement the oversight of individual components.

C. Prior Ad Hoc Pandemic Responses

To the degree that U.S. regulators have responded at all to prior threats of epidemics, they have acted in ad hoc manners that have produced few sustainable lessons to apply to subsequent contagions. The United States has responded to a number of pandemic and epidemic threats over the past two decades, and these exceptions—instances in which government policy aims to mobilize sector-wide systemic responses to healthcare needs—prove the rule. Prior ad hoc responses are revealing both in how unusual they were, i.e., they represented unique departures from standing policy, and in how policymakers did little to convert the individual responses into institutionalized lessons.¹⁵⁵

In late 2002, a novel coronavirus known as Severe Acute Respiratory Syndrome (SARS) emerged in China and, by January 2003, began spreading across the globe.¹⁵⁶ SARS ultimately infected an estimated 8,096 people across twenty-nine countries, with a fatality rate of almost ten percent.¹⁵⁷ The CDC led the U.S. national response, involving more than 800 CDC employees in global

¹⁵⁵ See Ellen Barry, *'It's Totally Ad Hoc': Why America's Virus Response Looks like a Patchwork*, N.Y. TIMES (Mar. 15, 2020), <https://www.nytimes.com/2020/03/15/us/united-states-coronavirus-response.html> [<https://perma.cc/J3NJ-ABTQ>] (attributing the United States' "ad hoc" response to COVID to resistance to centralized public health policy); see also Nason Maani & Sandro Galea, *COVID-19 and Underinvestment in the Public Health Infrastructure of the United States*, MILBANK Q. (2020), https://www.milbank.org/quarterly/articles/covid-19-and-underinvestment-in-the-public-health-infrastructure-of-the-united-states/#_edn22 [<https://perma.cc/Y3C3-YNDZ>] (showing underinvestment in health infrastructure and the health of the U.S. population made the United States especially vulnerable to COVID).

¹⁵⁶ INST. OF MED., *LEARNING FROM SARS: PREPARING FOR THE NEXT DISEASE OUTBREAK 4* (Stacey Knobler et al. eds., 2004), https://www.ncbi.nlm.nih.gov/books/NBK92462/pdf/Bookshelf_NBK92462.pdf [<https://perma.cc/NZ2E-L3P4>] [hereinafter LEARNING FROM SARS].

¹⁵⁷ *Summary of Probable SARS Cases with Onset of Illness from 1 November 2002 to 31 July 2003*, WORLD HEALTH ORG. (July 24, 2015), https://www.who.int/csr/sars/country/table2004_04_21/en/ [<https://perma.cc/H23L-AANL>]. The bulk of SARS cases were concentrated in China, Hong Kong, Taiwan, Singapore, and Canada. *Id.*

efforts to control the virus's spread.¹⁵⁸ The CDC's response, undertaken in partnership with the WHO, likely prevented significant outbreaks in the United States, which experienced no fatalities and relatively few documented cases.¹⁵⁹

Still, the virus highlighted shortcomings in the CDC's capacity to respond to infectious disease, especially its shortage of skilled personnel.¹⁶⁰ After the SARS threat diminished, the CDC took steps to expand its capacity to respond to pandemic-scale outbreaks by developing a scalable system for integrating its newly built Emergency Operations Center with traditional public health responses.¹⁶¹

The H1N1 influenza pandemic in 2009 and the Middle East Respiratory Syndrome (MERS) outbreak in 2012 also provided opportunities for the United States to develop its infectious disease response capabilities.¹⁶² H1N1, an influenza A virus, appeared in Mexico in 2009 and quickly spread to the United States and Canada.¹⁶³ The virus reached pandemic status later that year, leading to an estimated 284,400 deaths worldwide in its first year in circulation.¹⁶⁴

Several measures adopted in the aftermath of SARS were put to the test during the H1N1 and MERS responses, including new international health regulations establishing protocols for coordination among countries.¹⁶⁵ At the

¹⁵⁸ See LEARNING FROM SARS, *supra* note 156, at 13. A team of eighty-four CDC employees were sent to eleven SARS-infected countries to assist on the ground. *Id.* at 52. The remainder were divided into domestic teams focused on a number of issues including "clinical care and infection control, epidemiology of the outbreak, diagnostics and laboratory studies, quarantine issues, information management, occupational health issues (included staff from the National Institute for Occupational Safety and Health), communications, environmental issues, and community outreach programs focused on the challenges of providing accurate information to special groups such as immigrants and the Asian community." *Id.* at 51.

¹⁵⁹ *Id.* at 51 ("Despite several introductions of the virus from returning infected travelers, the United States was spared from the worst of SARS, given that there was no significant secondary spread, no large hospital-based outbreaks as seen in several countries, and no fatalities.").

¹⁶⁰ *Id.* at 55.

¹⁶¹ Stephen S. Papagiotas, Mark Frank, Sherrie Bruce & Joseph M. Posid, *From SARS to 2009 H1N1 Influenza: The Evolution of a Public Health Incident Management System at CDC*, 127 PUB. HEALTH REPS. 267, 268 (2012).

¹⁶² See Holly Ann Williams et al., *CDC's Early Response to a Novel Viral Disease, Middle East Respiratory Syndrome Coronavirus (MERS-CoV), September 2012–May 2014*, 130 PUB. HEALTH REPS. 307, 308 (2015) (examining the lessons the CDC learned in responding to MERS and H1N1 viruses).

¹⁶³ Gabriele Neumann, Takeshi Noda & Yoshihiro Kawaoka, *Emergence and Pandemic Potential of Swine-Origin H1N1 Influenza Virus*, 459 NATURE 931, 933 (2009).

¹⁶⁴ See Fatimah S. Dawood et al., *Estimated Global Mortality Associated with the First 12 Months of 2009 Pandemic Influenza A H1N1 Virus Circulation: A Modelling Study*, 12 LANCET INFECTIOUS DISEASE 687, 692 (2012) (finding a range of 151,700–575,400 global deaths during the first 12 months of the H1N1 virus); Harvey V. Fineberg, *Pandemic Preparedness and Response—Lessons from the H1N1 Influenza of 2009*, 370 NEW ENG. J. MED. 1335, 1336 (2014).

¹⁶⁵ See Fineberg, *supra* note 164, at 1336–37.

CDC, internal reorganizations during and after H1N1 prioritized scientific expertise within the agency and provided for stronger response oversight.¹⁶⁶ MERS, a coronavirus, emerged in Saudi Arabia in 2012 and had caused an estimated 450 infections by May 2014, when the first, and only, two cases were identified in the United States.¹⁶⁷ The CDC initiated its MERS response long before that time, with a focus on maintaining records of confirmed cases, conducting research on biological samples, building testing capacity, and implementing border health measures.¹⁶⁸ Other preparedness measures taken by the CDC included training 50,000 federal employees to identify and manage cases at borders, developing contact tracing protocols, training healthcare providers, and preparing communications around travel.¹⁶⁹

These measures laid important groundwork for the CDC's response to the subsequent Ebola outbreak in 2014–2015 in West Africa.¹⁷⁰ Early support by the CDC and USAID was ad hoc and uncoordinated because those agencies assumed that the WHO was capable of directing responses.¹⁷¹ As the outbreak spread and the WHO's inadequacies became apparent, the U.S. President directed the National Security Council (NSC) to integrate federal agencies' response efforts.¹⁷² Domestically, the CDC implemented infection-control measures similar to those taken in response to MERS.¹⁷³ Despite those measures, the Texas Health Presbyterian Hospital, which received the first incoming Ebola case, mishandled the patient and exposed two nurses to the virus.¹⁷⁴ To prevent further contagion, the President appointed Ron Klain as the Ebola "czar" to head the White House Ebola Task Force.¹⁷⁵ The task force

¹⁶⁶ See Papagiotas, Frank, Bruce & Posid, *supra* note 161, at 271.

¹⁶⁷ See Williams et al., *supra* note 162, at 309.

¹⁶⁸ *Id.* at 310–11.

¹⁶⁹ *Id.* at 315–16.

¹⁷⁰ *Id.* at 316.

¹⁷¹ Memorandum from Christopher M. Kirchhoff on NSC Lessons Learned Study on Ebola to Ambassador Susan E. Rice 7–9 (July 11, 2016), <https://int.nyt.com/data/documenthelper/6823-national-security-council-ebola/05bd797500ea55be0724/optimized/full.pdf> [<https://perma.cc/5GZH-B5N8>] [hereinafter Kirchhoff Memorandum].

¹⁷² *Id.* at 12.

¹⁷³ See Thomas R. Frieden & Inger K. Damon, *Ebola in West Africa—CDC's Role in Epidemic Detection, Control, and Prevention*, 21 EMERGING INFECTIOUS DISEASES 1897, 1901 (2015).

¹⁷⁴ Scott L. Greer & Phillip M. Singer, *The United States Confronts Ebola: Suasion, Executive Action, and Fragmentation*, 12 HEALTH ECON., POL'Y & L. 81, 88 (2017). Some scholars found the Texas Health Presbyterian Hospital's misstep unsurprising due to the advisory nature of CDC guidelines and fragmentation of the healthcare system. *See id.* ("None of this should really have been surprising in a fragmented system where CDC is largely advisory, public health authorities have little legal authority or capacity to direct patients around the health care system, health systems are both diverse and often left to themselves, and *ex post* regulation via lawsuits is common.")

