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IMAGINING A BETTER PUBLIC HEALTH (LAW) RESPONSE TO COVID-19

Evan Anderson *
Scott Burris **

INTRODUCTION

In 2019, a group of international experts declared the United States the country most prepared for a pandemic.¹ If they were right, the response to COVID-19 would have looked something like this: the federal government would have moved quickly to assess the threat, define a response, and provide the expertise and resources the country would need to minimize the harm of the most dangerous pandemic in a century. Its guidance—built on an unparalleled range and depth of relevant expertise, and framed as a long-term strategic plan—would have evolved transparently and credibly as events unfolded. State and local governments and the private sector would have added their specialized knowledge and awareness of local conditions to apply guidance effectively. Uncertainty would have been placed in the foreground, and everyone within and outside government would have learned and adapted together as more information came in and better understanding grew. Cooperation and public faith in the response would sometimes have faltered, and fringe groups would have acted out, but

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1. The Nuclear Threat Initiative, Center for Health Security at the Johns Hopkins Bloomberg School of Public Health, and The Economist Intelligence Unit project convened twenty-one experts from thirteen countries who created a 140-question index to evaluate the ability of every country to prevent and address rapidly spreading disease. This Global Security Index assigned the United States perfect scores on numerous underlying metrics including biosafety, laboratory systems, emergency preparedness and response planning, linking public health and security authorities, and risk communication. GLOBAL HEALTH SECURITY INDEX: BUILDING COLLECTIVE ACTION AND ACCOUNTABILITY 3, 303 (Johns Hopkins Bloomberg Sch. of Pub. Health 2019), <https://www.ghsindex.org/wp-content/uploads/2020/04/2019-Global-Health-Security-Index.pdf> [<https://perma.cc/7LPY-JMBU>].

well-designed measures supported by committed leaders would have vindicated the experts' confidence in this great nation's capacity.

But the experts were wrong. The United States did not respond effectively to the COVID-19 pandemic; we were not even close to the league leaders. The nation has higher rates of infection and infection-related death than almost any peer industrialized country.² The first year of the pandemic was disastrous, with the United States accounting for nineteen percent of global mortality with just four percent of the global population.³ The second year was not much better. Despite the rapid development of highly effective vaccines, there were more infection-related deaths in 2021 than in 2020 in the United States, due to foreseeable vaccine resistance at home and the development of variants in the unvaccinated mass of the global population.⁴

Several narratives are getting traction in explaining how the public health system lost its way during COVID-19. The “bad leaders” narrative focuses on the incredible failings of, if not outright

2. According to World Health Organization (“WHO”) data, the United States has the forty-fifth highest rate of infection at 24,191 per 100,000 population. The United States has the twenty-first highest mortality rate at 296 per 100,000 population. Hungary, the Czech Republic, Slovakia, Lithuania, Slovenia, Poland, Chile, and Latvia are the only Organisation for Economic Co-operation and Development (“OECD”) member countries with higher mortality rates, and their high rates may partly reflect more assiduous tracking of COVID-19-related deaths. *Coronavirus World Map: Tracking the Global Outbreak*, N.Y. TIMES (Apr. 10, 2022), <https://www.nytimes.com/interactive/2021/world/covid-cases.html> [https://perma.cc/APN4-S8PH] (under “Reported cases, deaths, and vaccinations by country,” sort cases and deaths per 100,000); see also *About the OECD*, OECD, <https://www.oecd.org/about> [https://perma.cc/995R-FMVY] (under “Member countries,” click “View Full List”). Peru, Bulgaria, Croatia, Romania, and Brazil, which also have higher mortality rates, are currently candidates for OECD membership. Press Release, Org. for Econ. Coop. & Dev., OECD Takes First Step in Accession Discussions with Argentina, Brazil, Bulgaria, Croatia, Peru and Romania (Jan. 25, 2022), <https://www.oecd.org/newsroom/oecd-takes-first-step-in-accession-discussions-with-argentina-brazil-bulgaria-croatia-peru-and-romania.htm> [https://perma.cc/6NAU-9748].

3. Howard K. Koh, Alan C. Geller & Tyler J. VanderWeele, *Deaths from COVID-19*, 325 JAMA 133, 133 (2021), <https://doi.org/10.1001/jama.2020.25381> [https://perma.cc/JXM3-3ST7] (“The United States, which constitutes 4% of the globe’s population, ranks first in the world in total pandemic deaths (19% of the global total), with the 12th worst . . . cumulative mortality rates of all countries.”). The United States also accounted for a disproportionate percentage of cases in the first year. See Jennifer B. Nuzzo, Jessica A. Bell & Elizabeth E. Cameron, *Suboptimal US Response to COVID-19 Despite Robust Capabilities and Resources*, 324 JAMA 1391, 1391 (2020), <https://doi.org/10.1001/jama.2020.17395> [https://perma.cc/9NRZ-3SEY] (“The [United States] accounts for less than 5% of the world’s population but more than 25% of total COVID-19 cases reported across the globe.”).

4. See Carolyn Crist, *U.S. Covid-19 Deaths in 2021 Surpass 2020 Total*, WEBMD (Nov. 22, 2021), <https://www.webmd.com/lung/news/20211122/us-covid-deaths-2021-surpass-2020-total> [https://perma.cc/59DF-7YW6].

sabotage by, the Trump administration and its political allies.⁵ The “bad budgets” narrative attributes problems in current public health practice to decades of underinvestment.⁶ This immiseration of key sectors of the public health ecosystem, along with related structural and cultural problems, underlies the “bad institutions” narrative,⁷ which takes plenty of force and evidence from the continuing missteps by the Centers for Disease Control and Prevention (“CDC”), the United States Food and Drug Administration (“FDA”), and other key public health entities.⁸ The “bad Americans” narrative locates the root of our poor pandemic response in the selfish, ignorant, and tribal impulses of the populace in their embrace of Trumpian populism, vaccine denialism, and conspiracy theories.⁹

5. See generally ANDY SLAVITT, PREVENTABLE: THE INSIDE STORY OF HOW LEADERSHIP FAILURES, POLITICS, AND SELFISHNESS DOOMED THE U.S. CORONAVIRUS RESPONSE (2021) (describing Americans’ unwillingness to sacrifice for the welfare of others as a barrier to adherence to and uptake of public health strategies like masking and vaccination); Amy Maxmen & Jeff Tollefson, *The Problem with Pandemic Planning*, 584 NATURE 26, 28–29 (2020), <https://doi.org/10.1038/d41586-020-02277-6> [<https://perma.cc/FQQ7-DALJ>].

6. Over the past decade, spending for state and local health departments has declined by 16% and 18%, respectively. Lauren Weber, Laura Ungar, Michelle R. Smith, Hannah Recht & Anna Maria Barry-Jester, *Hollowed-Out Public Health System Faces More Cuts Amid Virus*, KAISER HEALTH NEWS (Aug. 24, 2020), <https://khn.org/news/us-public-health-system-underfunded-under-threat-faces-more-cuts-amid-covid-pandemic> [<https://perma.cc/74AG-3TSP>]. Prior to the COVID-19 pandemic, an analysis of National Association of County and City Health Officials’ 2019 National Profile of Local Health Departments revealed that nearly all local health departments experienced a decrease in emergency preparedness funding compared to prior years. Aaron A. Alford, Karla Feeser, Hall Kellie & Laura Biesiadecki, *Prioritization of Public Health Emergency Preparedness Funding Among Local Health Departments Preceding the COVID-19 Pandemic: Findings from NACCHO’s 2019 National Profile of Local Health Departments*, 27 J. PUB. HEALTH MGMT. & PRACTICE 215, 216 (2021), <https://doi.org/10.1097/PHH.0000000000001338> [<https://perma.cc/6TNU-S8KA>].

7. See, e.g., ELIZABETH ETHERIDGE, SENTINEL FOR HEALTH: A HISTORY OF THE CENTERS FOR DISEASE CONTROL 59–60, 157–58, 279, 311 (noting that CDC is so starved for budgetary support that each branch competes against the others with little incentive or practice of working together).

8. See MICHAEL LEWIS, THE PREMONITION: A PANDEMIC STORY xiii–xv (2021) (describing the limitations of CDC mostly through the perspective of a former local and current state public health official); SCOTT GOTTLIEB, UNCONTROLLED SPREAD: WHY COVID-19 CRUSHED US AND HOW WE CAN DEFEAT THE NEXT PANDEMIC 4, 8, 10, 66–67 (2021) (describing the missteps by CDC and FDA especially related to testing and the poor communication mostly from an insider perspective).

9. SLAVITT, *supra* note 5, at xii–xiv. One narrative that has yet to take hold, but is important to consider, is that this virus was just too hard to beat. See, e.g., Ed Yong, *How the Pandemic Defeated America*, ATLANTIC (Aug. 4, 2020, 1:12 PM), <https://www.theatlantic.com/magazine/archive/2020/09/coronavirus-american-failure/614191> [<https://perma.cc/4NYC-EBL5>] (“SARS-CoV-2 is something of an anti-Goldilocks virus: just bad enough in every way. Its symptoms can be severe enough to kill millions but are often mild enough to allow infections to move undetected through a population. It spreads quickly enough to overload hospitals, but slowly enough that statistics don’t spike until too late.”). We reacted poorly in

Each of these stories captures part of the truth. Legal failure is also an important part of the story. Deep inequities and inefficiencies in U.S. law made us more vulnerable and less able to react to COVID-19. Law has been instrumental in making the United States a highly inequitable society characterized by racial and economic segregation¹⁰ and a lack of basic protections for lower-income people.¹¹ The pandemic's significant health disparities highlighted—preyed on—the structural racism and inequality that law continues to uphold.¹² The most prolific jailor in the world, the United States, went into COVID-19 with nearly two million incarcerated people at high risk of infection.¹³ About the same number of people live in poorly regulated nursing homes and other congregate care facilities,¹⁴ with underpaid staff often working in multiple settings with far less than the bare minimum of labor rights. Facially neutral laws had their well-known inequitable effects: the lack of legally mandated sick leave applied to rich and poor alike,

the United States, but very few countries have done consistently well, and most in that group had the foresight to be islands or city-states. This perspective is important for both its cautionary and precautionary humility: it is cautionary in that heads should not roll for failures beyond control, and precautionary in that the limits of effective action must be properly considered at the outset and throughout the control effort—given the scarcity of resources, attention, and credibility, it is reckless, not heroic, to attempt the impossible in pandemic response.

10. See, e.g., RICHARD ROTHSTEIN, *THE COLOR OF LAW: A FORGOTTEN HISTORY OF HOW OUR GOVERNMENT SEGREGATED AMERICA* 5–6 (2017) (describing how federal, state, and local governments produced and perpetuated dramatic racial segregation through zoning laws, public housing policies, subsidies, and tax policies).

11. See, e.g., NAT'L RSCH. COUNCIL & INST. OF MED., *U.S. HEALTH IN INTERNATIONAL PERSPECTIVE: SHORTER LIVES, POORER HEALTH* 1 (Steven H. Woolf & Laudan Aron eds., 2013) (analyzing causes of socioeconomic health inequities in the United States).

12. The law's manifold failures to promote and protect equity are not the focus of this Article, but they require a steady chorus of *mea culpas*. Zinzi D. Bailey, Justin M. Feldman & Mary T. Bassett, *How Structural Racism Works — Racist Policies as a Root Cause of U.S. Racial Health Inequities*, 384 *NEW ENG. J. MED.* 768, 768–70 (2021), <https://doi.org/10.1056/NEJMms2025396> [<https://perma.cc/GAJ2-BTVJ>]; see, e.g., Nancy Krieger, *ENOUGH: COVID-19, Structural Racism, Police Brutality, Plutocracy, Climate Change—and Time for Health Justice, Democratic Governance, and an Equitable, Sustainable Future*, 110 *AM. J. PUB. HEALTH* 1620, 1620 (2020), <https://doi.org/10.2105/AJPH.2020.305886> [<https://perma.cc/U532-7YNG>]; Michelle Jackson & Brian Holzman, *A Century of Educational Inequality in the United States*, 117 *PNAS* 19108, 19108 (2020), <https://doi.org/10.1073/pnas.1907258117> [<https://perma.cc/YY5V-JL5P>].

13. JACOB KANG-BROWN, CHASE MONTAGNET & JASMINE HEISS, *VERA INST. OF JUST., PEOPLE IN JAIL AND PRISON IN 2020*, at 2–3 (2021), <https://www.vera.org/downloads/publications/people-in-jail-and-prison-in-2020.pdf> [<https://perma.cc/WD4X-2NTY>].

14. LAUREN HARRIS-KOJETIN, MANISHA SENGUPTA, JESSICA PENN LENDON, VINCENT ROME, ROBERTO VALVERDE & CHRISTINE CAFFREY, *NAT'L CTR. FOR HEALTH STATS., LONG-TERM CARE PROVIDERS AND SERVICES USERS IN THE UNITED STATES 2015–2016: ANALYTICAL AND EPIDEMIOLOGICAL STUDIES* 1 (2019), https://www.cdc.gov/nchs/data/series/sr_03/sr03_43-508.pdf [<https://perma.cc/3LNN-NTG4>].

but it was only the less well-off who felt the economic pressure to show up sick.¹⁵

To be sure, some of the legal work went well—at first. Public health law defining the legal infrastructure for emergency response and pandemic control was ready for COVID-19¹⁶ and initially functioned in nearly all respects as it had been designed to over the past two decades. Federal and state officials had the authority they needed to carry out surveillance and control measures. The president, governors, and mayors invoked emergency authority to act quickly. The spending power was dramatically used not only to stabilize the economy and protect millions of families from sudden destitution, but also to stimulate and impel necessary action from industry.¹⁷ The federal government had ample discretion and legal tools to expedite the production of vaccines and essential medical supplies. The courts were open to address the claims of those who felt that control measures violated their rights or exceeded the emergency powers delegated to executive agencies.

Unfortunately, as the pandemic persisted and the other failures multiplied, the law increasingly became a barrier to pandemic control. Judges bought into the false narrative that COVID-19's risks were exaggerated and to the hysterical exaggeration of the liberty interest in not wearing masks or being vaccinated. COVID-19 cases implicating agency powers or touching religion became vehicles for the Supreme and lower court jurists to advance preexisting legal agendas of nondelegation¹⁸ and expansion of the free exercise

15. See, e.g., Deepa Das Acevedo, *Essentializing Labor Before, During, and After the Coronavirus Pandemic*, 52 ARIZ. ST. L.J. 1091, 1093, 1101–02 (2020); Jacob Leibenluft, *The Pandemic Hurts Countries that Don't Value Workers: Weak Labor Protections Make the United States More Vulnerable to COVID-19*, FOREIGN AFFS. (Aug. 19, 2020), <https://www.foreignaffairs.com/articles/united-states/2020-08-19/pandemic-hurts-countries-dont-value-workers> [<https://perma.cc/DJ7A-WZ5Y>].

16. See, e.g., Lindsay K. Cloud, Katie Moran-McCabe, Elizabeth Platt & Nadya Prood, *A Chronological Overview of the Federal, State, and Local Response to COVID-19*, in ASSESSING LEGAL RESPONSES TO COVID-19, at 10, 11–12 (Scott Burris et al. eds., 2020) (noting that over 1,000 laws were adopted in the first six months of the pandemic at all levels of government to reduce the incidence and harms of the pandemic).