¹⁷⁵ Kirchhoff Memorandum, *supra* note 171, at 25. President Biden recently appointed Klain as his White House Chief of Staff. Alexandra Jaffe, *Biden Chooses Longtime Adviser*

centralized the decisionmaking process and worked closely with government agencies to coordinate response measures.¹⁷⁶ Although only four Ebola cases occurred in the United States, the task force's effectiveness cannot be fully measured because the virus's low contagiousness (being spread only through blood or other bodily fluids) and high (and rapid) mortality rate may have self-limited its spread.¹⁷⁷

The COVID-19 (the SARS-CoV-2 coronavirus) presented greater challenges to the American emergency management system because, although less fatal, it was much more contagious than Ebola.¹⁷⁸ Soon after the first domestic COVID case was confirmed, the White House established its Coronavirus Task Force to coordinate the response.¹⁷⁹ The task force started holding daily briefings¹⁸⁰ and directed FEMA to allocate PPE supplies¹⁸¹ and expand testing capabilities.¹⁸² The task force was properly criticized, however, for inconsistent leadership and for sidelining the CDC and wasting its disease-containment expertise and experience.¹⁸³ At least some of the task force's

Ron Klain as Chief of Staff, ASSOCIATED PRESS (Nov. 11, 2020), <https://apnews.com/article/joe-biden-ron-klain-al-gore-barack-obama-48227e53a6f12c484cb8775e909ee7d9> (on file with the *Ohio State Law Journal*).

¹⁷⁶ Kirchhoff Memorandum, *supra* note 171, at 26. While some senior officials recognized the task force's crucial coordinating role in the crisis, others contended that agencies should have integrated themselves. *Id.*

¹⁷⁷ Julia Ries, *Here's How COVID-19 Compares to Past Outbreaks*, HEALTHLINE (Mar. 12, 2020), <https://www.healthline.com/health-news/how-deadly-is-the-coronavirus-compared-to-past-outbreaks> [<https://perma.cc/CBP6-YTXA>].

¹⁷⁸ *Id.*

¹⁷⁹ Lauren Aratani, *Why Is the White House Winding Down the Coronavirus Taskforce?*, GUARDIAN (May 5, 2020), <https://www.theguardian.com/us-news/2020/may/05/white-house-coronavirus-taskforce-winding-down-why> (on file with the *Ohio State Law Journal*).

¹⁸⁰ See Monica Alba & Lauren Egan, *White House Considering Scaling Back Trump's Daily Coronavirus Briefings in Coming Weeks*, NBC NEWS (Apr. 25, 2020), <https://www.nbcnews.com/politics/donald-trump/white-house-considering-scaling-back-trump-s-daily-coronavirus-briefings-n1192671> [<https://perma.cc/GR7E-DSHH>]. The task force began reducing the frequency of briefings since late April. *Id.*

¹⁸¹ Zolan Kanno-Youngs & Jack Nicas, *'Swept Up by FEMA': Complicated Medical Supply System Sows Confusion*, N.Y. TIMES (Apr. 6, 2020), <https://www.nytimes.com/2020/04/06/us/politics/coronavirus-fema-medical-supplies.html> [<https://perma.cc/B3Q9-67GC>].

¹⁸² Press Release, FEMA, Federal Support to Expand National Testing Capabilities (May 5, 2020), <https://www.fema.gov/news-release/2020/05/05/federal-support-expand-national-testing-capabilities> [<https://perma.cc/8UAU-3XGY>].

¹⁸³ Oliver Milman, *Where Is the CDC? How Trump Sidelined the Public Health Agency in a Pandemic*, GUARDIAN (May 14, 2020), <https://www.theguardian.com/world/2020/may/14/where-is-the-cdc-trump-covid-19-pandemic> [<https://perma.cc/L258-PULS>]; see Jason Dearen & Mike Stobbe, *Trump Administration Buries Detailed CDC Advice on Reopening*, ASSOCIATED PRESS (May 7, 2020), <https://apnews.com/7a00d5fba3249e573d2ead4bd323a4d4> (on file with the *Ohio State Law Journal*) (reporting that the Trump administration shelved the CDC's guideline to local authorities on when and how to reopen public places and noting that "the CDC has not had a regular, pandemic-related news briefing in nearly two months").

responsibilities were later transferred to FEMA,¹⁸⁴ but a comprehensive and adequate response never materialized.

These prior experiences offer some useful lessons. A White House task force can be effective by coordinating a national response among federal agencies (such as the CDC), as well as between those agencies and state governments. That coordination may require strong and centralized leadership, such as that provided by Ronald Klain for the Ebola task force.¹⁸⁵ By contrast, the Coronavirus Task Force's twelve-member model is reported to have engendered a pass-the-buck mentality that hampered communication.¹⁸⁶ Intergovernmental coordination also may require expert guidance; the Ebola task force, for example, convened knowledgeable lawyers to clarify useful jurisdictional lines between federal and state authorities.¹⁸⁷ Additionally, the effectiveness of a White House task force may depend on recognizing and utilizing existing governmental capabilities. The Coronavirus Task Force has been criticized for interfering with the capabilities of federal agencies,¹⁸⁸ including frustrating plans designed by FEMA experts and directing inexperienced volunteers to procure PPE supplies.¹⁸⁹

¹⁸⁴ Andrew Restuccia & Michael C. Bender, *White House Discussing Phasing Out Coronavirus Task Force*, WALL ST. J. (May 5, 2020), <https://www.wsj.com/articles/white-house-discussing-phasing-out-coronavirus-task-force-pence-says-11588705738> (on file with the *Ohio State Law Journal*); cf. Brian Bennett, *The Coronavirus Task Force Reemerges After 2 Months, with Bad News and No President in Sight*, TIME (June 26, 2020), <https://time.com/5860570/coronavirus-task-force-trump-absent/> [<https://perma.cc/4KTR-9MEJ>] (reporting that even as daily COVID-19 cases spiked upward, the task force downgraded its briefing venues from the White House to the HHS, with the President absent).

¹⁸⁵ Peter Nicholas, *The Coronavirus Outbreak Could Bring Out the Worst in Trump*, ATLANTIC (Feb. 18, 2020), <https://www.theatlantic.com/politics/archive/2020/02/trump-response-coronavirus/606610> [<https://perma.cc/XGL9-U4DW>]. Ronald Klain is also credited for convening state governors to smooth the interstate transportation of the Ebola waste. Juliet Eilperin & Lena H. Sun, *Ebola Czar Ron Klain to Leave Feb. 15 After Leading U.S. Response to Outbreak*, WASH. POST (Jan. 29, 2015), https://www.washingtonpost.com/national/health-science/ebola-czar-ron-klain-to-leave-feb-15-after-leading-us-response-to-outbreak/2015/01/29/aa9c503c-a0d7-11e4-b146-577832eafcb4_story.html (on file with the *Ohio State Law Journal*).

¹⁸⁶ Nicholas, *supra* note 185.

¹⁸⁷ Kirchhoff Memorandum, *supra* note 171, at 27.

¹⁸⁸ At least one scholar argues that White House task forces are generally inefficient at responding to public health emergencies and interfere with the work of qualified professionals at CDC, FEMA, etc. See Elaine Kamarck, *Get Rid of the White House Coronavirus Task Force Before It Kills Again*, BROOKINGS (May 7, 2020), <https://www.brookings.edu/blog/fixgov/2020/05/07/get-rid-of-the-white-house-coronavirus-task-force-before-it-kills-again/> [<https://perma.cc/GK6U-4X5F>] (arguing that White House task forces are unnecessary, and often ineffective, in leading crisis responses and may dangerously interfere with the work of qualified professionals).

¹⁸⁹ See Nicholas Confessore, Andrew Jacobs, Jodi Kantor, Zolan Kanno-Youngs & Luis Ferré-Sadurní, *How Kushner's Volunteer Force Led a Fumbling Hunt for Medical Supplies*, N.Y. TIMES (May 10, 2020), <https://www.nytimes.com/2020/05/05/us/jared-kushner-fema-coronavirus.html> [<https://perma.cc/UY7U-NDTK>].

But the greatest takeaway from these experiences is that there was so little taken away. White House task forces were disassembled and then reassembled as needed. FEMA was never given a standing role in preparing for future pandemics. And there was little question that any meaningful federal response to the COVID-19 outbreak would have to be constructed anew. The past history is revealing in what it lacks: no institutional continuity, no accumulated regulatory expertise, no formalized learning or competencies, and no preparations for the next pandemic.

D. Regulating the Healthcare System as a System

A key feature of the regulatory failure exposed by the COVID pandemic has been health policy's incapacity to address systemic challenges. This reflects a growing consensus among healthcare policy experts that, in spite of how healthcare is regulated, national health sectors are better understood as systems, with interlinking parts, rather than as a group of separate components. Several commentators have used the occasion of the COVID-19 crisis, and the associated regulatory failures, to emphasize the systemic and interconnected features of healthcare delivery and have encouraged a reorientation of policy accordingly.¹⁹⁰ This is not a new idea. The World Health Organization (WHO), for example, describes the health sector as “a set of inter-connected parts that must function together to be effective” and notes that “[c]hanges in one area have repercussions elsewhere” and that “[i]mprovements in one area cannot be achieved without contributions from the others.”¹⁹¹

In the midst of a pandemic, it has never been clearer that the health of one population—and the performance of one wing of healthcare delivery—has a direct impact on neighboring populations. But other features of the U.S. health system, even those unrelated to the epidemiological spread of disease, illustrate the need to treat the health sector as a system and to deemphasize the individualized paradigm that dictates so much of the governing regulatory regime.

Existing regulation of the health workforce focuses on the skills and performance of individual professionals but not on their geographic or clinical-

¹⁹⁰ Cf. Siddhartha Mukherjee, *What the Coronavirus Crisis Reveals About American Medicine*, NEW YORKER (Apr. 27, 2020), <https://www.newyorker.com/magazine/2020/05/04/what-the-coronavirus-crisis-reveals-about-american-medicine> [<https://perma.cc/ED6Z-C77X>] (arguing that “[m]edicine is a system for delivering care and support . . . [and] also a system of information, quality control, and lab science”).