17. Evan Anderson & Scott Burris, *Assuring Essential Medical Supplies During a Pandemic: Using Federal Law to Measure Need, Stimulate Production, and Coordinate Distribution*, in COVID-19 POLICY PLAYBOOK: LEGAL RECOMMENDATIONS FOR A SAFER, MORE EQUITABLE FUTURE 155, 156 (Scott Burris et al. eds., 2021) (discussing the use of Centers for Medicare & Medicaid Services authority to compel private hospitals to share data on personal protective equipment (“PPE”) and patient characteristics by attaching conditions to Medicare reimbursement).

18. Nat'l Fed'n of Indep. Bus. v. Dep't of Lab., Occupational Health & Safety Admin., 142 S. Ct. 661 (2022) (invalidating an Emergency Temporary Standard (“ETS”) requiring large employers to enforce a rule that mandated either vaccination or masking and testing

clause.¹⁹ Congress backed away from social investments like the child tax credit.

All these explanations capture part of the failure story and point to things to change and do differently if Americans want better results next time. In this paper, we want to focus on a different kind of failure by a particular set of players in the American system. That crucial failure is a lack of good judgment in the face of uncertainty and irrational behavior. The people who failed are those who primarily identify (or should identify *ex officio* regardless of their background or predilections) as public health professionals: agency heads and staff at the federal, state, and local level, but also the broader network of researchers, educators, pundits—and lawyers—who use the concept of public health and their disciplinary skills to improve population health through collective action.

This group or field or practice we call “public health” obviously has played a central, though complicated, role in the COVID-19 story. It was the indispensable first responder: public health detected and warned of the emergence of the pandemic and was the field to whom the world initially looked for information and a plan of action. Public health had the impetus for initial action: government public health officials had the institutional responsibility and capacious legal authority to make and implement response plans, routinely drawing on the broader field of experts outside of the government for data and ideas. In the media, we defined the problem ahead for the people and identified the main challenges we could anticipate.

We write “we” because this is the club of which the authors considered themselves members. These are people whose talent and dedication we have celebrated. They work in organizations we have served and admired. Far too many of these dedicated servants of the public good have been unjustifiably and unforgivably

by reasoning that the rule was more impactful on health within and outside of occupational settings than Congress could have contemplated when ETS authority was conferred in 1970); *Midwest Inst. of Health, PLLC v. Governor of Mich.*, 958 N.W.2d 1, 6 (Mich. 2020) (invalidating Michigan’s Emergency Powers of the Governor Act as “an unlawful delegation of legislative power to the executive branch in violation of the Michigan Constitution”).

19. *Tandon v. Newsom*, 141 S. Ct. 1294, 1296 (2021) (invalidating California’s ban on religious gatherings in private homes based on the so-called most favored nation theory of the First Amendment, which creates an automatic claim for religious exemption whenever there are any secular exemptions); see also Douglas Laycock, *The Remnants of Free Exercise*, 1990 SUP. CT. L. REV. 1, at 49–51 (describing the Supreme Court’s free exercise analysis in *Employment Division v. Smith*, 494 U.S. 872 (1990), as a “most-favored nation” theory).

demonized and terrorized in the last year.²⁰ Yet they—we—did fail, not each of us or in every case, but as a collective, as a field, as a “technology” for managing a pandemic. We drew faulty inferences, gave poor advice, and launched COVID-19 control rules with shocking indifference to social, psychological, economic, and political factors. Public health cannot be blamed for bad leaders, or budget cuts, fake news, or bad law. Despite their broad legal authority, health officers are just appointed officials who work for mayors, governors, and presidents. They do not make budgets or pass legislation. All of us in public health could certainly fall back on the defense that we were not heeded or lacked the power to properly deploy our expertise. But such outward-looking explanations do not capture the elements of the story that are useful to public health going forward. Knowing who else we can blame does not help those of us within the field of public health to be better or do better. Irresponsible leaders, angry Americans, and insufficient budgets are not “problems” that get in the way of public health—they are the conditions in which we work, and it just will not do to point to them as the causes of failure. Where we have agency in this broad field is over what *we* do, and there is plenty to talk about—not just COVID-19, but opioids,²¹ obesity,²² and other big problems we have identified that have not gotten better.

We failed the test we had been preparing for for decades and, as we will argue in this paper, the failure most important for public health to acknowledge and address was a sustained (and continuing) failure of judgment, rooted in an insular, technocratic, and immodest professional monoculture. We thought public health was a broad, transdisciplinary field that understood not just

20. Mike Baker & Danielle Ivory, *Why Public Health Faces a Crisis Across the U.S.*, N.Y. TIMES (Oct. 20, 2021), <https://www.nytimes.com/2021/10/18/us/coronavirus-public-health.html> [<https://perma.cc/5849-FAEQ>] (describing the harassment of public health officials).

21. Fatal overdoses have increased by over six times since 1999. *Opioid Data Analysis and Resources*, CTRS. FOR DISEASE CONTROL & PREVENTION (Mar. 10, 2021), <https://www.cdc.gov/opioids/data/analysis-resources.html> [<https://perma.cc/2HPY-S8CS>]. Since President Trump declared the opioid crisis a public health emergency in 2017, annual fatal overdoses have increased 32% to 93,331. See Jesse C. Baumgartner & David C. Radley, *The Drug Overdose Toll in 2020 and Near-Term Actions for Addressing It*, COMMONWEALTH FUND (Aug. 16, 2021), <https://www.commonwealthfund.org/blog/2021/drug-overdose-toll-2020-and-near-term-actions-addressing-it> [<https://perma.cc/GT92-WEP5>].

22. Between 2000 and 2018, the prevalence of obesity in the U.S. rose from 31% to 42% while the prevalence of severe obesity almost doubled from 5% to 9%. CRAIG M. HALES, MARGARET D. CARROLL, CHERYL D. FRYAR & CYNTHIA L. OGDEN, CTRS. FOR DISEASE CONTROL & PREVENTION; NAT'L CTR. FOR HEALTH STATS., PREVALENCE OF OBESITY AND SEVERE OBESITY AMONG ADULTS: UNITED STATES, 2017–2018, at 2–3 (Feb. 2020), <https://www.cdc.gov/nchs/products/databriefs/db360.htm> [<https://perma.cc/4KFC-YD6S>].

epidemiology but the social determinants of health and health behavior. It was a field, we thought, where sociologists, psychologists, political scientists, engineers, and people with lived experience all had a place and a voice. In our work, we had tried to enlist and educate public health researchers and professionals in the complex but vital pursuit of what we call “legal epidemiology,” the scientific study and use of law as a factor in population health. This rich melting pot of evidence, theory, methods, and experiences was producing useful information and insights at the very outset of the pandemic—as we will show—and yet the public health system used poor decision-making processes and drew on only a narrow slice of relevant expertise and experience. Certainly, the federal public health leadership that we will focus on in this paper bears a solid portion of the blame, but we think the immodesty and insularity they exhibited sadly reflects the dominant culture of the field as a whole—and has to change.²³

This Article is not a thorough-going history of the pandemic response. By way of critique and suggesting a way forward for public health, we are going to imagine how public health—both the official agencies and the interconnected nodes in academia and health systems—might have approached COVID-19 differently. This is a story that focuses on good judgment as the lynchpin of optimal pandemic response and allows us to think about where good judgment seems to have been lacking, and how public health culture and institutions might change to improve the chances of better judgment next time.

I. THE COUNTERFACTUAL RESPONSE

We authors are closely identified with the “transdisciplinary model” of public health law.²⁴ In this model, the work of the law is

23. Harold Pollack, Opinion, *Why Public Health Experts Aren't Reaching Conservatives on Covid*, POLITICO (Aug. 12, 2021, 4:30 AM), <https://www.politico.com/news/magazine/2021/08/12/conservative-public-health-covid-conservative-affirmative-action-503448> [<https://perma.cc/99XB-RVFB>] (“Over my career, I have witnessed many harms inflicted by conservatives’ opposition to syringe exchanges and other essential public health efforts—most definitely including our current public health crisis. Angered by such memories, ensconced within a community of like-minded scholars, I might forget that liberal/left communities are collections of imperfect humans like any other—with our own blind spots and biases arising from group conformity. Progressive academia often lacks sufficient voices in the room to call us on our errors. John Stuart Mill reminds us: Those who know only their own side of the argument know little of that.”).

24. See generally SCOTT BURRIS, MICAH L. BERMAN, MATTHEW PENN & TARA RAMANATHAN HOLIDAY, *THE NEW PUBLIC HEALTH LAW: A TRANSDISCIPLINARY APPROACH TO PRACTICE AND ADVOCACY* (Oxford Univ. Press 2018) (proposing a transdisciplinary model

not seen simply as a matter delegated to lawyers, but an enterprise carried out across all the disciplines of public health.²⁵ This is meant to be an accurate description of how public health laws are actually devised, enacted, deployed, implemented, and disseminated.²⁶ It reflects an admiring belief in public health as a practical field that is itself transdisciplinary, a field in which psychologists, economists, epidemiologists, and engineers—from research and practice—work together, sharing their perspectives and tools in the cause of achieving a high level of understanding and effectiveness.²⁷

This diversity of viewpoints, skills, methods, and theoretical frameworks helps produce the *sine qua non* of effective public

of advocacy for lawyers and public health practitioners); Scott Burris, Marice Ashe, Donna Levin, Matthew Penn & Michelle Larkin, *A Transdisciplinary Approach to Public Health Law: The Emerging Practice of Legal Epidemiology*, 37 ANN. REV. PUB. HEALTH 135 (2016) [hereinafter *A Transdisciplinary Approach*], <https://doi.org/10.1146/annurev-publhealth-032315-021841> [<https://perma.cc/58BU-RU4Y>] (describing a transdisciplinary model, which combines scientific practices with legal representation); Scott Burris & Evan Anderson, *Legal Regulation of Health-Related Behavior: A Half Century of Public Health Law Research*, 9 ANN. REV. L. & SOC. SCI. 95 (2013), <https://doi.org/10.1146/annurev-lawsocsci-102612-134011> [<https://perma.cc/P2F2-UAY9>] (describing the rise of law as a tool of public health).

25. *A Transdisciplinary Approach*, *supra* note 24, at 136–37. This is slightly broader but similar to notions of transdisciplinarity in developing implementation science theory. Timothy H. Ciesielski, Melinda C. Aldrich, Carmen J. Marsit, Robert A. Hiatt & Scott M. Williams, *Transdisciplinary Approaches Enhance the Production of Translational Knowledge*, 182 J. LAB'Y & CLINICAL MED. 123, 125 (2017), <https://doi.org/10.1016/j.trsl.2016.11.002> [<https://perma.cc/MMQ4-NR6C>] (“Transdisciplinary research does not refer to the combination of fully formed ideas from distinct fields (multidisciplinary research), or the integration of ideas from distinct fields (interdisciplinary research), rather it refers to the generation and utilization of research frameworks and ideas that could not come from, or fit into, any one field. This emergent property of transdisciplinary translational research can enable us to: (1) explore widely, (2) assess diversely, and (3) intervene effectively in our efforts to promote human health.”) This piece, which makes several sound points about transdisciplinarity, also exemplifies the problem in public health. Despite addressing examples of problems that involve human behavior, social environments, and the development of intervention, the scope of transdisciplinarity by the epidemiologists and geneticists writing the paper never extends to social, behavioral, or sociolegal science.

26. Scott Burris, Marice Ashe, Doug Blanke, Jennifer Ibrahim, Donna E. Levin, Gene Matthews, Matthew Penn & Martha Katz, *Better Health Faster: The 5 Essential Public Health Law Services*, 131 PUB. HEALTH REPS. 747, 747 (2016), <https://doi.org/10.1177/0033354916667496> [<https://perma.cc/8YEF-HL9U>].

27. Transdisciplinarity is not merely the intermingling of ideas and practices across disciplines, but the combining of theories, methods, and other disciplinary resources to produce new knowledge and new modes of action. The lawyer, health researcher, and practitioner not only share insights and expertise with each other but act in ways that blur their professional identities. Knowledge produced through transdisciplinarity efforts is created by people with diverse skills, viewpoints, and experiences, organized in temporary arrangements without rigid hierarchy, through processes that ensure quality through transparent criteria and procedures. Cyrille Rigolot, *Transdisciplinarity as a Discipline and a Way of Being: Complementarities and Creative Tensions*, 7 HUMANS. & SOC. SCIS. COMMC'NS 1, 2 (2020), <https://doi.org/10.1057/s41599-020-00598-5> [<https://perma.cc/5FGB-GU24>].

health work—good judgment under conditions of uncertainty, scarcity, and political and social division. It rests on a view of public health as scrappy, daring, smart, science driven, committed to health equity, and, above all, strategic. This is the vision of public health we carried as COVID-19 arrived; it was a vision public health had not always lived up to perfectly, but it had eradicated smallpox, dramatically driven down road deaths, and helped us get through HIV/AIDS.²⁸ We had faith that it would help us muddle through the COVID-19 pandemic. Boy, were we disappointed—but more on that later.

For now, we go from idealism to pure fantasy. As the most direct way to talk about the counterfactual of a strategic, transdisciplinary public health response to COVID-19, we invite you to join us in imagining the Health and Human Services (“HHS”) Secretary’s Operations Center (“SOC”) in Washington, D.C., the hub for emergency operations in the department that oversees all the key health agencies.²⁹ It is the week of December 31, 2019, and HHS Secretary Alex Azar and his brain trust are coming together to address reports of a new virus in Wuhan.³⁰

28. Burris et al., *supra* note 24, at 96–98.

29. SOC describes itself as “the primary emergency operations center (EOC) for HHS. The mission of the SOC is to protect the health, safety, and security of the nation by serving as the 24/7/365 focal point for public health and medical information collection, sharing, and analysis, as well as facilitating the coordination of HHS preparedness, response, recovery, and mitigation operational resource requirements. The SOC maintains a ‘steady-state’ twenty-four-hour watch function for situational awareness of any emerging situation, nationally or internationally, which may require a coordinated health and medical federal disaster response.” *HHS Secretary’s Operations Center*, U.S. DEPT OF HEALTH & HUM. SERVS., <https://www.phe.gov/Preparedness/responders/soc/Pages/default.aspx> [https://perma.cc/SS5W-2HSF]. In this paper, we focus on federal actors, who set the broad outlines of policy in our public health system. We note in places that this system is also importantly influenced by academics who serve on government advisory committees as unofficial sources of information and guidance and offer their opinions in the media. We do not say much about state and local health officials, but because they reenact many of the decision-making, planning, and implementation steps of the federal team in their jurisdictions, our general points apply to them as well.

30. Secretary Azar learned about the emerging coronavirus on December 30 from an advisory Taiwan sent to WHO imploring it to investigate a concerning outbreak of a respiratory virus in the Wuhan province. GOTTLIEB, *supra* note 8, at 38. The next day Chinese authorities in Wuhan announced that they were, in fact, treating almost thirty cases of respiratory disease of unknown origin. *Id.* at 34. Taiwan began immediate screening of all symptomatic people arriving by plane from Wuhan that afternoon. C. Jason Wang, Chun Y. Ng & Robert H. Brook, *Response to COVID-19 in Taiwan: Big Data Analytics, New Technology, and Proactive Testing*, 323 JAMA 1341, 1341 (2020), <https://doi.org/10.1001/jama.2020.3151> [https://perma.cc/94J8-UDJ6].

A. *The SWOT Analysis*

We imagine Azar and his team recognizing very early on that COVID-19 could be the big one: the readily transmissible, significantly deadly airborne pathogen that we had all been fearing for at least twenty years. Just a few months before, HHS had war-gamed precisely this scenario in a tabletop exercise called *Crimson Contagion*, which predicted that an outbreak of an influenza-like respiratory disease in China would overwhelm the U.S. health system and cause 110 million infections, 7.7 million hospitalizations, and 586 thousand deaths before it could be brought under control.³¹ Everyone in the room would know that no serious remedial action had been undertaken in response to the exercise, so the first step in responding to a potentially massive threat would be a clear-eyed SWOT³² analysis of the U.S. public health system as it faced a possible real-life *Crimson Contagion*.

In addition to the general wealth and technological resources of the United States, the public health system certainly looked strong.³³ CDC had an ample stock of credibility as the world's leading health agency.³⁴ Azar also sat at the head of federal health research, drawing on the National Institutes of Health ("NIH") for everything from the expertise and practical experience of Anthony Fauci, through the trove of bench science on viral genomes and RNA vaccines, to the resources for mobilizing the nation's health researchers to develop pharmaceutical countermeasures. FDA had

31. U.S. DEP'T OF HEALTH & HUM. SERVS. OFF. OF THE ASSISTANT SEC'Y FOR PREPAREDNESS & RESPONSE, *CRIMSON CONTAGION 2019 FUNCTIONAL EXERCISE AFTER-ACTION REPORT 9–10* (2020).

32. In a SWOT analysis, organizational leaders assess their strengths, weakness, opportunities, and threats. The first two are internal features, and the latter two are external features. Marilyn M. Helms & Judy Nixon, *Exploring SWOT Analysis – Where Are We Now? A Review of Academic Research from the Last Decade*, 3 J. STRATEGY & MGMT. 215, 216 (2010), <https://doi.org/10.1108/17554251011064837> [<https://perma.cc/L6TK-MQY4>] (reviewing the history and use of SWOT analysis).

33. See GLOBAL HEALTH SECURITY INDEX, *supra* note 1, at 8, 20–21 (describing how a group of international experts had identified the United States as the country most prepared for a pandemic).

34. See, e.g., Sudip Parikh, *CDC: Remember Who You Are*, STAT (Apr. 8, 2020), <https://www.statnews.com/2020/04/08/cdc-remember-who-you-are> [<https://perma.cc/T3H7-7P2E>] ("The CDC not only set the standard for what a national public health agency does, but it trained others to carry out that mission around the world. Several generations of the world's disease detectives have been trained in the CDC's Epidemic Intelligence Service. These alumni now populate public health agencies around the world. Quietly and effectively, the CDC projected American competence and leadership. Around the world, public health agencies across Asia, Africa, and Europe are called 'CDC,' despite the fact that the acronym may be meaningless in the home language.").

the capacity and processes for approving new vaccines, tests, treatments, and medical devices. The National Institute for Occupational Safety and Health (“NIOSH”) could bring relevant engineering expertise—including the physics of airborne transmission—into safety discussions for hospitals, nursing homes, factories, schools, and other settings. There was a Strategic National Stockpile (“SNS”) of pandemic response equipment, and Azar could invoke the Defense Production Act to stimulate production, purchasing, and allocation of essential resources.³⁵

The Centers for Medicare and Medicaid Services (“CMS”) had vital levers for coordinating and buttressing healthcare delivery. Because public and private hospitals alike rely heavily on CMS reimbursement, CMS can require hospitals to change practices and share new information by placing conditions on funding.³⁶ The role of CMS reimbursement in outpatient services makes it the functional regulator of telehealth, which has obvious benefits during a pandemic.³⁷ The same dynamics apply to long-term services and

35. Defense Production Act of 1950, 50 U.S.C. § 4511; Anderson et al., *supra* note 17, at 170, 171.

36. See ELAYNE J. HEISLER, BRYCE H. P. MENDEZ, ALISON MITCHELL, SIDATH VIRANGA PANANGALA & MARCO A. VILLAGRANA, CONG. RSCH. SERV., R44376, FEDERAL SUPPORT FOR GRADUATE MEDICAL EDUCATION: AN OVERVIEW 1, 1, 3 (2018) (“In FY2012, the last year of data available for all federal sources of [graduate medical education] GME payments, the federal government spent an estimated \$15 billion on GME, which was the largest federal investment in the health care workforce.”). CMS eventually promulgated regulations requiring hospitals to report various COVID-19 data metrics on a daily or weekly basis as a condition to receive federal funds. 42 C.F.R. § 482(e) (2020); *see also* Anderson et al., *supra* note 17, at 155, 156 tbl.24 (highlighting the frequency and specifics of the personal protective equipment (“PPE”) reporting requirements imposed by CMS). This leverage was brought to bear in fall of 2020 because hospitals refused to share data about PPE on hand or about cases and mortality. Press Release, Rick Pollack, President & CEO, Am. Hosp. Ass’n, AHA Statement on Interpretive Guidance on CMS Data Collection (Oct. 6, 2020), <https://www.aha.org/press-releases/2020-10-06-aha-statement-interpretive-guidance-cms-data-collection> [<https://perma.cc/39BU-RF8U>]. A similar CMS regulation that required COVID-19 vaccination for hospital staff as a condition for funding narrowly withstood constitutional challenges before the Supreme Court under evolving nondelegation jurisprudence. *See* Medicare and Medicaid Programs; Omnibus COVID-19 Health Care Staff Vaccination, 86 Fed. Reg. 61,555, 61,619 (Nov. 5, 2021) (to be codified at 42 C.F.R. § 482(g)); Response to Application for a Stay Pending Appeal at 26, *Biden v. Missouri*, 142 S. Ct. 647 (2022). Increasing willingness to scrutinize agency power in such emergency rulemaking, even in the face of substantial public health needs, was evident in *Nat’l Fed’n of Indep. Bus. v. Dep’t of Lab., Occupational Safety & Health Org.*, 142 S. Ct. 661 (2022), discussed *supra* note 18.

37. For an analysis of legal authorities available to reshape telehealth, see Cason D. Schmit, Johnathan Schwitzer, Kevin Survance, Megan Barbre, Yeka Nmadu & Carly McCord, *Telehealth in the COVID-19 Pandemic*, in ASSESSING LEGAL RESPONSES TO COVID-19, at 123, 124–26 (Scott Burris et al. eds., 2020). Regulatory action by CMS reshaped telehealth in 2020. Before the pandemic, there were about 13,000 fee-for-service telehealth visits by Medicare beneficiaries each week; in just the last week of April 2020, there were over 1.6 million such visits. Seema Verma, *Early Impact of CMS Expansion of*

supports (e.g., nursing homes, home-based care), two-thirds of which are funded by Medicaid and Medicare.³⁸ During declared emergencies, Medicaid enrollment and disenrollment processes can be reshaped to ensure health care needs are met.³⁹

Also in the room would be Robert Kadlec, Assistant Secretary for Preparedness and Response (“ASPR”). The ASPR’s mission is to lead preparedness and response efforts to public health emergencies by coordinating the efforts of healthcare entities, government agencies, and private industry. Congress had repeatedly (and recently⁴⁰) emphasized the importance of the ASPR’s mission. The 2006 law that created the ASPR required all government agencies to formulate preparedness plans, HHS to produce a National Health Security Strategy for Congress every four years, and a yearly review of the SNS.⁴¹

From the lawyer’s perspective, the mission and authority conferred upon HHS and its various agencies would also look like a big advantage.⁴² Political leaders and the public would initially look to CDC for guidance, so it started with the impetus to act, and

Medicare Telehealth During COVID-19, HEALTH AFFS. FOREFRONT (July 15, 2020), <https://doi.org/10.1377/forefront.20200715.454789> [<https://perma.cc/33GM-LF35>]. By October of 2020, over a third of the 63 million current Medicare beneficiaries received healthcare virtually. Press Release, Ctrs. for Medicare & Medicaid Servs., Trump Administration Finalizes Permanent Expansion of Medicare Telehealth Services and Improved Payment for Time Doctors Spend with Patients (Dec. 1, 2020), <https://www.cms.gov/newsroom/press-releases/trump-administration-finalizes-permanent-expansion-medicare-telehealth-services-and-improved-payment> [<https://perma.cc/J5EJ-HN26>].

38. KIRSTEN J. COLELLO, CONG. RSCH. SERV., IF10343, WHO PAYS FOR LONG-TERM SERVICES AND SUPPORTS? (2018) (noting that Medicaid and Medicare finance 64.0% of all LTSS spending nationwide).

39. For a discussion of the failure of the federal government to wield this lever effectively and equitably during Hurricane Katrina, see Jeanne M. Lambrew & Donna E. Shalala, *Federal Health Policy Response to Hurricane Katrina: What It Was and What It Could Have Been*, 296 JAMA 1394, 1394–96 (2006).

40. The requirements of the Pandemic and All-Hazards Preparedness Act, Pub. L. No. 109-417 (2006) (codified at 42 U.S.C. § 300hh-1) had been reauthorized in 2019. Pandemic and All-Hazards Preparedness and Advancing Innovation Act of 2019, Pub. L. No. 116-22 (codified as amended at 42 U.S.C. § 300hh-1).

41. Pandemic and All-Hazards Preparedness Act, Pub. L. No. 109-417 (2006) (codified at 42 U.S.C. § 300hh-1).

42. Few would have predicted that a President would choose not to take steps to promote the common good. Such intransigence is now recognized as a problematic feature of emergency preparedness laws, which presume executives will vigorously invoke and apply emergency powers. David E. Pozen & Kim Lane Schepple, *Executive Underreach*, in *Pandemics and Otherwise*, 114 AM. J. INT’L. L. 608, 613 (2020) (suggesting that laws should be revised to obligate action because Trump took so few reasonable steps authorized during declared emergencies).

the Secretary was empowered to declare a health emergency.⁴³ Taking advantage of that authority, he would draw on powerful information networks constituted not only by partner agencies at the domestic and global levels, but also the lifelong personal connections of HHS staff with experts in other agencies and academia.

Secretary Azar and his advisors would also, we hope, have been clear-eyed about the serious weaknesses they would have to account for in any plan of action. They should have been uncomfortably aware of the extent to which the foundations of CDC's reputation were shaky, and of the risks of blinding professional bias within the agency and its networks. CDC had struggled with basic public health operations in recent years. A single case of possible drug resistant tuberculosis had led to an international fiasco of botched control measures.⁴⁴ Its laboratories had repeatedly failed basic tests of competency in managing biohazardous material,⁴⁵ and there had been longstanding concern about brain drain.⁴⁶ Of particular importance, the agency had produced a monumentally faulty test during the Zika outbreak in 2016⁴⁷ by trying to add too many serologic bells and whistles.⁴⁸ Even more concerning, the

43. See, e.g., James G. Hodge & Evan D. Anderson, *Principles and Practice of Legal Triage During Public Health Emergencies*, 64 N.Y.U. ANN. SURV. AM. L. 249, 260 (2008) (describing the flexible authority afforded to government through emergencies and disasters declarations).

44. Janice Hopkins Tanne, *Tuberculosis Case Exposes Flaws in International Public Health Systems*, 334 BRIT. MED. J. 1187, 1187 (2007) (detailing the various missteps of health officials including failures to adhere to the international health regulations).

45. Ian Swanson, *Ebola Czar: Mishandling of Samples 'Unacceptable,'* HILL (Dec. 28, 2014, 11:31 AM), <https://thehill.com/policy/healthcare/228139-ebola-czar-mishandling-of-samples-unacceptable> [<https://perma.cc/V6VW-HJ9V>] (describing an accidental transfer of Ebola to CDC's main offices).

46. See Helen Pearson, *Claims of Brain Drain Follow CDC Reshuffle*, 443 NATURE 250, 250–51 (2006), <https://doi.org/10.1038/443250a> [<https://perma.cc/PZ6J-JF68>] (describing internal discontent and departures after the CDC director created another layer of bureaucracy and reduced some autonomy of the various centers including their control over budgeting).

47. David Willman, *Lessons Unlearned: Four Years Before the CDC Fumbled Coronavirus Testing, the Agency Made some of the same Mistakes with Zika*, WASH. POST (July 4, 2020), https://www.washingtonpost.com/investigations/lessons-unlearned-four-years-before-the-cdc-fumbled-coronavirus-testing-the-agency-made-some-of-the-same-mistakes-with-zika/2020/07/03/c32ca530-a8af-11ea-94d2-d7bc43b26bf9_story.html [<https://perma.cc/6EFU-R824>] (“Amid a feared outbreak of the newly emerged Zika virus, senior CDC officials in 2016 sidelined an effective test for it—and instead directed public health laboratories nationwide to use a more complicated test that failed about one-third of the time.”).