¹⁹¹ WORLD HEALTH ORG., EVERYBODY'S BUSINESS: STRENGTHENING HEALTH SYSTEMS TO IMPROVE HEALTH OUTCOMES 3 (2007) (identifying the six building blocks of the health system as service delivery, health workforce, health information systems, medical products and technologies, financing, and leadership/governance); see also RAYMOND L. GOLDSTEEN, KAREN GOLDSTEEN & BENJAMIN GOLDSTEEN, JONAS' INTRODUCTION TO THE U.S. HEALTH CARE SYSTEM 11 (8th ed. 2017) (identifying the five major components of the U.S. healthcare system as facilities, workforce, suppliers of medical products, educational and research organizations, and financing mechanisms).

practice-area distributions. Absent regulations that redress unbalanced distribution, health professionals tend to concentrate in metropolitan areas¹⁹² and specialty care.¹⁹³ In 2020, around sixty-eight percent of “Health Professional Shortages Areas” are rural or half-rural.¹⁹⁴ Moreover, the fraction of medical graduates who opt for primary care is constantly shrinking, which exacerbates the perennial shortage of primary care providers.¹⁹⁵ Consequently, we have “an overbuilt, high-priced, wasteful, and frankly confiscatory system of hospitals and specialty care” with too much specialization in some areas and inadequate healthcare access in others.¹⁹⁶ A better system would not just focus on the quality of individual providers but also their distribution across the population.

Regulation of health information systems has also focused largely on individual vendors and providers.¹⁹⁷ This narrow focus ignores such critical

¹⁹² See Gilles Dussault & Maria Cristina Franceschini, *Not Enough There, Too Many Here: Understanding Geographical Imbalances in the Distribution of the Health Workforce*, HUM. RES. FOR HEALTH (May 27, 2006), <https://human-resources-health.biomedcentral.com/articles/10.1186/1478-4491-4-12> [<https://perma.cc/U6DV-FQCG>] (“Urban areas are more attractive to health care professionals for their comparative social, cultural and professional advantages.”).

¹⁹³ See JAMES A. JOHNSON, CARLEEN STOSKOPF & LEIYU SHI, *COMPARATIVE HEALTH SYSTEMS: A GLOBAL PERSPECTIVE* 85 (2d ed. 2018) (finding that a specialty-oriented medical education and disparities in income motivate the majority of medical students in the United States to choose specialty training).

¹⁹⁴ HEALTH RES. & SERVS. ADMIN., *SECOND QUARTER OF FISCAL YEAR 2020 DESIGNATED HPSA QUARTERLY SUMMARY 3* (Mar. 2020); see also Stephen M. Petterson, Robert L. Phillips, Jr., Andrew W. Bazemore & Gerald T. Koinis, *Unequal Distribution of the U.S. Primary Care Workforce*, AM. ACAD. FAM. PHYSICIANS (June 1, 2013), <https://www.aafp.org/afp/2013/0601/od1.html> [<https://perma.cc/4M6W-PPJT>] (“There are about 80 primary care physicians per 100,000 people in the United States; however, the average is 68 per 100,000 in rural areas and 84 per 100,000 in urban areas.”).

¹⁹⁵ Andy Lazris, Alan Roth & Shannon Brownlee, *No More Lip Service; It’s Time We Fixed Primary Care (Part One)*, HEALTH AFFS. (Nov. 20, 2018), <https://www.healthaffairs.org/doi/10.1377/hblog20181115.750150/full/> [<https://perma.cc/5SWP-MEC5>] (showing that the number of young clinicians entering primary care fields has dropped to 20% and that only about 35% of all clinicians in the United States provide primary care services, contrasted by 70% in other developed countries).

¹⁹⁶ Donald M. Berwick, *The Moral Determinants of Health*, 324 JAMA 225, 225 (2020); cf. Barak D. Richman, Kushal T. Kadakia & Shivani A. Shah, *The Shadows of Life: Medicaid’s Failure of Health Care’s Moral Test*, 28 ANNALS HEALTH L. & LIFE SCIS. 163, 182 (2019) (“[A]n insufficient provider network not only fosters illness and creates a pent-up need for health services, but also rewires how people interact with the health care system. Specifically, an insufficient provider network causes individuals to seek out more accessible, and often more expensive, forms of care, which, in turn, increases health care costs.”).

¹⁹⁷ See Miriam Reisman, *EHRs: The Challenge of Making Electronic Data Usable and Interoperable*, 42 PHARMACY & THERAPEUTICS 572, 572 (2017) (observing that the Health Information Technology for Economic and Clinical Health (HITECH) Act has largely focused on the adoption of certified EHRs by individual health sectors and not interoperability).

systemic implications as interoperability,¹⁹⁸ which is the ability to enable different healthcare information systems to “access, exchange, integrate and cooperatively use data in a coordinated manner” in a way that can “optimize the health of individuals and populations globally.”¹⁹⁹ Interoperable electronic health record (EHR) systems, for example, would enable doctors to access medical data of their patients regardless of where the patients had previously been treated, thereby improving diagnostic efficiency and enhancing treatments.²⁰⁰ Broader data sharing across EHR systems could facilitate useful health analytics, which could have vastly improved the response to COVID-19.²⁰¹

Although in 2020 the U.S. Department of Health and Human Services (HHS) finalized two rules aiming to promote health information exchange,²⁰² more collaborative efforts from healthcare stakeholders are needed to overcome the technical and cultural barriers to interoperability.²⁰³ Indeed, the need for systemic approaches extends far beyond addressing the systemic failure to a pandemic. All healthcare, either good or bad, is highly interconnected. Poor prevention by some could easily frustrate others’ preventive efforts in stopping the spread of a contagious disease. But good prevention could reduce treatment

¹⁹⁸ See Julia Adler-Milstein, *Moving Past the Interoperability Blame Game*, NEW ENG. J. MED. CATALYST (July 18, 2017), <https://catalyst.nejm.org/doi/full/10.1056/CAT.17.0448> (on file with the *Ohio State Law Journal*) (noting that CMS and ONC deferred the health information exchange criterion to later stages of the Meaningful Use program and the resulting barriers to achieving interoperability).

¹⁹⁹ *Interoperability in Healthcare*, HEALTHCARE INFO. & MGMT. SYS. SOC’Y, <https://www.himss.org/what-interoperability> [<https://perma.cc/9F22-7NU9>].

²⁰⁰ Sharona Hoffman & Andy Podgurski, *Finding a Cure: The Case for Regulation and Oversight of Electronic Health Record Systems*, 22 HARV. J.L. & TECH. 103, 112–14 (2008).

²⁰¹ See Eric D. Perakslis & Erich Huang, *Covid-19 Will Be the Ultimate Stress Test for Electronic Health Record Systems*, STAT (Mar. 12, 2020), <https://www.statnews.com/2020/03/12/covid-19-huge-stress-test-electronic-health-record-systems/> [<https://perma.cc/9N65-W4VZ>] (highlighting the crucial role of patients and deaths tracking in responding to pandemics and noting that the current EHR systems are incapable of large scale tracking); Fred Schulte, *As Coronavirus Strikes, Crucial Data in Electronic Health Records Hard to Harvest*, KAISER HEALTH NEWS (Apr. 30, 2020), <https://khn.org/news/as-coronavirus-strikes-crucial-data-in-electronic-health-records-hard-to-harvest/> [<https://perma.cc/L6G9-EV83>] (reporting that data pooling from thousands of EHRs could have quickly informed researchers of the efficacy of possible COVID-fighting medicines including hydroxychloroquine).

²⁰² Press Release, HHS, HHS Finalizes Historic Rules to Provide Patients More Control of Their Health Data (Mar. 9, 2020), <https://www.hhs.gov/about/news/2020/03/09/hhs-finalizes-historic-rules-to-provide-patients-more-control-of-their-health-data.html> [<https://perma.cc/4F8F-3ZG6>].

²⁰³ See Reisman, *supra* note 197, at 575.

costs²⁰⁴ and inexpensively improve population health.²⁰⁵ Recognizing the value of prevention, the Affordable Care Act expanded access to preventive care by requiring private insurance plans to cover such services.²⁰⁶ Still, however, only a small fraction of American adults receive proper preventive care, suggesting the need for more preventive-care investment.²⁰⁷

On a conceptual level, these observations lend themselves to broader lessons on regulatory policy. Simply regulating the components of a system is insufficient for at least two reasons: first, that micro-focused regulation may fail to regulate all such components; second, even if it does, that micro-focused regulation may inadequately regulate how those components interact as a system.

The idea that protecting all of a system's components may inadequately protect the system might appear counter-intuitive. Regulators struggled with this after the last financial crisis; they had believed that protecting all systemically important financial firms individually would be sufficient because, if no such firm fails, no such failure would trigger a systemic collapse.²⁰⁸ That belief extrapolates the logic of the distributive law of mathematics, that “the result of first adding several numbers and then multiplying the sum by some number is the same as first multiplying each separately by the number and then adding the products.”²⁰⁹

²⁰⁴ Andrea Klemes et al., *Personalized Preventive Care Leads to Significant Reductions in Hospital Utilization*, AM. J. MANAGED CARE (Dec. 18, 2012), https://cdn.sanity.io/files/0vv8mocc6/ajmc/c2379ef2c7c2e30c968f0d7a74130a781a4194e2.pdf/AJMC_12dec_Klemes_e453to460.pdf [<https://perma.cc/BFZ4-VRJ9>] (finding that personalized preventive care could lower hospitalization and ultimately lower healthcare costs); cf. Hans Henri P. Kluge et al., *Prevention and Control of Non-Communicable Diseases in the COVID-19 Response*, 395 LANCET 1678, 1678 (2020), [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31067-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31067-9/fulltext) [<https://perma.cc/QG2Z-KV9F>] (“Prevention and control of NCDs are important during this pandemic because NCDs are major risk factors for patients with COVID-19.”).

²⁰⁵ See Michael V. Maciosek, Ashley B. Coffield, Thomas J. Flottemesch, Nichol M. Edwards & Leif I. Solberg, *Greater Use of Preventive Services in U.S. Health Care Could Save Lives at Little or No Cost*, 29 HEALTH AFFS. 1656, 1660 (2010), <https://www.healthaffairs.org/doi/10.1377/hlthaff.2008.0701> (on file with the *Ohio State Law Journal*).

²⁰⁶ See *Preventive Services Covered by Private Health Plans Under the Affordable Care Act*, KAISER FAM. FOUND. (Aug. 4, 2015), <https://www.kff.org/health-reform/fact-sheet/preventive-services-covered-by-private-health-plans/> [<https://perma.cc/WT33-QZ9S>].

²⁰⁷ Amanda Borsky et al., *Few Americans Receive All High-Priority, Appropriate Clinical Preventive Services*, 37 HEALTH AFFS. 925, 926 (2018), <https://www.healthaffairs.org/doi/10.1377/hlthaff.2017.1248> [<https://perma.cc/J4EJ-58D5>].

²⁰⁸ Cf. Rizwaan Jameel Mokal, *Liquidity, Systemic Risk, and the Bankruptcy Treatment of Financial Contracts*, 10 BROOK. J. CORP. FIN. & COM. L. 15, 21 (2015) (criticizing the widely held view “that ‘the whole financial system is sound if . . . each institution is sound’” (quoting Claudio Borio, *Rediscovering the Macroeconomic Roots of Financial Stability Policy: Journey, Challenges, and a Way Forward*, 3 ANN. REV. FIN. ECON. 87, 88 (2011))).

²⁰⁹ *Distributive Law*, BRITANNICA (June 5, 2019), <https://www.britannica.com/topic/distributive-law> [<https://perma.cc/3SJN-SQDY>]. The distributive law is stated symbolically as: $a \times (b + c) = a \times b + a \times c$. *Id.*

However, the distributive-law analogy between mathematics and systemic risk is dubious. As already demonstrated, that analogy does not take into account how a system's components interact as a system.²¹⁰ Protecting individual components of a system can sometimes even aggravate systemic instability. In a financial context, for example, regulators had a "simplistic view that systemic risk is pro tanto reduced to the same extent as the reduction in risk to each individual financial institution in the system."²¹¹ That view is not only wrong but, in at least one context, seriously misleading:

[Reducing risk to individual financial institutions through] netting encourages greater leverage and inter-party concentrations, weakens lending standards by exacerbating financial agency and adverse selection costs, redistributes counterparty risk rather than reducing it, exacerbates market volatility in times of stress, and thus creates an additional channel for risk transmission, propagating the effects of shock through the financial system.²¹²

The distributive-law analogy also fails because weak components of a system, such as financially troubled hospitals or firms, are not always resolved in a way that reduces systemic risk.²¹³ For example, corporate reorganization law, which applies to resolving both troubled hospitals and troubled firms, normally looks to the parties in interest to reach a consensual debt restructuring plan.²¹⁴ The parties in interest are limited primarily, however, to that entity, its creditors, and its shareholders.²¹⁵ For similar reasons, providing healthcare services to protect individuals within a population does not necessarily protect the healthcare of the population.

Finally, the distributive-law analogy does not address correlated triggers that cause the concurrent failure of multiple components. Regulation intended to protect individual components may then be overwhelmed—such as a

²¹⁰ See *supra* notes 188–189 and accompanying text.

²¹¹ Mokal, *supra* note 208, at 19.

²¹² *Id.*

²¹³ Cf. Douglas J. Elliott, Greg Feldberg & Andreas Lehnert, *The History of Cyclical Macroprudential Policy in the United States* 6 (Fed. Rsv. Bd. Fin. & Econ. Discussion Series, Working Paper No. 2013-29, 2013), <http://www.federalreserve.gov/pubs/feds/2013/201329/201329pap.pdf> [<https://perma.cc/WN8H-BA7R>] (observing that the goal of macroprudential regulation "is to manage factors that could endanger the financial system as a whole, even if they would not be obvious as serious threats when viewed in the context of any single institution").

²¹⁴ See 11 U.S.C. § 1109(b) (listing the parties in interest). Absent a consensual plan, the entity being resolved could attempt to cram down a plan over those parties' objections; failing that, it could be liquidated. Compare 11 U.S.C. § 1129(b)(1) (discussing the cram-down requirements that a plan be fair and equitable and not discriminate unfairly), with 11 U.S.C. § 1112 (discussing the ability of bankruptcy courts to convert a reorganization case to a liquidation for cause, including inability to confirm a plan of reorganization).

²¹⁵ See 11 U.S.C. § 1109(b).

pandemic disease spike that overwhelms the ability of individual hospitals to provide sufficient ventilators.²¹⁶

For these reasons, the healthcare system also needs to be regulated as a system. We next examine how to accomplish that.

IV. DESIGNING MACROMEDICAL REGULATION

In this Part, we articulate a macromedical approach to regulating the healthcare system. It draws heavily from macroprudential regulation that addresses systemic risk in the financial sector and conceives of analogous strategies for a systemic approach to the health sector.

We follow the lessons from financial regulation because they offer the most sophisticated and developed precedents for systemic regulation and because the COVID-19 pandemic offers an analogous contagion that the global financial system experienced during the 2008 financial crisis. Part II of this Article grouped the macroprudential regulatory strategies into four categories: entity-based regulation devised to avoid the origination of crises; regulation devised to preempt the spread of crises; regulation focusing on correcting market failures that could trigger and transmit risk to the financial system; and emergency powers that enable regulators to respond to crises. This Part considers how these same categories could be used to help protect the healthcare system.

A. *Regulating Healthcare Entities to Avoid the Origination of Crises*

Though it might be counterintuitive, there are close parallels between how banks triggered the 2008 financial meltdown and how hospitals trigger the spread of contagious pandemics. The central commonality is that hospitals, like banks, pursue profit motives with a particular business model, and the implementation of this profit-maximizing strategy imposes costs on the rest of the U.S. health sector and, especially, the U.S. population. For banks that deem themselves too big to fail, the profit-maximizing strategy appeared to be exacerbated by morally hazardous risk-taking.²¹⁷ For hospitals, the profit-maximizing strategy reflects a governance model that largely ignores public welfare.

²¹⁶ See *supra* notes 99–108 and accompanying text on supply shortages. In some contexts, regulation designed to protect individual components of a system can even create correlated triggers. For example, regulators generally require insurance companies to divest corporate bonds that are downgraded below an investment-grade rating in order to protect individual insurers against a loss in the value of assets available to pay claims. See Daniel Schwarcz & Steven L. Schwarcz, *Regulating Systemic Risk in Insurance*, 81 U. CHI. L. REV. 1569, 1596, 1602 (2014). That requirement, however, has the potential to correlate an industry-wide dumping of bonds that lose that rating, in turn causing a systemically risky bond-market collapse. *Id.* at 1602–03.

²¹⁷ See *supra* note 53 and accompanying text.

The heart of the American hospital business model is the provision of lucrative, highly predictable, and usually non-emergent services, such as joint replacements, cardiac procedures, and chemotherapies.²¹⁸ Accordingly, hospitals do not supply a safety net for patients in need of long-term intensive care, and for this reason they were ill prepared to provide a safety net to COVID patients.²¹⁹ To the contrary, because hospitals in 2020 had to treat COVID patients and postpone their staple of elective, non-emergent, and lucrative procedures, hospitals exhibited the unusual paradox of being filled with patients but losing money.²²⁰

Devotion to lucrative procedures is not a quirk in our national health system; it is what drives our system. Hospitals are not paid to provide safety net care, and consequently they make few investments to offer a safety net.²²¹ In normal times, health dollars do little more than feed this ravenous hospital model instead of building robust health initiatives, including for infectious diseases, that can keep people out of the hospital.²²² We have long known that we underinvest in population health, and the recent pandemic illustrates that we also underinvest in systems that can triage patients and manage population illnesses.²²³

²¹⁸ Herzlinger & Richman, *supra* note 98; *see also* Kliff, *supra* note 8 (highlighting that hospitals needed to rethink their business model because lucrative surgeries are being cancelling during the pandemic); Laurie McGinley, *Patients Are Still Delaying Essential Care Out of Fear of Coronavirus*, WASH. POST (July 13, 2020), https://washingtonpost.proxy.lib.duke.edu/health/wooing-patients-back-is-tricky-business-as-coronavirus-spikes-in-many-states/2020/07/13/b86d676e-bbb1-11ea-8cf5-9c1b8d7f84c6_story.html [<https://perma.cc/2QFJ-RGTY>] (finding cancer, cardiac, orthopedic surgeries critical to hospital revenue).

²¹⁹ Katherine Harmon Courage, *Hospital ICUs Are Filling Up. It's Even Worse than It Sounds*, VOX (Dec. 24, 2020), <https://www.vox.com/22196119/icu-capacity-hospital-staffing-coronavirus-covid-19> (on file with the *Ohio State Law Journal*) (finding that prolonged ICU stays contribute to a shortage of ICU beds and staff).

²²⁰ *See* Kliff, *supra* note 8 (noting Mayo Clinic lost millions of dollars a day as elective surgeries were cancelled due to COVID concerns).

²²¹ *See* Usman Ahmed, *Traditional Revenue Sources Can't Sustain Today's Hospitals. It's Time to Think Outside the Box*, MEDIUM: SLALOM DAILY DOSE (Oct. 30, 2019), <https://medium.com/the-slalom-daily-dose/traditional-revenue-sources-cant-sustain-today-s-hospitals-it-s-time-to-think-outside-the-box-fe2aac169596> (on file with the *Ohio State Law Journal*) (noting the hospital business model relies heavily on payment for services and care); *see also id.* (describing investments as “ancillary” hospital revenue source).