48. *Id.* (“CDC scientists . . . saw the emerging Zika crisis as an opportunity to deploy a new—and more elaborate—approach to detecting the virus. Instead of using the molecular test to look only for Zika, they would also target five additional pathogens . . . [T]he CDC would manufacture and distribute the Triplex test kits, each with 41 pages of instructions, versus two for [the other test].”).

agency refused to disclose the test's faults or the availability of a better test, and unfairly punished the CDC whistleblower who brought it all to light.⁴⁹ This poor recent record should have been top of mind given the obvious importance of testing to any control effort. Cheap, effective tests would be needed to identify the infected and infectious, and the need for more sophisticated tests that could track viral mutation was eminently foreseeable.⁵⁰

Beyond those surrounding the narrow task of creating a test and supporting its use, there should have been concerns about the operational strength of CDC in the rapid decision making and on-the-ground logistics needed during a fast-moving crisis with a large footprint. Many viewed CDC as having given up its primary identity as an operational public health agency and instead having become more like an academic research shop.⁵¹ The modern CDC had

49. *Id.*

50. Testing and its role in prevention provides one of the more compelling instances of judgment challenges in the COVID-19 story. In December 2021, CDC Director Rochelle Walensky issued guidelines for an abbreviated isolation period after infection. Press Release, Ctrs. for Disease Control & Prevention, CDC Updates and Shortens Recommended Isolation and Quarantine Period for General Population (Dec. 27, 2021), <https://www.cdc.gov/media/releases/2021/s1227-isolation-quarantine-guidance.html> [<https://perma.cc/33EG-JEQH>]. CDC was facing the problem that Omicron's infectiousness was making it hard for various essential systems to operate if workers were infected, but not making workers so incapacitated they had to isolate for ten days. CDC also had to face the fact that two years into the pandemic America still lacked an abundant supply of cheap at-home antigen tests. Instead of transparently explaining the dilemma, though, Walensky justified the lack of a testing requirement for leaving the abbreviated isolation by discounting the value of testing to identify infectiousness. In a double blow to her credibility (and to any claim of good judgment), some of the most obvious evidence that she was wrong came from the pre-CDC Dr. Rochelle Walensky herself. See, e.g., A. David Paltiel & Rochelle P. Walensky, *Screening to Prevent SARS-CoV-2 Outbreaks: Saliva-Based Antigen Testing Is Better than the PCR Swab*, HEALTH AFFS. FOREFRONT (Sept. 11, 2020), <https://doi.org/10.1377/forefront.20200909.430047> [<https://perma.cc/7MK3-PAVN>] (asserting that rapid, saliva-based antigen tests are the "preferred tool for outbreak control"); Rochelle P. Walensky & Carlos Del Rio, *From Mitigation to Containment of the COVID-19 Pandemic: Putting the SARS-CoV-2 Genie Back in the Bottle*, 323 JAMA 1889, 1889 (2020), <https://doi.org/10.1001/jama.2020.6572> [<https://perma.cc/9M5D-9EGL>] (stating that "testing is critical" for mitigation and containment of the COVID-19 pandemic); A. David Paltiel, Amy Zheng & Rochelle P. Walensky, *Assessment of SARS-CoV-2 Screening Strategies to Permit the Safe Reopening of College Campuses in the United States*, JAMA NETWORK OPEN e2016818, at 8 (2020), <https://doi.org/10.1001/jamanetworkopen.2020.16818> [<https://perma.cc/MR2Q-6NMQ>] (asserting that the safe return of college students to residential campuses requires "a highly specific screening test that can easily be administered to students every 1 to 7 days"); see also Zeynep Tufekci, *The C.D.C. Is Hoping You'll Figure Covid out on Your Own*, N.Y. TIMES (Jan. 5, 2022), <https://www.nytimes.com/2022/01/05/opinion/omicron-covid-testing-cdc.html> [<https://perma.cc/DS22-WB5D>] (discussing controversy and reporting Walensky's statement that "[w]e opted not to have the rapid test for isolation because we actually don't know how our rapid tests perform and how well they predict whether you're transmissible during the end of disease").

51. See, e.g., Maggie Koerth, *COVID-19 Was Always Going to Be a Struggle for the CDC. But Trump Sure Didn't Help.*, FIVETHIRTYEIGHT (June 30, 2021, 10:00 AM), <https://fivethir>

never been especially vigorous in the groundwork control of infectious disease epidemics in the United States.⁵² It was poorly designed to convene and lead other agencies,⁵³ and its current director was a virologist and lab researcher by training and experience who had never run a public health agency.

Bureaucracy itself was a weakness. FDA, which would be largely responsible for shepherding new tests, vaccines, and supplies to market, was both a center of scientific excellence and a data- and form-processor through layers of officials and committees. FDA's approval processes are designed to assure that products are safe and effective in fact and—as importantly—in public perception. Emergency approval could legally be granted on an expedited basis, but FDA had never used this authority against such high stakes and under such public scrutiny.⁵⁴ There was also bureaucratic infighting to deal with. Azar had a contentious relationship with CMS head Seema Verna, who was only still serving on the condition that she would never have to work directly with him.⁵⁵

tyeight.com/features/covid-19-was-always-going-to-be-a-struggle-for-the-cdc [https://perma.cc/52SJ-ND89] (quoting Richard Besser, a former acting director of CDC, who stated that “CDC is an extremely academic institution”); Jeneen Interlandi, *Covid Proved the C.D.C. Is Broken. Can It Be Fixed?*, N.Y. TIMES MAG. (Oct. 18, 2021), https://www.nytimes.com/2021/06/16/magazine/cdc-covid-response.html [https://perma.cc/8LV9-SKMV] (quoting William Darrow, former head of the Behavioral and Prevention Research Branch, as noting “I’d go into a meeting and say, ‘What needs to be done?’ . . . And they’d give me a five-point chart. And then I’d ask, ‘Well why aren’t we doing those things?’ And it was all hemming and hawing about whether we could convince the states, or get top leadership to support it, or if it would be controversial”).

52. See LEWIS, *supra* note 8, at 256 (describing Charity Dean’s frustration, as a local health officer in California, with trying to get CDC to support her investigations of hepatitis and tuberculosis outbreaks). Further back in the annals of CDC’s predecessor, the Marine Hospital Service, we can certainly find cases of on-the-ground federal disease control. See, e.g., MARILYN CHASE, *THE BARBARY PLAGUE: THE BLACK DEATH IN VICTORIAN SAN FRANCISCO* 32–33 (2003) (recounting role of future Surgeon General Rupert Blue and NIH lab founder Joseph Kinyoun in controlling bubonic plague). And, officers in CDC’s Epidemic Intelligence Service have done heroic epidemiological work investigating outbreaks of diseases like Legionnaire’s Disease and Ebola. See CTRS. FOR DISEASE CONTROL & PREVENTION, *EPIDEMIC INTELLIGENCE SERVICE (EIS): A SNAPSHOT OF PUBLIC HEALTH ACHIEVEMENTS* 2, 5, 9 (2015).

53. Interlandi, *supra* note 51 (quoting William Darrow, former head of the Behavioral and Prevention Research Branch, as noting that “[w]e are really good at drilling down, . . . [b]ut terrible at looking up and reaching across”).

54. These processes are not perfect even under normal circumstances. For example, FDA famously failed in multiple ways in its regulation of OxyContin, contributing to a surge of opioid-related harms. See Art Van Zee, *The Promotion and Marketing of OxyContin: Commercial Triumph, Public Health Tragedy*, 99 AM. J. PUB. HEALTH 221, 225 (2009), https://doi.org/10.2105/AJPH.2007.131714 [https://perma.cc/9ZEP-YZVN].

55. SLAVITT, *supra* note 5, at 82.

Crimson Contagion had already pointed out that availability of key medical supplies was going to be a grave weakness if demand spiked. The SNS had been depleted from an influenza epidemic in 2009 and had only twelve million N-95 masks in stock;⁵⁶ it had been designed and managed to respond to an anthrax attack or influenza pandemic and was not prepared for the contingency of a coronavirus.⁵⁷ Ability to surge production and purchasing of critical supplies was limited by fragile supply chains running through countries that would need the same supplies and confront the same work disruptions.

Stepping back from HHS, Azar's team would know that the public health system that would be called upon to manage the crisis was not a system at all, but rather thousands of state and local health officers who report to hundreds of elected officials and whose powers were conditioned by state law and local politics.⁵⁸ The health care side was cut off from direct CDC cooperation by the organizational chart of HHS and by a century of practical separation.⁵⁹ Any effort to mobilize this system would confront massively decayed infrastructure on at least two key dimensions. First, the processes for transmitting health information were closer to

56. Jeanne Whalen, Rosalind S. Helderman & Tom Hamburger, *Inside America's Mask Crunch: A Slow Government Reaction and an Industry Wary of Liability*, WASH. POST (Apr. 2, 2020), https://www.washingtonpost.com/politics/inside-americas-mask-crunch-a-slow-government-reaction-and-an-industry-wary-of-liability/2020/04/02/b3155e2a-6f85-11ea-aa80-c2470c6b2034_story.html [<https://perma.cc/JY8F-JN55>].

57. GOTTLIEB, *supra* note 8, at 159 ("A lot of the stockpile's resources had been carefully curated to counter specific pathogens—anthrax, smallpox, and especially bird flu. A lot of emphasis was put on developing and stockpiling drugs and vaccines to counter these individual threats. Less emphasis was placed on building broad capabilities that would be needed to respond to a pandemic with virus we didn't anticipate, which would create a run on items like masks, ventilators and testing supplies.")

58. LEWIS, *supra* note 8, at 131; *see also* Interlandi, *supra* note 51 (quoting Tom Frieden, former director of CDC that "[s]tate and local health departments often feel like C.D.C. is clueless about the challenges they face and the realities of their work . . . [a]nd they are not entirely wrong in that"). The fragmented state of public health is a key theme in Michael Lewis' account of the early pandemic response. The protagonist in his book is a former California local and state public health official who laments the lack of support from CDC not just during COVID-19 but during earlier disease outbreaks. *See* LEWIS, *supra* note 8, at 130–31.

59. Anderson et al., *supra* note 17, at 170–72. Hospitals initially refused to share data about hospital beds, PPE on hand, infections, and deaths. The Trump administration conditioned Medicare reimbursement on delivery of that data in October of 2020. The struggle to access and merge hospital data in the United States contrasted sharply with experiences in other countries. In Taiwan, for example, cases were identified by searching for patients with severe respiratory symptoms using data from the National Health Insurance program and national electronic health records. *See* Wang et al., *supra* note 30, at 1341.

the Pony Express than the World Wide Web.⁶⁰ This was going to hamper both operations (like tracking people exposed to the virus as they moved across and within borders) and situational awareness, as outbreak data got stuck at various points in the pipeline.⁶¹ Second and related in cause, the resources of health agencies were barely sufficient for normal operations; there were too few people with the training and equipment to actually implement case finding and control measures at any sort of scale. A few dozen Ebola cases had strained capacity in the past—this could be millions of cases and contacts.

The society and the economy were also weak for pandemic response in some key respects. A respiratory disease will spread more rapidly if sick people are going to work and school, taking public transportation, and living in crowded conditions. The United States is notorious for its lack of guaranteed paid sick leave for workers, which would be a particular problem for low-wage workers who could not afford to miss a paycheck, let alone lose a job—and who might be working more than one job. Basic services like health care and food production and distribution would have to be maintained, posing serious risks to the essential workers who would keep them going. Low-paid health care workers with jobs in more than one nursing home could be a major vector of spread in congregate settings. Although the Affordable Care Act had reduced the number of uninsured people, there were still 30 million who

60. In California, an academic lab doing free genomic testing for local health agencies had to buy fax machines for many offices which lacked any or had outdated models. John Dickerson, *Doctors, Scientists Who Warned Officials About Oncoming Pandemic Focus of Michael Lewis Book*, CBS NEWS (Aug. 1, 2021, 6:56 PM), <https://www.cbsnews.com/news/michael-lewis-premonition-60-minutes-2021-08-01> [<https://perma.cc/FE3R-PQCT>] (“It was the first fax machine I’d seen in years. But the problem was, after we faxed these results, we got a call the next day sayin’, ‘Why did you only return half the results?’ We realized that their circa early ‘90s fax machine only had a page buffer that could hold about half the results we sent. So we literally went back to Best Buy, got another curbside delivery, and drove up a new fax machine up to that county public health office because they didn’t have the budget to buy their own new one.”).

61. California hospitals could not share data with government because there was no associated hospital billing code to organize the hospital activity and labor. See LEWIS, *supra* note 8, at 248–49. CDC relied almost entirely on a syndromic surveillance system with serious limitations. GOTTLIEB, *supra* note 8, at 78–83 (noting that CDC based early assessment of virus penetration on the influenza-like illness surveillance system, which monitors influenza by drawing data from public health labs, hospital labs, and Medicare billing, which are reported with weeks or months of lag time, and emphasizing that the syndromic approach is limited for a disease with so many asymptomatic cases).

would have limited access to a doctor and therefore be inclined to show up in the emergency room.⁶²

Finally, there was national leadership. Our public health laws reflect a legal and political tradition of leaving health emergencies primarily in the hands of the health experts. The original model of the Board of Health was just the group of doctors and other brave people willing to take charge (and not flee the city) in an epidemic, and it gave those stalwart souls broad power to do whatever was necessary.⁶³ Nonetheless, it is an element of our system—arguably a strength on average—that politicians are the ultimate deciders, and they have also tended to assert control when there are factions of the polity unhappy with public health measures.⁶⁴ Azar had firsthand experience with Trump and his predictably unpredictable ways. Importantly, Trump's disdain for bureaucrats and cooperation with other nations was already manifest. Domestically, Trump was a symptom of widespread distress and contention as much as he was a cause. Public discourse had been coarsened and polarized over social media over the last decade. It was clear that it would be difficult conveying risk and motivating action without amplifying social tribalism and political partisanship.

There also were external strengths—"opportunities" in the SWOT vernacular—to consider. Our CDC was no longer a unique repository of public health expertise and experience. CDC clones around the world—and in China itself—could provide visibility into the virus long before it reached American shores.⁶⁵ Many of those countries and their scientists had relevant experience to share, having recently encountered serious respiratory disease outbreaks. The United States also stood to benefit from a global scientific revolution in genomics over the last decade, which could

62. KENNETH FINEGOLD, ANN CONMY, ROSE C. CHU, ARIELLE BOSWORTH & BENJAMIN D. SOMMERS, OFF. OF HEALTH POL'Y, TRENDS IN THE U.S. UNINSURED POPULATION, 2010–2020, at 1–2 (2021), <https://aspe.hhs.gov/sites/default/files/private/pdf/265041/trends-in-the-us-uninsured.pdf> [<https://perma.cc/7AAB-Y5V7>].

63. See generally J.H. POWELL, BRING OUT YOUR DEAD: THE GREAT PLAGUE OF YELLOW FEVER IN PHILADELPHIA IN 1793 (1949) (describing the evaporation of federal, state, and local governments and the role of a volunteer board); CHARLES E. ROSENBERG, THE CHOLERA YEARS: THE UNITED STATES IN 1832, 1849, AND 1866 (1962) (describing the emergence of modern public health systems through three epidemics).

64. This happened, for example, when President Obama appointed Ron Klain to manage the response to Ebola. Jake Tapper, *First on CNN: Obama Will Name Ron Klain as Ebola Czar*, CNN POL. (Oct. 19, 2014, 2:07 PM), <https://www.cnn.com/2014/10/17/politics/ebola-czar-ron-klain/index.html> [<https://perma.cc/ULE7-K9GC>].

65. In fact, Robert Redfield communicated multiple times with his China CDC counterpart between January 1 and January 4. GOTTLIEB, *supra* note 8, at 48–49.

expedite new tools for tracking and interrupting disease transmission. There was no world war—like there was in 1918—to frustrate cooperation or stymie relatively candid sharing of knowledge.⁶⁶ There was, in other words, a huge opportunity to save millions of lives through global cooperation. The fact that we knew pretty early that the outbreak in Wuhan was likely to be serious, combined with the fact that we quickly received the viral genome, meant that we had an opportunity to prepare for what was to come.

The external threats, like the internal weaknesses, were formidable. The biggest was the subject itself: this new virus could be the big one, one that would spread all over the world in successive waves, mutating as it spread. Almost as bad could be the global response. The dismal state of the global health system and American global leadership were big potential problems. WHO, for better and for worse, serves the nations of the world—and particularly serves those who pony up money⁶⁷—and operates by consensus. Like CDC, it had developed a reputation for bureaucratic caution, and its legal authority was set out in International Health Regulations with significant limitations and known flaws. In theory, these regulations were meant to undergird cooperation among nations coordinated by WHO, but there was nothing in them to stop panicked global leaders from letting loose a cascade of individual travel restrictions, which could quickly disrupt supply chains we depend on for basic products not made in the United States like masks. These could trigger economic and social effects of a sort that SARS and Ebola had hinted at in recent decades but at a scale not seen in modern times.