²²² *See id.* (noting business models reliant on charging for services are undermined by value-based reimbursement by insurance companies, especially if the insurance company decides the service is inefficient or unnecessary).

²²³ *See* Sarah Levy, *Preparing for the Next Wave with AI-Driven Triage and Diagnostics*, FORBES (June 29, 2020), <https://www.forbes.com/sites/forbestechcouncil/2020/06/29/preparing-for-the-next-wave-with-ai-driven-triage-and-diagnostics/?sh=7c5fea583069> [<https://perma.cc/TGD3-Y9N8>] (noting forty-eight hour delays in COVID reporting and coordination issues need to be resolved to implement an AI system for triage); *see also* Bean, *supra* note 110 (attributing overcrowding in NY hospital to failures to establish an information sharing system for ICU bed capacity).

In this sense, it might be said that the hospital business model imposes externalities on the rest of the population. Hospitals do not provide the care the population needs, and the shortcomings are most evident in a pandemic. The failure to invest in preparing for public health crisis is a reflection of shortsighted thinking and can be likened to the excessively risky bank dealings that reflected a moral hazard.

A second parallel, which is more obvious though less important, is the capacity of hospitals to be the source of infection spread. Hospitals are centers in which patients with contagious diseases gather and thus offer opportunities for contagion. In fact, hospital-borne infections are a common cause of death in the United States,²²⁴ and until relatively recently, American hospitals were often reimbursed for treating patients for the avoidable hospital-acquired infections.²²⁵ Hospitals, payers, and government regulators have pursued significant measures to reduce hospital-born infections²²⁶—and many have earned deserved credit for meaningful progress—but the problem itself is another form of an externality that hospitals impose on the rest of the health system and the population.

Health policy experts have long appreciated these externalities imposed by the hospital business model and the shortcomings of hospital care. Most demand reforming Medicare and other payment systems, so hospitals and other healthcare providers are reimbursed based on the value they generate—i.e. the aggregate healthy improvements in populations—but both theory and practice are far from inducing hospitals to change business practices.²²⁷ Certainly, a systemic approach to national healthcare policy would demand widespread payment reform, with dramatic changes to how hospital care is paid for. But following the lessons from financial regulations, health policymakers might also require hospitals to assume financial responsibility for the costs of pandemics and thus financially induce them to prepare for population crises. If hospitals were to assume the financial burdens of population health, including those borne from contagious infections, they might make meaningful efforts to prevent infectious spread (generated both inside and outside their walls), take

²²⁴ E.g., R. Monina Klevens et al., *Estimating Health Care-Associated Infections and Deaths in U.S. Hospitals, 2002*, 122 PUB. HEALTH REPS. 160, 161 (2007).

²²⁵ See, e.g., Catharine Paddock, *Medicare Will Not Pay for Hospital Mistakes and Infections, New Rule*, MED. NEWS TODAY (Aug. 20, 2007), <https://www.medicalnewstoday.com/articles/medicare-will-not-pay-for-hospital-mistakes#1> [<https://perma.cc/VB54-ZSQQ>].

²²⁶ See *id.*; Amy S. Collins, *Preventing Health Care-Associated Infections*, in PATIENT SAFETY & QUALITY: AN EVIDENCE-BASED HANDBOOK FOR NURSES 2-547, 2-552 to 2-563 (Ronda G. Hughes ed., 2008).

²²⁷ Richman, Kadakia & Shah, *supra* note 196, at 182–83 (finding “an insufficient provider network . . . fosters illness and creates a pent-up need for health services”).

preemptive measures to reduce the infection rates in their communities, and hone the ability to swiftly increase capacity when emergencies arise.²²⁸

Some more modest adjustments are possible as well, particularly those that enable hospitals to provide additional capacity with greater flexibility. One recent innovation in hospital care has been the growth of “hospital at home” care, in which providers offer inpatient care, including intensive care traditionally offered at ICUs, at a patient’s home.²²⁹ Though it is currently unknown whether in-home intensive care will meaningfully replace care provided at hospitals, in-home options certainly can and should be available to meet a sudden surge in demand, even—perhaps especially—for contagious illnesses. An even more rudimentary adjustment is to encourage, or require, hospitals to prepare for supply shortages. Because hospitals are not financially exposed to the cost of many inputs (the prices of drugs, devices, and personnel are paid separately by payers), they have invested little in preparing for shortages, even when such shortages are accompanied by hikes in prices.²³⁰ In response to some drug shortages, a consortium of hospitals created Civica Rx, which will provide supply reserves for hospitals.²³¹ Hospitals historically have not been forced or incentivized for rudimentary advanced planning of this kind.²³² Perhaps payment and regulatory rules should both allow and require these kinds of adjustments.

Other players responsible for financing healthcare might also assume responsibility for ensuring that hospitals plan for and provide emergency services. Insurers certainly would serve their subscribers by ensuring that the hospitals in their networks have the capacity to meet the needs during a demand surge, and insurance regulators ought to see that they do by requiring that “contingency plans” are included in the essential health benefits that insurers must cover.²³³ Like all medical care, planning for contingencies should start when we purchase our insurance coverage, not when we need medical treatment.

²²⁸ See Brent C. James & Gregory P. Poulsen, *The Case for Capitation*, HARV. BUS. REV., July–Aug. 2016, at 103, 106–07 (“Recognizing that volume-based payments fuel expenditures, increase waste, and potentially worsen quality, government officials are moving toward ‘pay for value’ systems, which give providers financial incentives to hold costs down by improving clinical outcomes and patient satisfaction.”).

²²⁹ See, e.g., *Hospital-at-Home*, AM. HOSP. ASS’N, <https://www.aha.org/hospitalathome> [<https://perma.cc/LUC7-3PTS>].

²³⁰ See James & Poulsen, *supra* note 228, at 104–05; Soleil Shah & Bob Kocher, *What If We Gave Hospitals a Real Incentive to Prepare for the Next Pandemic?*, HEALTH AFFS. (Apr. 24, 2020), <https://www.healthaffairs.org/doi/10.1377/hblog20200422.253713/full/> (on file with the *Ohio State Law Journal*). Martin Shkreli notoriously created and exploited price hikes in drugs that were historically widely available. Andrew Pollack, *Drug Goes from \$13.50 a Tablet to \$750, Overnight*, N.Y. TIMES (Sept. 20, 2015), <https://www.nytimes.com/2015/09/21/business/a-huge-overnight-increase-in-a-drugs-price-raises-protests.html> [<https://perma.cc/4KBL-FDZF>].

²³¹ CIVICA, *supra* note 123.

²³² See Shah & Kocher, *supra* note 230.

²³³ Herzlinger & Richman, *supra* note 98.

B. Regulation Enabling Healthcare Entities to Preempt the Spread of Crises

The COVID crisis exhibited disastrous coordination within the hospital system. As Part III illustrates, the nation's hospitals failed to respond not just to COVID surges in their localities but also to offer relief to overwhelmed areas. What was desperately needed was a page from the banking sector: when individual banks meet a surge in demand, whether from borrowers or withdrawals, they engage fruitfully with other banks to engineer reciprocal financing or short-term loans.²³⁴ In this way, the nation's banks act as a system in which individual components reinforce and support each other.²³⁵

The COVID pandemic illustrated the need for hospitals to do the same, and it requires little imagination on what systemic macromedical solutions might be. First, hospitals need to share information accurately and swiftly. At the outset of the pandemic, hospitals had no reliable mechanism in which they could determine the available capacity and constraints of nearby hospitals. Counties and states did not share ICU and ED statistics, and there were even fewer mechanisms to learn of shortages of specific components, such as ventilators or PPE.²³⁶ Perhaps policymakers realized the costs of failing to disseminate this kind of information. In December 2020, HHS started publishing facility-level

²³⁴ See *Why Does the Federal Reserve Lend Money to Banks?*, BD. GOVERNORS FED. RSRV. SYS. (June 17, 2011), https://www.federalreserve.gov/faqs/banking_12841.htm [<https://perma.cc/34V6-TV4P>].

²³⁵ The provision of central bank liquidity to prevent default—a regulatory approach used to mitigate interconnectedness by reducing tight coupling, *see infra* notes 242–242 and accompanying text, would apply more appropriately in the healthcare context to lack of substitutability as a transmission mechanism. The goal would be to keep hospitals and other essential healthcare providers operating by extending credit and protecting them from default. *Cf.* Steven L. Schwarcz, *The Case for a Market Liquidity Provider of Last Resort*, 5 N.Y.U. J.L. & BUS. 346, 350 (2009) (explaining why such a market liquidity provider is needed to stabilize panicked financial markets). To the extent this approach is considered, we are not necessarily suggesting that the government should provide such liquidity. Any such liquidity provider could be privatized—such as being collectively self-funded by the healthcare providers that could benefit from that liquidity. *Cf.* Iman Anabtawi & Steven L. Schwarcz, *Regulating Ex Post: How Law Can Address the Inevitability of Financial Failure*, 92 TEX. L. REV. 75, 122–28 (2013) (arguing that the costs of providing liquidity to systemically important financial firms and markets could be at least partly privatized by assessing healthy systemically important firms, and comparing that to other government-mandated privatized self-insurance programs).