66. The 1918 pandemic was known as the Spanish Flu because Spain openly admitted widespread cases. Spain had no more cases than other large countries but was one of the few major powers not then engaged in WWI so had no geostrategic reasons to deny cases. MICHAEL GREGER, *BIRD FLU: A VIRUS OF OUR OWN HATCHING* 3 (2006).

67. There was special concern—amplified by shifting funding towards China and the Trump administration's ongoing trade disputes with China—that any action of WHO would be viewed skeptically as protective of Chinese interests. Drew Hinshaw & Lukas I. Alpert, *U.S. Allies Leave WHO Funding Gap Unfilled as China and Others Step Up*, WALL ST. J. (Apr. 24, 2020, 4:33 PM), <https://www.wsj.com/articles/u-s-allies-leave-who-funding-gap-unfilled-as-china-and-others-step-up-11587760407> [<https://perma.cc/Q4QX-BA3L>]. And, in fact, twice the Chinese delegation in Geneva tried to block the declaration of public health emergency of international concern. GOTTLIEB, *supra* note 8, at 44–45. Some note that WHO was substantially more critical of Tanzania for that country's failure to report some Ebola cases the previous year. *China Delayed Releasing Coronavirus Info, Frustrating WHO*, ASSOCIATED PRESS (June 2, 2020), <https://apnews.com/article/united-nations-health-ap-top-news-virus-outbreak-public-health-3c061794970661042b18d5aeaaed9fae> [<https://perma.cc/842J-V6SY>].

B. *The Thoughtful Process of Understanding the Problem and Crafting a Strategic Response*

Given this SWOT analysis early in the month of January, we imagine the leadership team would have turned next to drawing in expertise and farming out key questions and issues for rapid assessment before the press and public inevitably grasped the severity of the problem. Rather than a few top people trying to plan based on whatever ideas happened to filter up, there would be working groups systematically trying to get a handle on a wide but finite set of key issues. The composition and methods of the groups would be aimed explicitly at harvesting the benefits of transdisciplinarity and reducing the effects of well-recognized professional and cognitive biases.⁶⁸ Secretary Azar and his leadership team would also have to consider how best to support and benefit from international cooperation. Taking advantage of the opportunity for significant international cooperation could inform membership on the working groups, but it went beyond working with WHO and other nodes on the global health network; it suggested a need to enlist entities like the Departments of State and Defense, the U.S. Trade Representative and U.S. Agency for International Development to mobilize diplomatic and financial resources to find common ground (and forestall competition) on travel restrictions, supply chains, and vaccine and medicines development.

The “epidemiology group” would explore the characteristics of disease transmission and progression. It was obvious at this point that we were dealing with airborne transmission, but was this really via droplets, aerosols, or both? Spread by droplets, a characteristic of the influenza, happens in close quarters when infected people cough or sneeze. If the route of transmission was just via droplets, then keeping physical distance, implementing physical barriers, and sanitizing hands and surfaces would all have been necessary and useful measures to reduce spread. Outdoor risks would not be that different from indoor. If COVID-19 aerosols could accumulate in still air and hang there for extended periods, as with tuberculosis, then outdoors would be considerably safer than

68. See, e.g., Timon Forster & Mirko Heinzl, *Reacting, Fast and Slow: How World Leaders Shaped Government Responses to the COVID-19 Pandemic*, 28 J. EUR. PUB. POL'Y 1299, 1302, 1313 (2021), <https://doi.org/10.1080/13501763.2021.1942157> [<https://perma.cc/9H7Y-F8SJ>]; Jamie K. Wardman, *Recalibrating Pandemic Risk Leadership: Thirteen Crisis Ready Strategies for COVID-19*, 23 J. RISK RSCH. 1092, 1112, 1115 (2020), <https://doi.org/10.1080/13669877.2020.1842989> [<https://perma.cc/CK6B-94P9>] (discussing good leadership in face of COVID-19).

indoors, barriers could make transmission worse, ventilation systems would be important risk and preventive factors, and masks would be an even higher priority.⁶⁹ It was similarly essential to confirm, in line with Dr. Fauci's strong expectation,⁷⁰ that people could not produce enough viral material to transmit the virus if they were not displaying symptoms. Understanding the health effects of the virus was necessary to gauge not just direct morbidity and mortality but also indirect knock-on harms if a wave of hospitalizations overwhelmed hospitals.

A "public health countermeasures group" would be assigned the task of working out realistic response options given prevailing conditions. This would require starting with the SWOT findings in considering whether and how to hold a line (for example, tight border controls and the tracking of people entering the United States) and what lines might have to be abandoned in an orderly retreat (for example, if such border countermeasures were infeasible). Public health orthodoxy⁷¹—and international law—took a dim view on border controls, both for their perceived ineffectiveness and for their certain social and economic costs, but the underlying evidence one way or the other was weak,⁷² and there might be value in slowing penetration to prepare a response, even for a matter of a week or two. In any case, politicians, not health leaders, would make the call in many places, including the United States. Wuhan was showing that rapid community transmission was a possibility, which meant thinking about changes in daily life that were unprecedented in modern times. To get close to right answers,

69. Zeynep Tufekci, *Why Did It Take So Long to Accept the Facts About Covid?*, N.Y. TIMES (May 7, 2021), <https://www.nytimes.com/2021/05/07/opinion/coronavirus-airborne-transmission.html> [https://perma.cc/MVF9-WBW6].

70. On January 28, Anthony Fauci said during a coronavirus task force press conference that, "in all the history of respiratory-borne viruses of any type, asymptomatic transmission has never been the driver of outbreaks . . . Even if there is a rare asymptomatic person that might transmit, an epidemic is not driven by asymptomatic carriers." U.S. Department of Health and Human Services, *Update on the New Coronavirus Outbreak First Identified in Wuhan, China*, YOUTUBE, at 41:20 (Jan. 28, 2020), <https://www.youtube.com/watch?v=w6koHkBCoNq> [https://perma.cc/Z7N4-PLN4]; see also GOTTLIEB, *supra* note 8, at 84.

71. See, e.g., Selam Gebrekidan, Katrin Bennhold, Matt Apuzzo & David D. Kirkpatrick, *Ski, Party, Seed a Pandemic: The Travel Rules that Let Covid-19 Take Flight*, N.Y. TIMES (Dec. 30, 2020), <https://www.nytimes.com/2020/09/30/world/europe/ski-party-pandemic-travel-coronavirus.html> [perma.cc/Z8SJ-ECN4] (quoting Larry Gostin, a scholar of global health governance that "[i]t's part of the religion of global health: Travel and trade restrictions are bad . . . I'm one of the congregants.>").

72. *Id.* (explaining how a former senior WHO official felt that "[t]he effect of travel restrictions on the spread of the latest coronavirus is still not understood. . . . 'Anyone who is truthful is going to tell you it's a big fat 'We don't know.'").

this group would have to include not only federal and local health officials, public health lawyers, social and political scientists, mathematical modelers, and historians with insights into how large-scale measures had been received and implemented in analogous pandemics, most importantly the 1918–1919 influenza.⁷³

Crimson Contagion pointed to the problem of surging demand for basic medical supplies. Likewise, testing was a highly likely need and a vaccine would be indispensable if the disease broke through. A “medical countermeasures” group would have to start identifying and preparing for contingencies including the development of tests, vaccines, and treatments. It would also have to find ways to prevent or alleviate equipment shortages, including via the use of emergency market powers provided in the Defense Production Act.⁷⁴

In addition to their specific charges, all three groups would be asked to use debiasing tools like the Haddon Matrix and causal modeling, which would help them identify links in or mediators of the causal chains they were otherwise implicitly constructing, and to avoid settling too soon on an inferior option.⁷⁵ Groups would be encouraged to complete weekly “premortems”—that is, to try to imagine everything that could go wrong based on the SWOT, findings

73. We would certainly want also to include Howard Markel, an authority on the Spanish influenza, who was already warning that the Chinese approach could be a poor model, writing, “[m]ore often than not, health officials are several steps behind a spreading epidemic. And when they aren’t, the history books show, they tend to act too fast (costing a fortune) or unfairly (discriminating against some populations).” Howard Markel, *Will the Largest Quarantine in History Just Make Things Worse? The Dirty History Behind Isolating the Sick*, N.Y. TIMES (Jan. 27, 2020), <https://www.nytimes.com/2020/01/27/opinion/china-wuhan-virus-quarantine.html> [perma.cc/3X28-GXQ4]; see, e.g., Alexandra M. Stern, Martin S. Cetron & Howard Markel, *Closing the Schools: Lessons from the 1918–19 U.S. Influenza Pandemic*, 28 HEALTH AFFS. 1066, 1077 (2009), <https://doi.org/10.1377/hlthaff.28.6.w1066> [<https://perma.cc/5TC7-MLD9>]; Howard Markel, Harvey B. Lipman, J. Alexander Navarro, Alexandra Sloan, Joseph Michalsen, Alexandra Minna Stern & Martin S. Cetron, *Nonpharmaceutical Interventions Implemented During the 1918-1919 Influenza Pandemic—Reply*, 298 JAMA 2260, 2260–61 (2007), <https://doi.org/10.1001/jama.298.19.2261-a> [<https://perma.cc/7KNV-D9FJ>]; Howard Markel, Harvey B. Lipman, J. Alexander Navarro, Alexandra Sloan, Joseph Michalsen, Alexandra Minna Stern & Martin S. Cetron, *Nonpharmaceutical Interventions Implemented by US Cities During the 1918-1919 Influenza Pandemic*, 298 JAMA 644, 654 (2007), <https://doi.org/10.1001/jama.298.6.644> [<https://perma.cc/ZR3Q-AQKF>].

74. 50 U.S.C. § 4511.

75. Visuals ensure more efficient and effective transdisciplinarity by improving communication within the groups and to society at large. Evan D. Anderson & Scott Burris, *Educated Guessing: Researchers and Research Knowledge into Policy Innovation*, in REGULATING TOBACCO, ALCOHOL AND UNHEALTHY FOODS: THE LEGAL ISSUES (2014); Ciesielski et al., *supra* note 25, at 126.

from the other groups, uncertainty, and evolving events.⁷⁶ Each of these groups would have a membership of some reasonable number, but each member would be linked in a larger professional network. These groups would have had to be powerfully transdisciplinary, because from the start the question would not just be whether they would work under some set of ideal conditions dreamed up in a conference room, but whether they would work in the real world. Teams had to consider economic costs, enforcement capacity, political acceptability, scientific plausibility, equity, human frailty—and legality.

All the working groups identified would be deliberately staffed to be transdisciplinary, but their missions and orientation would still be likely to bias them towards familiar public health thinking. For that reason, it would be important to actively foster diverse, critical, even contrarian thinking. Our version of Secretary Azar would accomplish this by creating what in some past crises CDC has called a Team B. This rethinking and brainstorming group would include critical scientists, academics, and public health and legal practitioners able to spot potential errors and hidden pitfalls in the work of the other teams; it would also include ethicists, social justice advocates, (retired) politicians, and community and business leaders—or decent proxies who could reach these kinds of people through their networks—to consider equity, tradeoffs of all kinds, and, perhaps most importantly, whether and to what extent values other than minimizing COVID-19 morbidity and mortality needed to be taken into account.⁷⁷ Such “committees” were already working outside government.⁷⁸

76. This idea was popularized by Daniel Kahneman. DANIEL KAHNEMAN, THINKING, FAST AND SLOW 264–65 (2011) (suggesting that, in all challenging endeavors, it is valuable to envision that you failed and to identify what went wrong, an example of the slower and deliberative thinking that Kahneman compares with rapid and instinctual cognition).

77. For an account of the CDC Team B experience, see PAMELA VARLEY, KENNEDY SCH. OF GOV'T, KEEPING AN OPEN MIND IN AN EMERGENCY: CDC EXPERIMENTS WITH “TEAM B” 2 (2008). An important function of this group would be challenging the view that reducing morbidity and mortality were indisputably the top priorities and, consequently, pressuring planners to consider tradeoffs and means of getting buy-in and support from those with different priorities.

78. Our working groups are imaginary, but in reality, such groups were forming spontaneously all over the internet and across all sorts of disciplines. One of us was involved with a group of lawyers, epidemiologists, and human rights advocates as early as January 27, 2020. Another included a group that resembled the Team B concept in composition and practice. The members were infectious disease doctors, health systems experts and managers, and one former local and then state health official. Eric Lipton, *The ‘Red Dawn’ Emails: 8 Key Exchanges on the Faltering Response to the Coronavirus*, N.Y. TIMES (Apr. 11, 2020), <https://www.nytimes.com/2020/04/11/us/politics/coronavirus-red-dawn-emails-trump.html>

Finally, it was reasonably clear that a primary challenge would be trying to understand the key dimensions of the crisis while having to respond to a deluge of demands for daily action and information. The working groups had to have the best and most experienced people, and they could not also be the people leading initial operations (like dealing with cruise ship outbreaks) or prepping and doing meetings and press briefings. This required at least three things: (1) segregating operations and planning responsibilities, (2) establishing a “press secretariat” team that would deal with the media and coordinate with the White House communications team, and (3) keeping the message honest—sharing what facts were known but making clear that, for the moment, the health team was going to focus on analysis and planning. For now, public attention was still elsewhere, and the best message was the truth: we are working 24/7 to understand this threat and what we should do about it.

C. *Integrating the Increasing Flow of Information*

By the time the committees got to work in mid-January, they would face a strengthening torrent of information. WHO was still suggesting that there was “no clear evidence of human-to-human transmission,”⁷⁹ yet cases were appearing across the globe.⁸⁰ On January 20, the United States would identify its first, a man in

[<https://perma.cc/J63L-RQU2>]. The group nicknamed itself the Wolverines, which was the group of rebels that fought against a Russian invasion in the campy 1984 movie “Red Dawn.” *Id.*; see also RED DAWN (United Artists & Valkyrie Films 1984). The group started with a half dozen members led by Carter Mecher, chief medical advisor to the U.S. Department of Veterans Affairs, who had overturned conventional thinking about pandemic control in 2004 with a reanalysis of 1918 pandemic controls, which was subsequently validated by historians like Howard Markel and infectious disease modelers like Marc Lipsitch. GOTTLIB, *supra* note 8, at 187–89. The Red Dawn email chain grew during the spring of 2020 and would eventually include Anthony Fauci, Robert Kadlec, Jerome Adams, and others. See Lipton, *supra*. A large cache of the Red Dawn emails was published by the New York Times. *Id.* [hereinafter ‘Red Dawn’ Emails], <https://int.nyt.com/data/documenthelper/6879-2020-covid-19-red-dawn-rising/66f590d5cd41e11bea0f/optimized/full.pdf#page=1> [<https://perma.cc/US2D-G26E>] (scroll to “See all of the email exchanges” and click “more than 80 pages of these emails”).

79. On January 14, 2020, WHO tweeted, “Preliminary investigations conducted by the Chinese authorities have found no clear evidence of human-to-human transmission of the novel #coronavirus (2019-nCoV) identified in #Wuhan, #China.” World Health Organization (@WHO), TWITTER (Jan. 14, 2020, 6:18 AM), <https://twitter.com/WHO/status/1217043229427761152> [<https://perma.cc/9GL8-CTXU>].

80. WORLD HEALTH ORG., NOVEL CORONAVIRUS (2019-NCOV) SITUATION REPORT - 1, 21 JANUARY 2020 (2020), https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200121-sitrep-1-2019-ncov.pdf?sfvrsn=20a99c10_4 [<https://perma.cc/LR9K-4MKY>].

Washington State recently returned from Wuhan.⁸¹ Three days later, China would shut down Wuhan to all travel.⁸² The 10,000 cases confirmed there by the end of the month would remove any doubt that person-to-person transmission was occurring.⁸³ Exploring the mechanics of disease transmission and progression would still be difficult in late January, but then came data from cruise ship outbreaks. After 3,700 passengers and crew on the Diamond Princess were quarantined and tested in mid-February, the epidemiology group would have access to four important findings: 328 of the 634 confirmed cases onboard were asymptomatic, a number of staff and quarantine officers became infected, the infection fatality rate was two percent, and there appeared to be substantial spread after passengers were quarantined in their rooms, which Japanese health officials interpreted as clear evidence of aerosol transmission.⁸⁴ Members of the group would know that the first SARS epidemic had been fueled by aerosol transmission, and that CDC experts had been slow to accept that evidence. If the epidemiology group did not remember this, Team B would certainly remind them.⁸⁵

81. Michelle L. Holshue et al., *First Case of 2019 Novel Coronavirus in the United States*, 382 NEW ENG. J. MED. 929, 929–30 (2020), <https://doi.org/10.1056/NEJMoa2001191> [<https://perma.cc/P3V4-HFJ8>].

82. See Amy Qin & Vivian Wang, *Wuhan, Center of Coronavirus Outbreak, Is Being Cut off by Chinese Authorities*, N.Y. TIMES (Jan. 24, 2020), <https://www.nytimes.com/2020/01/22/world/asia/china-coronavirus-travel.html> [<https://perma.cc/P9G6-3TXX>].

83. See James Griffiths & Nicole Chavez, *Coronavirus Death Toll Rises to 258 as US and Others Impose Strict Travel Restrictions*, CNN (Jan. 31, 2020, 7:51 PM), <https://www.cnn.com/2020/01/30/asia/wuhan-coronavirus-update-intl-hnk/index.html> [<https://perma.cc/XG2Z-AHDS>].

84. See Kenji Mizumoto, Katshushi Kagaya, Alexander Zarebski & Gerardo Chowell, *Estimating the Asymptomatic Proportion of the Coronavirus Disease 2019 (COVID-19) Cases on Board the Diamond Princess Cruise Ship, Yokohama, Japan, 2020*, EURO SURVEILLANCE, Mar. 12, 2020, at 1, 4, <https://doi.org/10.2807/2F1560-7917.ES.2020.25.10.2000180> [<https://perma.cc/6FAS-VVQ7>].

85. See VARLEY, *supra* note 77, at 9. The implication is not that, by this point, the teams should have accepted that aerosol spread was definitely an important factor in pandemic spread; there were reasons to question that proposition. See Michael Klompas, Meghan A. Baker & Chanu Rhee, *Airborne Transmission of SARS-CoV-2 Theoretical Considerations and Available Evidence*, 324 JAMA 441, 441 (2020), <https://doi.org/10.1001/jama.2020.12458> [<https://perma.cc/3KP7-NFRP>]. Rather, our point is that the group had enough evidence that it should have assumed both airborne and asymptomatic spread. We are, moreover, persuaded by researchers like Trisha Greenhalgh and Zeynep Tufekci that bias rather than evidence was the primary driver of the mistake and the delay in recognizing it. See Trisha Greenhalgh, *Miasmas, Mental Models and Preventive Public Health: Some Philosophical Reflections on Science in the COVID-19 Pandemic*, INTERFACE FOCUS, Dec. 6, 2021, at 3, 5, <https://doi.org/10.1098/rsfs.2021.0017> [<https://perma.cc/8JPE-2D7X>]; Trisha Greenhalgh, M. Ozibilgin & D. Tomlinson, *How Covid-19 Spreads: Narratives, Counter-Narratives and Social Dramas*, AUTHOREA (2021), <https://doi.org/10.22541/au.163709155.56570215/v1> [<https://perma.cc/S6VP-9KYS>]; Tufekci, *supra* note 69.

The epidemiology group would have the opportunity to confirm and extend these findings and explore domestic penetration of virus a few weeks later. An infectious disease researcher in Seattle had been collecting thousands of nasal samples to track seasonal influenza since January. Her research team had the capacity to check those samples for COVID-19.⁸⁶ After obtaining rapid CDC approval, that team would reveal that a little more than one percent of this accidental sample tested positive, including some specimens dating back to late January.⁸⁷ There would be no denying that the virus was spreading undetected in the Northwest. Just a few weeks after that, CDC researchers would test all residents of a skilled nursing facility in Seattle after a nurse appeared to have carried the virus from one facility to another.⁸⁸ The findings—rapid spread among bedbound patients, half of whom had no symptoms but viral loads capable of transmission—would add to accumulating evidence for asymptomatic and airborne transmission.⁸⁹

By this point, the severity of the epidemic would have been clear, and experienced state and local public health officials in the public health countermeasures group would be warning that traditional case finding and control methods were just not going to be feasible given the condition of U.S. public health human and data infrastructure. Devising workable measures would be extra-challenging now that the disconnect between the working groups and Trump's inner circle would already be emerging. On January 31, the Trump administration had prohibited travel into the United States by foreign nationals who had traveled to China in the past fourteen days, with exceptions for immediate family members of U.S. citizens or

86. Sheri Fink & Mike Baker, *It's Just Everywhere Already: How Delays in Testing Set Back the U.S. Coronavirus Response*, N.Y. TIMES (Mar. 16, 2020), <https://www.nytimes.com/2020/03/10/us/coronavirus-testing-delays.html> [<https://perma.cc/7TFN-T3YY>]; see GOTTLIEB, *supra* note 8, at 89.

87. Helen Y. Chu et al., *Early Detection of Covid-19 Through a Citywide Pandemic Surveillance Platform*, 383 NEW ENG. J. MED. 185, 185–87 (2020), <https://doi.org/10.1056/nejmc2008646> [<https://perma.cc/DC5C-DFZC>].

88. Anne Kimball et al., *Asymptomatic and Presymptomatic SARS-CoV-2 Infections in Residents of a Long-Term Care Skilled Nursing Facility — King County, Washington, March 2020*, 69 MORBIDITY & MORTALITY WKLY. REP. 377, 378 (2020), <https://doi.org/10.15585/mmwr.mm6913e1> [<https://perma.cc/83MQ-E56S>].

89. *See id.*; Camilla Rothe et al., *Transmission of 2019-nCoV Infection from an Asymptomatic Contact in Germany*, 382 NEW ENG. J. MED. 970, 970–71 (2020), <https://doi.org/10.1056/NEJMc2001468> [<https://perma.cc/Y59G-YUHV>] (reporting an incident of asymptomatic spread in a paper published March 5, 2020); Yan Bai, Lingsheng Yao, Tao Wei, Fei Tian, Dong-Yan Jin, Lijuan Chen & Meiyun Wang, *Presumed Asymptomatic Carrier Transmission of COVID-19*, 323 JAMA 1406, 1406–07 (2020), <https://doi.org/10.1001/jama.2020.2565> [<https://perma.cc/U33T-4BC6>].

permanent residents.⁹⁰ This meant that, in theory, CDC and state health officials would be managing some 40,000 returnees from China over the next two months.⁹¹ CDC and state agency partners were not going to be able to do this properly, given the lack of capacity, and in any case, it was not going to do a thing about people coming via other countries where cases were now spreading, as documented by a publicized case in Nigeria resulting from transmission in Italy.⁹²

With signs that contact tracing and isolation were already infeasible, it would be urgent to rapidly map out and assess a list of possible fallback measures with their strengths and drawbacks. At this point, we imagine the countermeasures group reporting back that it had already broken into a dozen subcommittees, all tasked with developing short, medium, and long-term intervention strategies for an extended 1918–1919 scale pandemic. The focus of these subgroups would include:

- Engineering interventions to make enclosed spaces safer, with a particular focus on prisons, care facilities, and schools;
- Twenty-first century strategies for case finding and tracking, including rapid testing and apps;
- Surveillance strategies for tracking genetic changes in the virus;
- Measures to reduce close physical interaction, including closure or density limits for gathering places;
- Emergency measures for vulnerable congregate settings like prisons and nursing homes;
- Measures to reduce transmission in primary, secondary, and tertiary education;

90. *Proclamation on Suspension of Entry as Immigrants and Nonimmigrants of Persons Who Pose a Risk of Transmitting 2019 Novel Coronavirus*, TRUMP WHITE HOUSE (Jan. 31, 2020), <https://trumpwhitehouse.archives.gov/presidential-actions/proclamation-suspension-entry-immigrants-nonimmigrants-persons-pose-risk-transmitting-2019-novel-coronavirus> [https://perma.cc/G4WY-X792].

91. Steve Eder, Henry Fountain, Michael H. Keller, Muiy Xiao & Alexandra Stevenson, *430,000 People Have Traveled from China to U.S. Since Coronavirus Surfaced*, N.Y. TIMES (Sept. 21, 2021), <https://www.nytimes.com/2020/04/04/us/coronavirus-china-travel-restrictions.html> [https://perma.cc/MB9T-QGP3].

92. Ruth Maclean & Abdi Latif Dahir, *Nigeria Responds to First Coronavirus Case in Sub-Saharan Africa*, N.Y. TIMES (July 23, 2020), <https://www.nytimes.com/2020/02/28/world/africa/nigeria-coronavirus.html> [https://perma.cc/XFC4-EURC].

- Masks;
- Protection of workers who could not socially distance; and
- Trigger points for titrating countermeasures based on local community spread and health system capacity.⁹³

Each subgroup would also identify and develop solutions for practical and legal challenges and assessing the balance and distribution of potential benefits and costs.

The medical and pharmaceutical working group surely would have confirmed that the supply situation was dire as soon as it took a careful look and saw that no one in HHS seemed to know what to do about it. Fortunately, the group would have already recruited supply chain experts and secured the services of a Pentagon executive closely familiar with procurement and market management under the Defense Production Act.⁹⁴ With any sort of spike in demand, there were quickly going to be shortages in personal protective equipment (“PPE”) like masks, respirators, and gowns.⁹⁵ If, as should be assumed, there would be a sharp increase in demand for ventilators associated with a high incidence of severe respiratory illness, intensive care units would fill, and there would immediately be shortages. The key parameters on these supplies were clear:

- There was little to no visibility into the available stock of essential materials in hospitals and other healthcare entities;
- Most production was overseas, and restocking was on a just-in-time basis leaving very little surplus for spikes;
- Border closures, outbreaks in port or manufacturing centers, and holdbacks by host countries could all affect current contracts and make it difficult or impossible to increase imports;

93. For narrative simplicity, we are not diving into the many issues specific to health care, but all the work we imagine for control efforts would be indicated for healthcare too.

94. 50 U.S.C. § 4511.

95. Daren Gregorian, *Ousted Whistleblower Dr. Rick Bright Unloads on Trump Admin’s Coronavirus Response*, NBC NEWS (May 14, 2020, 5:46 AM), <https://www.nbcnews.com/politics/congress/coronavirus-whistleblower-bright-issues-stark-vaccine-warning-we-don-t-n1-207056> [<https://perma.cc/GE9D-PUZ2>] (noting that Rick Bright warned of impending PPE shortages in January and was dismissed); Aaron Rugar, *Trump Said “Nobody Could Have Predicted” Coronavirus. White House Memos Show His Advisers Did*, VOX (Apr. 7, 2020, 11:40 AM), <https://www.vox.com/2020/4/7/21211845/trump-coronavirus-memos-predicted> [<https://perma.cc/D2VE-MYEL>] (describing Peter Navarro’s memo to President Trump in mid-February predicting massive shortages of PPE).

- Spikes would be localized at first, as the virus spread out from affected communities, but hoarding by health systems (and citizens, in the case of masks) would be likely;

- Domestic manufacturing capacity could be mobilized, but it would take time and purchase guarantees because companies had been burned by scaling up production in previous outbreaks of disease; and

- FDA would have to work quickly and effectively in vetting a surge of production from new producers and methods, and counterfeiting could undermine safety.

The group would already be at work mobilizing staff at HHS and reaching out to industry and trade groups to rapidly acquire better situational awareness and develop plans, with the understanding that markets are especially likely to fail when there is the type of uncertainty that a pandemic presents.

The development, rapid production, and distribution of tests would be highly advantageous, if not essential, for many control strategies. WHO had released a protocol for a PCR assay test in mid-January.⁹⁶ CDC had gone ahead and produced its own test, but by the end of January, it was already clear there was something wrong with it.⁹⁷ Even if they could be made to work, some strategies would call for tens of millions of cheap, readily available test kits that individuals and organizations could use to manage their risks, which CDC-affiliated laboratories could never hope to produce even though such tests did not have to be highly sophisticated tools. Hence a subcommittee would be working to mobilize and coordinate with private industry, WHO, and partner countries to identify the best candidates and move them into production. The

96. *Listings of WHO's Response to COVID-19*, WORLD HEALTH ORG. (Jan. 29, 2021), <https://www.who.int/news/item/29-06-2020-covidtimeline> [<https://perma.cc/JCD9-AXB3>] (“13 January 2020 . . . WHO publishes first protocol for a RT-PCR assay by a WHO partner laboratory to diagnose the novel coronavirus.”). About the same time, a Harvard scientist got to work on a rapid test that was ready for FDA review by mid-March. See Lydia DePillis, *This Scientist Created a Rapid Test Just Weeks into the Pandemic. Here's Why You Still Can't Get It*, PROPUBLICA (Dec. 21, 2021, 5:00 PM), <https://www.propublica.org/article/this-scientist-created-a-rapid-test-just-weeks-into-the-pandemic-heres-why-you-still-cant-get-it> [<https://perma.cc/JN27-9MPJ>]. It had relatively low sensitivity—that is, it might miss cases—but, as Rochelle Walensky would soon be arguing in her research, see Paltiel & Walensky, *supra* note 50, it was the sort of cheap, fast test that could identify infectious people and prevent transmission events. FDA declined to approve it and other similar tests. DePillis, *supra*.