²³⁶ *Cf.* Sean McMinn, Audrey Carlsen, Zach Levitt & Thomas Wilburn, *Where Are Hospitals Overwhelmed by COVID-19 Patients? Look Up Your State*, NPR (May 24, 2021), <https://www.npr.org/sections/health-shots/2020/12/09/944379919/new-data-reveal-which-hospitals-are-dangerously-full-is-yours> [<https://perma.cc/W4Z4-RHCD>] (discussing the varied availability of data demonstrating hospital stress levels on the national, state, and county level).

data for hospital utilization on a weekly basis.²³⁷ An accompanying data sharing initiative tracked the number of ventilators, masks, eyewear, and respirators on the facility level.²³⁸ Having lacked this information for most of the pandemic, however, many hospitals in 2020 encountered enormous difficulty anticipating their needs, in large part because they had no historical or regional data.²³⁹ As a result, “many hospitals . . . over-estimated surges and thus hoarded supplies, while many under-estimated and were frantically providing intensive care in hallways and other ill-suited locations.”²⁴⁰

Second, hospitals should undergo “stress tests,” much as banks do, to determine their capacity to handle population health crises. Such stress tests would simulate not just the consequences of pandemics but also earthquakes, nuclear attacks, severe weather, and other sudden disruptions that would lead to surges in needed hospital care. Hospitals that cannot exhibit the capacity for effective responses should either be fined or lose Medicare funding. The ability to respond to crises is not just desirable for a hospital’s patients; it is also necessary to slow the spread of a crisis. A hospital’s capacity to alert neighboring providers that it has available capacity for more patients can alleviate emergent conditions nearby and reduce the spread of a health hazard.

Stress tests should also assess a hospital’s ability to procure necessary inputs to provide critical services. Currently, for example, “health-care providers rely extensively on supply chains for just-in-time delivery of medicines, keeping

²³⁷ These data are derived from reports with facility-level granularity across HHS TeleTracking and reports provided directly by state and territorial health departments on behalf of their healthcare facilities. *COVID-19 Reported Patient Impact and Hospital Capacity by Facility*, HEALTHDATA.GOV, <https://healthdata.gov/Hospital/COVID-19-Reported-Patient-Impact-and-Hospital-Capa/anag-cw7u> [<https://perma.cc/J9LC-V8M9>].

²³⁸ *Hospital Data Coverage Report*, HEALTHDATA.GOV, <https://beta.healthdata.gov/Hospital/COVID-19-Hospital-Data-Coverage-Report/v4wn-auj8> [<https://perma.cc/JMG2-C4XF>].

²³⁹ See Richard M.J. Bohmer, Gary P. Pisano, Raffaella Sadun & Thomas C. Tsai, *How Hospitals Can Manage Supply Shortages as Demand Surges*, HARV. BUS. REV. (Apr. 3, 2020), <https://hbr.org/2020/04/how-hospitals-can-manage-supply-shortages-as-demand-surges> [<https://perma.cc/G2MY-ZGB9>] (finding that as of April 2020 hospitals have access to sufficient data to forecast short-term supply needs). Crucial and complete hospital-level data sets were not introduced until December 2020. See *HHS Publishes COVID-19 Hospital Facility-Level Data*, HHS (Dec. 7, 2020), <https://www.hhs.gov/about/news/2020/12/07/hhs-publishes-covid-19-hospital-facility-level-data.html> [<https://perma.cc/AKF9-M9G4>].

²⁴⁰ Herzlinger & Richman, *supra* note 98; see also Paul J. Weber & Sarah Rankin, *Overwhelmed with COVID-19 Cases, Hospitals Start Converting Chapels, Cafeterias, Parking Garages: ‘We’re in Trouble,’* CHI. TRIB. (Nov. 18, 2020), <https://www.chicagotribune.com/coronavirus/ct-nw-coronavirus-cases-hospitals-20201118-4zm3lthmvnb4xm53yggqwnh2gustory.html> [<https://perma.cc/35SK-ZWXU>]; Robinson Meyer & Alexis C. Madrigal, *The U.S. Has Passed the Hospital Breaking Point*, ATLANTIC (Dec. 4, 2020), <https://www.theatlantic.com/health/archive/2020/12/the-worst-case-scenario-is-happening-hospitals-are-overwhelmed/617301/> [<https://perma.cc/77MH-ZM2G>]; Finkenstadt, Handfield & Guinto, *supra* note 110 (noting bad government data resulted in supply chain bottlenecks and hoarding).

limited supplies on hand to prevent wasted value on stock shelves.”²⁴¹ Although these types of just-in-time-delivery supply chains are “highly efficient” in normal times,²⁴² they epitomize a tightly coupled system—one that is so highly interdependent that a disturbance to one part of the system can spread almost instantaneously to other parts of the system.²⁴³ Healthcare organizations themselves have recognized this risk.²⁴⁴ To reduce this tight coupling, public health regulators should consider mandating reasonable stockpiling, at least for the most critical supplies.

The limited precedent for the government itself engaging in this type of stockpiling is not encouraging. Although the HHS has tried to maintain a stockpile of essential medical equipment, it has been unable to supply sufficient personal protective equipment to respond to the COVID-19 pandemic.²⁴⁵ Furthermore, efforts to solve the stockpiling problem by government action alone, without involving the private healthcare sector, could encourage moral hazard. Private healthcare providers are unlikely to pay the costs of stockpiling essential inventory if they believe that the government is already stockpiling to solve supply-chain discontinuities.

It is bewildering that hospitals rely so heavily on centralized funding—from Medicare, large insurers, and other sources of aid—but so severely lack other coordinating capabilities to function as a robust system in times of national need. Enabling hospitals to cooperate and forcing them to prepare for regional crises requires little cost and effort, and it takes little effort to imagine a future disaster in which hospitals, without reform, will again serve the nation poorly.

C. Regulation Correcting Market Failures That Could Trigger and Transmit Risk to the Healthcare System

Market failures could trigger unexpected exogenous shocks that destabilize a system.²⁴⁶ For the financial system, these market failures included agency

²⁴¹ Hiba Hafiz, Shu-Yi Oei, Diane M. Ring & Natalya Shnitser, *Regulating in Pandemic: Evaluating Economic and Financial Policy Responses to the Coronavirus Crisis* 13 (Bos. Coll. L. Sch., Working Paper No. 527, 2020).

²⁴² *Id.*

²⁴³ Schwarcz, *Financial*, *supra* note 35, at 417.

²⁴⁴ *See, e.g.*, HCA HEALTHCARE, INC., 2019 ANNUAL REPORT TO SHAREHOLDERS 44 (2020) (observing that “a pandemic, epidemic or outbreak might adversely affect our operations by . . . disrupting or delaying production and delivery of materials and products in the supply chain”).

²⁴⁵ *See, e.g.*, Alexandra Berzon, Melanie Evans, Stephanie Armour & Austen Hufford, *Miscalculation at Every Level Left U.S. Unequipped to Fight Coronavirus*, WALL ST. J. (Apr. 29, 2020), <https://www.wsj.com/articles/miscalculation-at-every-level-left-u-s-unequipped-to-fight-coronavirus-11588170921> (on file with the *Ohio State Law Journal*) (“The federal stockpile has distributed nearly all its protective gear.”).

²⁴⁶ *See generally* Steven L. Schwarcz, *Conclusion: Closing Perspectives on Regulating Systemic Risk*, in SYSTEMIC RISK IN THE FINANCIAL SECTOR: TEN YEARS AFTER THE GREAT

problems and misinformation.²⁴⁷ For the healthcare system, the most relevant market failures stem from the hospital business model, which prioritizes lucrative individual services over expenditures that prioritize population health,²⁴⁸ and from collective action problems.

The hospital business model—which mirrors the profit-maximizing strategy resulting from a governance model that can ignore public welfare²⁴⁹—can create negative externalities, requiring a systemic solution. Though economists often consider regulatory interventions or Pigouvian taxes to mitigate negative externalities,²⁵⁰ another solution might involve reforms to the shareholder-primacy model of corporate governance. For-profit corporate entities generally, including not only financial institutions but also for-profit hospitals and other healthcare providers,²⁵¹ are managed for the primary benefit of their shareholders.²⁵² This shareholder-primacy governance means that these entities

GLOBAL FINANCIAL CRISIS 263 (Douglas W. Arner, Emiliós Avgouleas, Danny Busch & Steven L. Schwarcz eds., 2019) [hereinafter Schwarcz, *Perspectives*].

²⁴⁷ See *supra* notes 64–77 and accompanying text. More generally these market failures could be described as involving complexity (including resulting information asymmetry), conflicts (agency problems), behavioral limitations, moral hazards, change that renders regulation obsolete or inefficient, and a type of tragedy of the commons. See Schwarcz, *Perspectives*, *supra* note 246, at 269; cf. *supra* text accompanying note 58 (observing that maturity transformation also can leave financial firms and markets vulnerable to unexpected systemic shocks).

²⁴⁸ Herzlinger & Richman, *supra* note 98.

²⁴⁹ See *supra* text accompanying note 217. This market failure also represents the type of tragedy of the commons referenced. Schwarcz, *Systematic*, *supra* note 39, at 33.

²⁵⁰ See INT’L MONETARY FUND, TAX POLICY HANDBOOK 105 (Parthasarathi Shome ed., 1995) (explicating that Pigouvian taxes force the taxpayer to internalize the cost of negative externalities by charging a fee reflecting the externality costs).

²⁵¹ Hospitals can be “for-profit corporations, non-profit organizations, or non-profit organizations with religious affiliations.” Nick Price, *Fundamentals of Hospital Board Governance*, BOARDEFFECT (Aug. 16, 2017), <https://www.boardeffect.com/blog/fundamentals-hospital-board-governance/> [https://perma.cc/K5MG-8ZPA].