97. *What We Know About Delays in Coronavirus Testing*, WASH. POST (Apr. 18, 2020), <https://www.washingtonpost.com/investigations/2020/04/18/timeline-coronavirus-testing> [<https://perma.cc/6F7G-JVHA>].

committee would emphasize that global level cooperation was both expeditious and smart because control had to be global to succeed. The subcommittee on testing would include intellectual property (“IP”) lawyers and Pentagon staffers familiar with invoking the powers under the Defense Production Act to issue emergency contracts, grants, and loans.⁹⁸

A subcommittee on vaccines would be operating on much the same basis and types of expertise. Strong vaccine candidates had been created just days after the viral genome was posted in early January, and those vaccine candidates were already in human trials.⁹⁹ It would take enormous investments to develop, manufacture, and distribute a vaccine, but this vaccine would be sold in the billions of doses to a desperate world, a fact that presented an attractive prospect to commercial pharma. Billions of sales were a useful incentive, but government funds would be needed and used for research and development, and advance contracts would be essential. The committee members would stress the opportunity to use funding or deals to ensure that intellectual property, including production techniques as well as the vaccine themselves, would be rapidly transferred to lower-income countries to ensure that the vaccine could reach across the globe. This would be important not just from an equity point of view (as the ethics/justice/contrarian committee would already be arguing) but from the most practical perspective of pandemic control. If swaths of the globe remained unvaccinated, the virus would spread and mutate and then threaten immunized masses anew. Departments of State and Commerce would be coordinating high-level diplomatic efforts to develop agreement on aid and IP for the global deployment of vaccines and maintain supply lines.

Team B would also be weighing in. They would be studying early outbreak data and making practical analogies from cruise ships to congregate care facilities and hospitals.¹⁰⁰ They would make crude but effective comparisons between the number of cases disclosed

98. See 50 U.S.C. § 4511.

99. Charles Schmidt, *Genetic Engineering Could Make a COVID-19 Vaccine in Months Rather than Years*, SCI. AM (June 1, 2020), <https://www.scientificamerican.com/article/genetic-engineering-could-make-a-covid-19-vaccine-in-months-rather-than-years1/#> [https://perma.cc/D2Z8-QFWC].

100. See *infra* note 141, noting that Carter Mecher immediately realized that the Princess Diamond provided a preview of how COVID would rapidly spread in nursing homes and hospitals without drastic infection control procedures. His experiencing managing Veterans Affairs systems—and specifically reducing medical error—would be indispensable to the practical need to reshape clinical and residential settings to slow transmission.

by China in previous epidemics and COVID-19 data to determine a more realistic ascertainment rate. They would have a mathematical modeler working closely with people who had deep substantive knowledge of infectious disease and public health practice.¹⁰¹ This team would quickly challenge orthodoxy around asymptomatic transmission and widespread seeding of the virus. They would have raised the uncomfortable reality that absence of evidence that the virus was spreading—for lack of testing—was not evidence of its absence.¹⁰² They would have pushed a prioritization of efforts and hard truths about limitations based on facts on the ground.¹⁰³ This team would have also warned other officials of a looming health equity disaster centering on prisoners, the elderly, essential workers, and the undocumented. They would have been empowered to ensure that the Occupational Safety and Health Administration, CMS, state nursing home regulators, and prison officials were engaged in developing plans and guidelines.¹⁰⁴ They would have been far ahead of the curve in thinking about the

101. See *Red Dawn' Emails*, *supra* note 78 (email from Carter Mecher, Senior Med. Advisor, Dep't of Veterans Affs. (Feb. 18, 2020, 1:32 PM)) (discussing in detail how to shift the structure of inpatient and outpatient care in anticipation of a surge of hospitalizations).

102. See *Red Dawn' Emails*, *supra* note 78 (quoting email from James V. Lawler, Infectious Disease Dr., Univ. of Nebraska (Mar. 13, 2020, 6:30 PM)) (“CDC is really missing the mark here. By the time you have ‘substantial community transmission’ it is too late. It’s like ignoring the smoke detector and waiting until your entire house is on fire to call the fire dept. Plus, how are you supposed to know when you have community transmission when they haven’t been able to provide a diagnostic assay that can be used widely and at high volume?”).

103. See *Red Dawn' Emails*, *supra* note 78 (quoting email from Carter Mecher, Senior Med. Advisor, Dep't of Veterans Affs. (Feb. 20, 2020, 7:15 PM)) (“I think we are getting close to the point where we need to drop those things that are not critical and focus on the most important things. We are going to have a devil of time with lab confirmation—it is just too slow (they had a 2 day turnaround on the cruise ship) and we just don’t have the capacity for the volume of tests we would anticipate. Charity [Dean, the state public health officer.] has stressed this point again and again.”).

104. See *Red Dawn' Emails*, *supra* note 78 (quoting emails from Carter Mecher, Senior Med. Advisor, Dep't of Veterans Affs. (Feb. 20, 2020, 6:39 AM)) (“The 2,666 passengers are similar in age (and likely in co-morbidities) to the population we see in a nursing home or residential care facility. The 1,045 crew are a proxy for a young healthy population. It will be important to look at the outcomes separately. One of the concerns is how a ‘remake of this movie’ could play out in similarly confined populations of elderly frail Americans. Here are the numbers of long-term care facilities/programs in the US that care for the frail elderly [omitted]. A large number of locations and a large number of residents/participants. I know that healthcare leaders were engaged yesterday, is anyone engaging this sector (long term care)? The healthcare leaders seemed more concerned about critical supply shortages (akin to the IV fluid shortage). Listening to them, it felt like their concerns seemed almost divorced from the threat of COVID.”).

practicalities of school closure and the counterarguments that might have emerged when vigorous action was proposed.¹⁰⁵

D. *The Response Framework*

Having started in mid-January, committees would have been delivering findings and proposing detailed action plans as early as mid-February. It would have been the job of the leadership core to work with teams to refine their understandings of the problems, to consider logistics, tradeoffs, and limitations of candidate solutions, and to begin to lay out plans on the calendar—short term (Spring 2020), medium-term (Summer) and long-term (Fall 2020 and beyond). By mid-February, even before short-term plans could have been worked out and readied for implementation, countermeasures subcommittees would have prepared detailed guidelines and drafted emergency declarations and regulations to prevent transmission in prisons, nursing homes, and other congregate care settings. These regulations could have been a starting point for state and local authorities. As the first significant control measures coming from the federal government, these guidelines or rules would have had to make clear that we were facing a virus as transmissible as a cold or influenza but much more deadly because it can spread rapidly in crowded congregate settings and be especially dangerous to older and less healthy people.

Given that President Trump had gone ahead and ended travel from China and the cruise ship debacles were already making plain the limited operational capacity of CDC, the launch of emergency guidance for congregate settings would have been a big chance to bolster credibility and prepare the public for what was likely to come. Based on what was known at the time, and assuming that working groups had made progress over the previous three to four weeks in testing, epidemiology, engineering, and anticipating

105. See *‘Red Dawn’ Emails*, *supra* note 78 (quoting email from Carter Mecher, Senior Med. Advisor, Dep’t of Veterans Affs. (Feb. 17, 2020, 8:57 AM)) (“[National Provider Identifiers] are going to be central to our response to this outbreak (assuming our estimates of severity prove accurate). This email group has grown since we began (not quite epidemic level growth, but getting there). Looking ahead, I anticipate we might encounter pushback over the implementation of [National Provider Identifiers] and would expect similar concerns/arguments as were raised back in 2006 when this strategy first emerged. It was one of the reasons shared the updated data on US households from American Community Survey, data on USDA programs for nutritional support (including school meal programs), data on schools and enrollment, and even data on juvenile crime. The data that was gathered back in 2006 on social density in various environments (homes offices/workplaces, schools, daycare, etc., is unchanged).”).

objections and tradeoffs, federal emergency action on congregate settings would have introduced the idea of layered protections, defined and explained triggers for action based on evidence of spread and availability of supplies, and assumed symptomatic airborne transmission. They could have included:

- Mask requirements for staff and residents, subject to guidance and work on procurement;
- Requirements and protocols for staff and resident testing;
- Infection management guidelines;
- Measures to limit employees from working in more than one setting or working sick, including initial measures for “paycheck protection” and sick leave;
- Guidance on visiting, taking into consideration the harm to residents of complete visitor bans and integrating marking, testing, outdoor settings, and engineering controls as they became available; and
- Rapid decarceration of nondangerous and nonconvicted prisoners.¹⁰⁶

The federal government had some authority to implement these regulations for the federal prison system and long-term care settings through CMS leverage over funding. But the value of the federal effort would have been tested—and magnified—in the degree to which it provided clear, concrete, and specific guidance (and even model regulations or emergency orders) for state and local governments.¹⁰⁷ As we hit early March, local and state governments were already searching for guidance, and the stock market was getting jittery. It would be time to build all that had come out of the working group process and transform it into a far-seeing

106. See Jessica Bresler & Leo Beletsky, *COVID-19, Incarceration, and the Criminal Legal System*, in *ASSESSING LEGAL RESPONSES TO COVID-19* 228, 229–32 (Scott Burris, Sarah de Guia, Lance Gable, Donna E. Levin, Wendy E. Parmet & Nicolas A. Terry eds., 2020); Rossana Lau-Ng, Lisa B. Caruso & Thomas T. Perls, *COVID-19 Deaths in Long-Term Care Facilities: A Critical Piece of the Pandemic Puzzle*, 68 *J. AM. GERIATRICS SOC.* 1895, 1896–97 (2020), <https://doi.org/10.1111/jgs.16669> [<https://perma.cc/75S8-WEHB>].

107. CDC’s Public Health Law Program could have been enlisted to draft model orders and declarations, and we hope the lawyers would have pushed and helped the working groups to identify and package best evidence and reasoning to provide support for the steps if they were challenged in court. In the Jacobsonian model of public health law that prevailed at the outset of the epidemic, the judgments of public health officials were owed substantial deference – but deference depended ultimately on a showing that the facts were present and that the inferences were strong to show the necessity of the challenged measures.

framework populated by conscious, plausible choices and designed to guide both governments and citizens through the coming disaster. There would be at least five short-term aims in the framework:

1. Manufacture, distribution, and deployment of tests for rapid, widespread, and low-threshold testing;
2. Targeted distancing and density restrictions tied to sentinel evidence of local spread;
3. Universal masking in indoor settings in areas of local spread and interstate transportation;
4. Urgent production and collaborative management of scarce resources like masks and ventilators; and
5. A durable public explanatory approach for a response that would evolve in response to new information and experience.

The medium range activity in the framework would have attempted to reorganize life to reduce transmission in the least disruptive and inequitable ways and would have pursued global cooperation around immediate resource needs. This would have included:

1. Early planning and implementation, to the extent possible, of strategies to ensure that schools and restaurants could soon reopen either outside or with better airflow engineering;
2. Identification of social and economic measures necessary to address economic effects and support compliance with control measures;¹⁰⁸
3. Enhanced worker protections (like an emergency temporary standard);¹⁰⁹
4. Creation of a joint task force between NIH and the National Science Foundation, which would be charged with mounting a coordinated research response to identifying important questions,

108. As we did with health care, we limit discussion of this crucial topic for narrative simplicity. We fully share the view of the importance of these questions in the response—and the need for ensuring that economics expertise is part of the transdisciplinary practice of public health. See Michael E. Darden et al., *Modeling to Inform Economy-Wide Pandemic Policy: Bringing Epidemiologists and Economists Together* (Nat'l Bureau of Econ. Rsch., Working Paper No. 29475, 2021).

109. SCOTT D. SZYMENDERA, CONG. RSCH. SERV., R46288, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA): EMERGENCY TEMPORARY STANDARDS (ETS) AND COVID-19, at 4 (2021).

coordinate and fund teams to fill needs, and systematically review findings before publication policy and avoid panic or confusion; and

5. Global leadership to develop a resilient multinode system for production and distribution of a limited number of the most essential supplies, including masks and vaccine and test components.

The long-range planning would focus on three primary aims:

1. Development and delivery of vaccines and treatments through processes designed for global access;

2. Preservation of social and, as necessary, legal capital to promote ongoing public, political, and judicial acceptance of targeted, layered prevention measures and, eventually, rapid and near universal uptake of vaccines; and

3. Clear guidelines explaining the transition from the acute phase of the pandemic to an endemic pattern.¹¹⁰

All of these aims would be provisional, and each would be communicated with an honest appraisal of their justification as well as underlying uncertainty.

II. ATTRIBUTES OF A SUCCESSFUL RESPONSE: DEFINING PROBLEMS, CONSIDERING CONTEXT, AND USING TIME

We described an imaginary process calculated to produce better judgements under uncertainty. Starting with a clear-eyed assessment of response capacities (the SWOT analysis), the process turned to efforts to define the problem. Without reveling in hindsight or claiming that our foresight was any better than average,¹¹¹ we think that a properly diverse group of actors using common decision-making tools would have reached certain key judgements sooner. These include, chiefly, the assumption of asymptomatic

110. There was little attempt to stimulate and curate a better discourse about the pandemic by promoting more accurate and meaningful terms. The “flatten the curve” phrase became problematic. See Dylan Scott, *Flattening the Curve Worked—Until It Didn't*, VOX (Dec. 31, 2020, 9:30 AM), <https://www.vox.com/22180261/covid-19-coronavirus-social-distancing-lockdowns-flatten-the-curve> [<https://perma.cc/3NU7-NVV2>] (noting that the phrase “flatten the curve” had a catchy and intuitive appeal early in the pandemic but quickly lost salience and meaning as the acute early phase ended). The public discourse around airborne transmission was perhaps even worse creating confusion among the public which almost surely undermined efforts to implement control measures.

111. In fact, we two authors were blinkered by our roles as lawyers. We saw some things early, like the risks to essential workers and people in congregate settings, and anticipated massive enforcement problems, but we did not question CDC on modes of transmission or the need for masks.

and aerosol transmission; the early infeasibility of individual case finding and control measures; the imperative need for cheap, mass-producible and accurate tests; the urgent risk to congregate settings; the dire state of key medical supplies; the need for deep and broad international cooperation on supplies, vaccines, pharmaceuticals and control strategies; the threat that risks and burdens would be distributed inequitably; and the need for a narrative that would respect the public's intelligence and prepare it for an evolving response. We think this list is reasonable, not least because there were some people who saw these things at the time.

Problems define solutions, but the process we imagined works to pace problem solving by demanding attention to context in a broad sense. In a diverse group operating from many different perspectives, saving lives would not be allowed to trump other concerns as a transcendent value. Tradeoffs—from the elderly losing family contact¹¹² to massive economic distress in service industries—would have to be considered not just as contingencies in a public health response but as distinct claims of value beyond maximizing life. This would be especially true if the process tamped down optimism bias and forced decisionmakers to truly confront a pandemic that probably would not disappear any time soon. Similarly, the complexity of humans and societies would have to be accepted as unavoidable aspects of the problem. In this, as in virtually all preceding pandemics in the United States, not everyone would buy into any or all of the control measures or afford government health officials and political leaders an inexhaustible trust account. In this, as in most instances, merely issuing an order would not guarantee compliance. Blunting deadly surges would soon require distancing and density restrictions, which are difficult for large segments of the population to implement, and the endgame would require people to take vaccines. All these considerations urge the judicious use of coercion and careful stewardship of the scarce resources of bandwidth, authority, and credibility.

Recognizing scarcity¹¹³ and the reasonable likelihood of humans behaving like humans leads to the final key step to responding

112. For some, concern about the physiological effects of the virus were far exceeded by psychological and social concerns including the prospect of dying alone or being estranged from loved ones. See, e.g., John Leland, *At 89, She Fears Dying Alone More than the Coronavirus Itself*, N.Y. TIMES (Apr. 7, 2020), <https://www.nytimes.com/2020/04/07/nyregion/dying-alone-coronavirus.html> [<https://perma.cc/WSA7-P7AT>] (providing an example of an elderly woman who experienced the fears discussed).