²⁵² See, e.g., *Dodge v. Ford Motor Co.*, 170 N.W. 668, 684 (Mich. 1919) (shareholder-primacy’s classical articulation); see also Christopher Cheney, *Top 5 Differences Between NFPS and For-Profit Hospitals*, HEALTHLEADERS (June 20, 2017), <https://www.healthleadersmedia.com/finance/top-5-differences-between-nfps-and-profit-hospitals> (on file with the *Ohio State Law Journal*) (“Although nonprofit and for-profit hospitals are fundamentally similar, there are significant cultural and operational differences All hospitals serve patients, employ physicians and nurses, and operate in tightly regulated frameworks for clinical services. For-profit hospitals add a unique element to the mix: generating return for investors.”); Nick Price, *For-Profit Healthcare Organizations vs. Not-for-Profit Healthcare Organizations*, BOARDEFFECT (May 16, 2018), <https://www.boardeffect.com/blog/for-profit-vs-not-for-profit-healthcare/> [https://perma.cc/5B3L-ZPD3] (“It’s true that for-profit hospital boards maintain a business-driven culture. They have to because they’re accountable to their shareholders. . . . Shareholders don’t always have the same interests or level of compassion as community members.”); John F. Harty & Daniel M. Mulholland III, *Legal Differences Between Investor-Owned and Nonprofit Health Care Institutions*, in THE NEW

engage in activities that sometimes have positive expected value to their investors but negative expected value to the public.²⁵³ If the entity is a systemically important financial institution whose failure can significantly harm the economy, that governance can create a critical misalignment between private and public interests.²⁵⁴ Tort law and regulation normally readjust this misalignment by limiting externalities, but they are not effective to limit indirect systemic economic harm.²⁵⁵

Similarly, if the entity is a critically important for-profit hospital or other healthcare provider, tort law and regulation cannot effectively readjust the misalignment between private and public interests. As a result of shareholder-primacy governance, the healthcare provider may well focus its business on income-producing inpatient services, rather than on maintaining a population's health or being prepared to care for an unexpected flood of patients resulting from an incipient pandemic.²⁵⁶ In the context of macroprudential regulation, the misalignment calls into question whether managers of systemically important financial institutions should have some type of a public governance duty.²⁵⁷

HEALTH CARE FOR PROFIT 17, 18 (Bradford H. Gray ed., 1983), <https://www.ncbi.nlm.nih.gov/books/NBK216759/> [<https://perma.cc/7KQ5-PYSJ>] (observing that “[a]ll investor-owned corporations, regardless of whether they operate hospitals, are governed by the business corporation laws of the state in which they are incorporated”).

²⁵³ See Steven L. Schwarcz, *Misalignment: Corporate Risk-Taking and Public Duty*, 92 NOTRE DAME L. REV. 1, 2 (2016) [hereinafter Schwarcz, *Misalignment*] (observing that because much of the harm from a systemically important firm's failure would be externalized onto the public, such a firm can engage in risk-taking ventures with positive expected value to its investors but negative expected value to the public—creating a critical misalignment between private and public interests); see also Regina E. Herzlinger & William S. Krasker, *Who Profits from Nonprofits?*, HARV. BUS. REV., Jan.–Feb. 1987, at 93, 93–94.

²⁵⁴ Schwarcz, *Misalignment*, *supra* note 253, at 2–5; cf. Daniel K. Tarullo, Member, Bd. of Governors of the Fed. Rsrv. Sys., Remarks at the Association of American Law Schools Midyear Meeting: Corporate Governance and Prudential Regulation 7–8 (June 9, 2014), https://fraser.stlouisfed.org/files/docs/historical/federal%20reserve%20history/bog_members_statements/tarullo20140609a.pdf [<https://perma.cc/NG4G-F44X>] (arguing that “prudential regulation [should] need to involve itself with corporate governance” because “risk-taking” by systemically important financial intermediaries “carries substantial potential societal consequences”).

²⁵⁵ Schwarcz, *Misalignment*, *supra* note 253, at 2–5, 18–21.

²⁵⁶ See generally Joseph Zeballos-Roig, *supra* note 8 (linking limited hospital bed capacity and shortages of critical equipment such as masks and ventilators to the for-profit healthcare model). But see FREDRIC BLAVIN & DIANE ARNOS, HOSPITAL READINESS FOR COVID-19: ANALYSIS OF BED CAPACITY AND HOW IT VARIES ACROSS THE COUNTRY (2020), https://www.urban.org/sites/default/files/publication/101864/hospital-readiness-for-covid-19_2.pdf [<https://perma.cc/PPP4-2AH7>] (finding higher hospital bed capacity for COVID-19 patients, by percentage of total beds, at for-profit hospitals as compared to nonprofit hospitals and nonfederal government hospitals).

²⁵⁷ See Schwarcz, *Misalignment*, *supra* note 253, at 21–31 (arguing for a SIFI public governance duty and explaining why it could be feasibly implemented). A kind of non-profit legal form—the mutual organization—is common in the field of finance, and has been

Healthcare regulators should ask this same policy question: Should governments legislate some type of public-health governance duty requiring critical healthcare providers to give greater attention to maintaining public health, including preparing for rare but consequential events like a pandemic?²⁵⁸ A similar question arises even for not-for-profit hospitals, which are ostensibly managed “based on the organization’s mission and bylaws”²⁵⁹ but, according to abundant empirical research, act almost indistinguishably from for-profits.²⁶⁰ Should governments require the bylaws of critical not-for-profit healthcare providers to include such a public-health governance duty? Requiring changes to the corporate governance of important hospital systems and “health SIFIs” would be significant and would not come without costs,²⁶¹ but the question warrants further consideration precisely because of the importance of harmonizing hospital policies with the public interest.

We wish to emphasize that the public-health governance duty would be consistent with our claim that America’s private healthcare institutions should be able to respond to public health crises without being publicly owned or funded by public dollars.²⁶² The governance duty would focus on modifying shareholder primacy to limit the right to externalize harm onto the public, not on ownership or funding. Limiting the right to externalize harm is what regulation and tort law are all about.²⁶³ In a healthcare context, though, ordinary regulation and tort law are insufficient to control externalities,²⁶⁴ requiring supplementary regulation in the form of a public-health governance duty.²⁶⁵

The other relevant market failure stems from collective action problems. A collective action problem results when all members of a group would benefit from cooperation but one or more members of that group fails to cooperate

understood as a structure that tends to mitigate risk-taking, as compared to the more familiar shareholder-owned corporation. See MICHAEL S. BARR, HOWELL E. JACKSON & MARGARET E. TAHYAR, *FINANCIAL REGULATION: LAW AND POLICY* 354 (2d ed. 2018) (discussing the role of mutual form in insurance regulation). When the world’s major stock exchanges all converted from the mutual form into stock corporations a few decades ago, there was widespread recognition that the new entities needed to be subject to enhanced and reformed public supervision. See Stavros Gadinis & Howell E. Jackson, *Markets as Regulators: A Survey*, 80 S. CAL. L. REV. 1239, 1244 (2007).

²⁵⁸ Cf. Schwarcz, *Misalignment*, *supra* note 253, at 28–44 (explaining how a SIFI public governance duty could be feasibly implemented). For more detailed discussions of how managers could perform such a public governance duty, see *id.* at 30–31, and Schwarcz, *Systematic*, *supra* note 39, at 40–41.

²⁵⁹ Price, *supra* note 252.

²⁶⁰ See Barak D. Richman, *Antitrust and Nonprofit Hospital Mergers: A Return to Basics*, 156 U. PA. L. REV. 121, 135 & n.54 (2007).

²⁶¹ Cf. Schwarcz, *Misalignment*, *supra* note 253, at 32–37.

²⁶² See *supra* text accompanying notes 14–19.

²⁶³ Schwarcz, *Misalignment*, *supra* note 253, at 17–18, 20.

²⁶⁴ See *supra* notes 249–255 and accompanying text.

²⁶⁵ In a separate context, one of us explains in detail how a public governance duty could be feasibly designed and implemented to reduce externalities without weakening corporate wealth-producing capacity. Schwarcz, *Misalignment*, *supra* note 253, at 28–44.

because of a conflicting interest.²⁶⁶ For example, sick individuals may refuse to self-isolate, and other individuals, even if seemingly well, may refuse to maintain social-distancing. Public health regulation could attempt to solve this problem by offering incentives (or possibly penalties) that offset the conflicting interests.

Collective action problems that increase the transmission of infections can arise not only among interconnected people but also among interconnected nations. This type of problem occurred, for example, at the beginning of the coronavirus infection in Wuhan, China.²⁶⁷ Chinese government authorities devalued and dismissed healthcare workers' reports about a new SARS-like virus, and even reprimanded some workers who posted information about the virus on the internet.²⁶⁸ Some argue that "if Chinese authorities had acted three weeks earlier than they did, the number of coronavirus cases could have been reduced by 95% and its geographic spread limited."²⁶⁹

That type of collective action problem among nations is not necessarily individually irrational. No nation would want to be identified as the source of a new infection. Sometimes, too, that identification would be misleading. The so-called "Spanish" flu of 1918, for example, did not originate in Spain.²⁷⁰ It originated elsewhere but was not widely recognized until the Spanish newspapers reported it (because Spain was neutral in World War I, its newspapers were not censored).²⁷¹

Public health regulators should seek to address this collective action problem among nations. As soon as a novel infection with the potential to be transmitted into a pandemic is recognized, it should be publicly disclosed to the world's public health community in order to reduce that transmission. National regulation requiring that disclosure would not solve the collective action problem because performance of that duty might be compromised—as happened in China. To address (or, at least, attempt to mitigate) this collective action problem, governments should consider entering into a cross-border convention or treaty that imposes a collective disclosure duty with penalties for

²⁶⁶ *Collective Action Problem*, BRITANNICA (Mar. 7, 2013), <https://www.britannica.com/topic/collective-action-problem-1917157> [<https://perma.cc/7PRL-DDPQ>].

²⁶⁷ See Bethany Allen-Ebrahimian, *Timeline: The Early Days of China's Coronavirus Outbreak and Cover-Up*, AXIOS (Mar. 18, 2020), <https://www.axios.com/timeline-the-early-days-of-chinas-coronavirus-outbreak-and-cover-up-ee65211a-afb6-4641-97b8-353718a5faab.html> [<https://perma.cc/64YT-BJED>].

²⁶⁸ See, e.g., *id.*

²⁶⁹ *Id.*

²⁷⁰ Jonathan D. Quick, *What We Can Learn from the 20th Century's Deadliest Pandemic*, WALL ST. J. (Mar. 6, 2020), <https://www.wsj.com/articles/what-we-can-learn-from-the-20th-century-deadliest-pandemic-11583510468> (on file with the *Ohio State Law Journal*).

²⁷¹ *Id.*

breach. Existing international law only requires disclosure to the WHO.²⁷² There is no penalty, though, for failure to disclose,²⁷³ which might partly explain why China delayed notifying the WHO²⁷⁴ and, after finally being notified, the WHO itself was not fully responsive.²⁷⁵

D. *Emergency Powers Enabling Regulators to Respond to Crises*

The financial regulatory precedents show that emergency powers that enable regulators to respond to crises could be used to protect the healthcare system. Statutory authority and institutional independence were critical to the Fed's swift and effective response during the last financial crisis, allowing it to undertake a variety of innovative, sometimes even controversial, measures to stabilize the financial system.²⁷⁶ The Fed's independence, for example, substantially insulated its economic experts' decisionmaking process from political pressures.²⁷⁷ Members of its Board of Governors enjoy long-term appointment and "for cause" job security.²⁷⁸ Budgetary autonomy also enables the Fed to rapidly implement lending decisions.²⁷⁹

The same types of authority could empower a healthcare emergency responder, perhaps the CDC or CMS, to organize more proactive and effective

²⁷² Article 6 of the International Health Regulations requires each government to "notify WHO . . . within 24 hours of assessment of public health information, of all events which may constitute a public health emergency of international concern within its territory." WORLD HEALTH ORG., INTERNATIONAL HEALTH REGULATIONS 12 (3d ed. 2005), <https://apps.who.int/iris/bitstream/handle/10665/246107/9789241580496-eng.pdf?sequence=1> [<https://perma.cc/XD68-YVDD>]. The goal of these Regulations is "to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks . . ." *Id.* at 1.

²⁷³ *But cf.* Devashsish Giri, *Responsibility of China for the Spread of COVID-19: Can China Be Asked to Make Reparations?*, JURIST (Apr. 10, 2020), <https://www.jurist.org/commentary/2020/04/devashsish-giri-china-covid19-reparations/> [<https://perma.cc/EN9R-9SVA>] (discussing whether China could be liable for reparation claims for violating the International Health Regulations).

²⁷⁴ *See supra* notes 268–269 and accompanying text (discussing China's delay in responding to the novel coronavirus).

²⁷⁵ *See, e.g.*, Anthony L. Fisher, *Trump Is Right About One Thing: The World Health Organization Deserves Some Blame for the Coronavirus Pandemic*, BUS. INSIDER (Apr. 14, 2020), <https://www.businessinsider.com/trump-world-health-organization-who-blame-coronavirus-pandemic-2020-4> [<https://perma.cc/76KC-NA4P>].

²⁷⁶ *See supra* notes 78–79 and accompanying text. One feature that enables the Federal Reserve to identify and respond to financial crises is the ability to recognize the creation of one. *See* Judge, *supra* note 83; Mehra, *supra* note 79, at 227.

²⁷⁷ LABONTE, *supra* note 79, at 26–27.

²⁷⁸ Peter Conti-Brown, *The Institutions of Federal Reserve Independence*, 32 YALE J. ON REG. 257, 260–61, 302 (2015).

²⁷⁹ *See id.* at 273.

responses to pandemics.²⁸⁰ Shielded from political influence, the CDC could better facilitate science-based public communication and issue stronger and more consistent recommendations on protective measures.²⁸¹ One also could envision giving such power to a “permanent” White House task force working with the CDC, though such a task force could be subject to changing presidential administrations and thus not be truly permanent or politically independent. It also would have to be wary of political considerations that easily and frequently disrupt pandemic responses; when political factors have influenced past CDC policymaking, the Agency has not fared well.²⁸²

It might also be worth developing an institution that, like the Fed, can directly address problems in demand surges. A Medical Reserve Board (“MRB”), fashioned similarly to the Federal Reserve Board as an independent regulator, can anticipate demand shocks and coordinate responses to health crises. In addition to managing information systems and implementing stress tests, described in Part IV, the MRB could also respond to supply chain delays and shortages of critical inputs, such as vaccines, PPE, drugs, and other medical supplies that suffer from shortages. Though managing this liquidity is more challenging than managing the money supply—the Fed can print money, whereas MRB cannot print PPE—the MRB’s job would be to ensure the ready availability of critical supplies to healthcare providers, just as the Fed ensures a stable supply of liquid money.

V. CONCLUSIONS

The COVID pandemic exposed many shortcomings in the U.S. health sector, a sector that already consumes one out of every six dollars in the economy and yet performs unfavorably compared to systems in other OECD nations.²⁸³ But many of these shortcomings—and in particular, the problems in meeting demand surges—can be readily addressed by learning from regulatory solutions from the financial sector.

Our hypothesis can be stated very simply: Both financial crises and healthcare crises involve contagions that individual institutions cannot address on their own. The stability of our banking system relies on ensuring that individual banks exhibit minimal resiliency, that banks offer support to each

²⁸⁰ Cf. Mitchel Y. Abolafia, *The Fed’s Independence Helped It Save the US Economy in 2008—The CDC Needs the Same Authority Today*, CONVERSATION (July 15, 2020), <https://theconversation.com/the-feds-independence-helped-it-save-the-us-economy-in-2008-the-cdc-needs-the-same-authority-today-142593> [<https://perma.cc/Q7QJ-RNSV>] (making a similar argument).

²⁸¹ See *id.*

²⁸² See LEWIS, *supra* note 19, at 285–89.

²⁸³ See *supra* notes 89–90 and accompanying text.

other collectively as a system,²⁸⁴ and that federal regulators offer centralized support. The same approach would enormously benefit the nation's hospitals. Because regulation cannot completely prevent systemic shocks from being triggered in a complex system,²⁸⁵ such as the healthcare system, *ex ante* preventative regulation should be supplemented by *ex post* mitigative regulation, devised to break the transmission of inevitable shocks and limit their impact.²⁸⁶ Accordingly, we recommend a macromedical approach to regulating the hospital sector, so that individual hospitals are better prepared to handle demand surges, hospitals can coordinate with and reinforce each other as a sector, and regulators offer instrumental and regulatory leadership to mitigate surges from the next crisis. The nation suffered immensely in both 2008 and during the 2020–2021 pandemic, and it is incumbent upon policymakers to ensure that similar suffering is not repeated in the next crisis. Financial services reforms incorporated many corrective actions to prevent another 2008 financial meltdown, and policymakers must act similarly to avoid another pandemic year.

We are cognizant that we do not write on a blank slate, and that this Article follows a rich history of policies designed to regulate the supply of medical care in the United States. We are also cognizant that most of those policies are widely considered to be failures. The Hill-Burton Act, for example, stimulated the construction of many hospitals, but it has been blamed for inducing overspending and constructing an unsustainably expensive healthcare infrastructure.²⁸⁷ Certificate-of-need laws, designed in part to stem the overkill of Hill-Burton, were intended to reduce the construction of unnecessary healthcare facilities, but those laws have been blamed for creating costly monopoly power by incumbents and stymying innovations in healthcare delivery.²⁸⁸ Moreover, when policymakers respond to lessons learned from a recent crisis to stop the next one, they institute responses that are much better at

²⁸⁴ Cf. Lynn M. LoPucki, *The Systems Approach to Law*, 82 CORNELL L. REV. 479, 481 (1997) (applying “systems analysis,” a methodology developed in the fields of engineering, business information systems, and computer programming to manage complexity, to law by “identifying systems, discovering their goals or attributing goals to them, mapping their subsystems and the functions each performs, determining their internal structures, depicting them with attention paid to efficiency of presentation, and searching for internal inconsistencies”).

²⁸⁵ See Schwarcz, *Systematic*, *supra* note 39, at 37, 39; cf. Steven L. Schwarcz, *Regulating Complexity in Financial Markets*, 87 WASH. U. L. REV. 211, 266 (2009) (referencing “chaos theory and engineering design, which recognize that failures are almost inevitable in complex systems”); *New Directions for Understanding Systemic Risk*, FED. RESRV. BANK OF N.Y. ECON. POL’Y REV., Oct. 2007, at 25, 25 (comparing systemic risk in engineering and science with systemic financial risk).

²⁸⁶ See Schwarcz, *Systematic*, *supra* note 39, at 44, 49.

²⁸⁷ See Robert Pearl, *Rethinking Rural Hospitals with Lessons from the Battlefield*, FORBES (Jan. 22, 2015), <https://www.forbes.com/sites/robertpearl/2015/01/22/rethinking-rural-hospitals/?sh=18e78c5c2436> [<https://perma.cc/L2R6-TA7C>].

²⁸⁸ See CHRISTINA SANDEFUR, FEDERALIST SOC’Y, *COMPETITOR’S VETO: STATE CERTIFICATE OF NEED LAWS VIOLATE STATE PROHIBITIONS ON MONOPOLIES 3–4* (2020).

avoiding an identical crisis than they are responding to the actual risks of the future. We therefore must proceed with a healthy dose of modesty, recognizing both the limitations and errors of past policies to moderate our provision of healthcare services and the general shortcomings of predicting future crises accurately. The history of American healthcare policy offers many humbling moments.

Nonetheless, we should persist in learning and applying the lessons of recent history. To be sure, the nation has other health crises in its future. Policymakers cannot prevent the emergence of novel viruses, natural disasters, or other events that threaten the health of millions, but they can take preventive measures to better prepare our hospital system. The first critical step is recognizing that healthcare is a system, and thus susceptible to systemic risk. Controlling that risk requires us to learn from systemic regulation that has been applied successfully to other systems.