113. We note that recognition of scarcity and thoughtful stewardship of scarce resources are key principles in public health practice: “Virtually every public health action,

strategically: using time effectively.¹¹⁴ Not only are there limits to what can be done fast, but staging responses strategically is a way to overcome initial opposition, strengthen future actions by present learning, and devise a long-term communications approach. An important moment in our imaginary process would have come when the groups accepted the high likelihood that asymptomatic community spread could be out of control by as early as February, and that COVID-19 was going to be an extended problem that required responsive, robust, and sustainable action, not desperate Hail Mary passes.

The policies that came out of our imaginary process would have avoided some of the worst mistakes of the real thing. Early and vigorous action to protect nursing home patients and prisoners; triggering of organized procurement and distribution of supplies in February or early March; the rapid adoption and deployment of tests fit for multiple purposes,¹¹⁵ along with the steady adaption of

particularly those for which difficult ethical judgments must be made, involves the use of scarce resources such as human skill, talent, and time; medical equipment and supplies or other infrastructure; natural resources; and funds that could be directed to other activities. Even if permissible and effective on its own terms, ethical decision making requires consideration of whether a given action merits expenditure of resources in relation to other needs or health goals that require attention now or in the foreseeable future.” AM. PUB. HEALTH ASS’N, PUBLIC HEALTH CODE OF ETHICS 9 (2019).

114. The one overarching theme in the *Red Dawn* emails was that the response was too slow. *Red Dawn’ Emails*, *supra* note 78 (quoting email from James V. Lawler, Infectious Disease Dr., Univ. of Neb. (Mar. 13, 2020, 6:30 PM)) (“CDC is really missing the mark here. By the time you have ‘substantial community transmission’ it is too late. It’s like ignoring the smoke detector and waiting until your entire house is on fire to call the fire dept.”); *Red Dawn’ Emails*, *supra* note 78 (quoting email from Carter E. Mecher, Senior Med. Advisor, Dep’t of Veterans Affs. (Feb. 20, 2020, 7:15 AM)) (“I’m not sure that folks understand what is just over the horizon. Remember the story about Mann Gulch? We are at the equivalent of about 5:44. I anticipate that when we reach 5:45, there is going to be chaos and panic to get anything in place.”); *Red Dawn’ Emails*, *supra* note 78 (quoting email from Carter E. Mecher, Senior Med. Advisor, Dep’t of Veterans Affs. (Feb. 27, 2020, 5:00 AM)) (“[T]he outbreak has had a good head start. That would suggest we already have a significant outbreak and are well behind the curve. We are now well past the equivalent 5:45 moment at Mann Gulch. You can’t outrun it.”); *Red Dawn’ Emails*, *supra* note 77 (quoting email from Carter E. Mecher, Senior Med. Advisor, Dep’t of Veterans Affs. (Mar. 12, 2020, 12:38 AM)) (“There is no value to these travel restrictions. A waste of time and energy. The lesson from Mann Gulch was to drop those things that are not essential. That lesson was not heeded. I wouldn’t waste a moment of time on travel restrictions or travel screening. We have nearly as much disease here in the US as the countries in Europe. [With respect to] community mitigation, I think we ran out of time for Seattle. But there are other cities and communities where we still can make a difference. I don’t understand why California and NYC are not acting more aggressively. Time to focus on other parts of the country where mitigation measures might still work and where governors, mayors and public health officials are more receptive to doing what works.”).

115. We would need a rapid home test to spot infectiousness, highly reliable (PCR) antigen tests for reliable diagnoses, and tests that would detect the emergence of new variants. CDC’s fancy test, even had it worked, would not have met all these needs.

testing to reducing transmission risk in society; and a strong, multilateral effort to negotiate vaccine contracts that included technology transfer, patent waiver, and licensing or procurement terms to ensure supplies throughout the world. It also follows that our planners would have done their best to forestall the premature, inefficient, and hugely expensive nationwide shutdown of Spring 2020.¹¹⁶ And a longer timeframe prompts more investment in meeting future needs; even if schools had to be closed in some places in Spring 2020, we had a good six months to devise and implement safer school ventilation schemes to allow opening sometime in the fall.

A real version of what we imagined might have come up with better or worse ideas. Neither ours nor theirs would be perfect or complete. On the contrary, they would have been first best guesses subject to continuous updating and adaptation during the pandemic. Triggers for physical distancing measures, for example, would have been crude with few tests and a fledgling surveillance operation; and would have been (transparently) updated as better surveillance, new variants, and then vaccines came online. The judgments would have been better because they would have avoided mistakes and the process would have required more explicit discussion of what was really happening, tradeoffs, and different perspectives.

III. WHAT ACTUALLY HAPPENED (AND WHAT IT TELLS US)

On January 11, 2020,¹¹⁷ after China reported its first pandemic death, Azar did indeed convene a task force, which included Anthony Fauci, Robert Redfield, and Robert Kadlec.¹¹⁸ This was not exactly the broad-based group of diverse talents we imagined in our story. The task force did not and would not include FDA, NIH, or CMS representatives for weeks despite the obvious importance of their agencies. The staffer Azar initially assigned to coordinate

116. The wave of shutdowns in Spring 2021 was launched by state and local officials using their legal powers and were not strictly subject to any federal authority to allow or forbid these shutdowns. But they were an expression of public and policymaker panic, not the implementation of a sensible strategy. Shutdowns happened in places with acute outbreaks, but also places where the wave had yet to hit, and in many places their end was triggered by political backlash and public exhaustion. We believe a clearer, more detailed, and credible plan from the federal government could have guided action that was more nuanced in terms of what was done where and when than what we saw in real life.

117. SLAVITT, *supra* note 5, at 83.

118. *Id.*

the response for HHS—and “[e]veryone had to report up through him”—had no relevant experience, having spent the four previous years breeding expensive labradoodles.¹¹⁹ It was this staffer, according to reports, who decided not to include the FDA commissioner.¹²⁰ This individual was replaced in March by Robert Kadlec who spent almost all of his time on repatriating Americans from abroad (which interested him as a former Air Force officer)¹²¹ and, by multiple accounts, ignored—actually, suppressed—urgent calls to focus on foreseeable PPE supply shortages.¹²²

On January 17, the German scientists who developed a test for SARS and MERS published a reliable method for identifying the novel coronavirus.¹²³ CDC announced their own test—a more complex multicomponent assay—days later and quickly started producing test kits.¹²⁴ On February 4, Azar invoked emergency powers, available pursuant to his declaration of a public health emergency days earlier,¹²⁵ to allow expedited deployment of tests and vaccines through emergency use authorizations. While this had obvious benefits, it also had an important cost: now all tests for the virus would need to go through that process, including those

119. Aram Roston & Marisa Taylor, *Special Report: Former Labradoodle Breeder Was Tapped to Lead U.S. Pandemic Task Force*, REUTERS (Apr. 22, 2020, 5:23 PM), <https://www.reuters.com/article/us-health-coronavirus-usa-hhschief-speci/special-report-former-labradoodle-breeder-was-tapped-to-lead-u-s-pandemic-task-force-idUSKCN2243CE> [<https://perma.cc/P2AV-AVNF>].

120. *Id.*

121. “During January and February 2020, the HHS leadership was mostly preoccupied with the travel restrictions and repatriating Americans from other nations.” GOTTLIEB, *supra* note 8, at 278. Politico confirmed this perspective after speaking with Trump administration officials. Dan Diamond, *Colleagues Paint a Mixed Picture of Ousted Vaccine Chief*, POLITICO (May 13, 2020, 5:00 AM), <https://www.politico.com/news/2020/05/13/rick-bright-vaccine-chief-coronavirus-254127> [<https://perma.cc/TG7Z-QDSV>] (“Three current officials said that the emergency division — known as the Office of the Assistant Secretary for Preparedness and Response, or ASPR — missed planning opportunities in January, February and March. Instead, Kadlec and other top officials focused on evacuating Americans from coronavirus-infested cruise ships and bringing hundreds of others back from China — missions that strained the team and did little to prepare for the looming pandemic.”).

122. Sheryl Gay Stolberg, *‘Lives Were Lost’ as Warnings Went Unheeded, Whistle-Blower Tells House*, N.Y. TIMES (Aug. 9, 2021), <https://www.nytimes.com/2020/05/14/us/politics/whistle-blower-coronavirus-trump.html> [<https://perma.cc/S7V5-RTEP>] (noting that the ASPR Secretary not only ignored BARDA head Rick Bright’s warnings but fired him later that spring).

123. Global Biodefense Staff, *German Researchers Develop 1st Test for New Coronavirus*, GLOB. BIODEFENSE (Jan. 17, 2020), <https://globalbiodefense.com/newswire/german-researchers-develop-1st-test-for-new-coronavirus> [<https://perma.cc/MP39-5P7B>].

124. Press Release, Ctrs. for Disease Control & Prevention, *Shipping of CDC 2019 Novel Coronavirus Diagnostic Test Kits Begins* (Feb. 6, 2020), <https://www.cdc.gov/media/releases/2020/p0206-coronavirus-diagnostic-test-kits.html> [<https://perma.cc/BXR7-FF6H>].

125. GOTTLIEB, *supra* note 8, at 125.

created by commercial labs, which are otherwise free to create and deploy their own tests.¹²⁶ CDC began distributing its test on February 5, but state public health labs immediately noticed that one component was totally contaminated.¹²⁷ In a dramatic replay of the Zika testing episode, CDC first denied the problems and then tried to fix them while preventing labs from using only the noncontaminated components (which worked)¹²⁸ or from deploying other tests. States like New York pleaded for approval to run their own tests for weeks to no avail.¹²⁹ It was not until February 29 that FDA allowed clinical and commercial labs to do their own testing, and some simply used the elegant German version.¹³⁰

Even if its tests were not contaminated, CDC never would have had even close to enough capacity to support the necessary scale and use of testing nationally.¹³¹ Problems with test availability added to—perhaps cynically explained—overly strict CDC restrictions limiting testing to people who had traveled from China.¹³² The first person with a confirmed diagnosis in California

126. *Id.*

127. *Id.* at 109–10.

128. Labs figured out that the removing some of the assay components largely improved the problems. Peter Whoriskey & Neena Satija, *How U.S. Coronavirus Testing Stalled: Flawed Tests, Red Tape and Resistance to Using the Millions of Tests Produced by the WHO*, WASH. POST (Mar. 16, 2020), <https://www.washingtonpost.com/business/2020/03/16/cdc-who-coronavirus-tests> [<https://perma.cc/8ZFT-94SD>] (“We had all these state public health labs that had a perfectly good [test] on their hands, and they knew it, they were upset.”).

129. GOTTLIEB, *supra* note 8, at 130 (describing intensifying calls by various state and local health officials asking CDC to allow state labs to do their own testing, which was not granted until March 13).

130. Whoriskey & Satija, *supra* note 129 (“James Lawler, director of the global center for health security and an epidemiologist at the University of Nebraska Medical Center, was one of the infectious disease specialists who flew out to meet the Diamond Princess cruise ship passengers in Japan and flew back with them to the United States. Lawler said the problem was not just in the manufacturing of the test but in the design. In his view, the test has design problems that make it too difficult for many labs to make it work unless they have perfect conditions. He said even though the University of Nebraska Medical Center — a world renowned infectious disease institution that houses the state’s public health lab — was able to get the CDC version of the test to work, the Nebraska center developed its own test based on the German lab design published by the WHO.”).

131. Jon Cohen, *The United States Badly Bungled Coronavirus Testing—But Things May Soon Improve*, SCIENCE (Feb. 28, 2020), <https://www.science.org/content/article/united-states-badly-bungled-coronavirus-testing-things-may-soon-improve> [<https://perma.cc/L5V A-BT9B>] (explaining that CDC’s role is to develop a test and provide it to state public health labs for limited through-put testing, and that commercial labs work mostly by themselves in developing and scaling testing).

132. GOTTLIEB, *supra* note 8, at 131. CDC’s initial criteria called for testing only symptomatic patients with a travel history to China or those who may have had contact with a lab-confirmed coronavirus patient. CDC did not change its criteria until February 27, and even then, it did not apply to patients with mild symptoms who recently traveled to countries with high case totals like Italy or Iran.

was denied testing by CDC for days because they lacked a close connection to Wuhan. The development and targeting of the test were left almost entirely to CDC; HHS leadership was inexplicably slow to identify and to aggressively address either issue.¹³³

The resulting lack of testing between late January and early March,¹³⁴ combined with a set of unduly strident assumptions about the virus, wrought havoc on the professional—and public—epistemology of the disease’s penetration, progression, and transmission. CDC complacency in fielding a test may have resulted from its expectation that community transmission would be evident in its surveillance system of influenza-like illness. That assumption was badly flawed.¹³⁵ In a February 21 interview, Fauci was asked whether the disease was already spreading in US communities. Fauci replied,

Well, certainly it’s a possibility but it is extraordinarily unlikely and let me explain why. The reason is if there were people who were actually spreading it, you would not have them identified, isolated, and contact tracing which means you have almost an exponential spread of infection of which we are all looking out for. We have not seen that, so it is extremely unlikely that it is happening.¹³⁶

But it was clear to some then—and would eventually be clear to all—that cases were not being identified because there were too

133. As Gottlieb notes: “Seeing the CDC’s challenges, the leadership at HHS needed to mount a concerted effort to develop an alternative, pulling together other public health agencies with relevant tools such as FDA, NIH, and [BARDA]. There was no plan B. It was almost as if once CDC tried—and failed—to develop a test for COVID, the focus shifted exclusively to remedying the CDC test even though the agency was never meant to, and never would be able to, supply the entire market with testing. When Secretary Azar asked the CDC why the agency wasn’t shipping its test kits to private hospitals, CDC officials had to tell him that the agency never provided test kits to the private sector, only to state labs. . . . Into the late spring, CDC officials still found themselves explaining to the leadership at HHS that it wasn’t the CDC’s historical role to working with commercial and academic labs, or to help develop kits. . . . HHS leaders ever convened the departments’ operating divisions, including FDA, the NIH, and the CDC into an organized effort to tackle the key challenges we faced.” *Id.* at 135–36.

134. For comparison, by end of February, South Korea had tested 97,569 people and the U.S. had tested fewer than 500. *Total COVID-19 Tests, Mar 1, 2020*, OUR WORLD IN DATA (Feb. 10, 2022), <https://ourworldindata.org/grapher/full-list-total-tests-for-covid-19?time=2020-03-01&country=KOR~USA> [<http://perma.cc/S74Y-YDZK>].

135. GOTTLIEB, *supra* note 8, at 82 (describing the obvious limitations of the influenza-like illness surveillance system (the data are lagged, COVID has different symptom profile than flu, and flu decreased as more people stayed home and wore masks obscuring the rise in cases of respiratory distress) and quoting a one high ranking official on the task force that “[t]he public health people on the task force were saying there was no spread, or we’d see it in the [influenza-like illness surveillance system] . . . [i]t wasn’t until the week of March 6 that you saw a clear separation and that was retrospective.”).

136. *Id.* at 85–86.

few tests to identify them, overly restrictive screening criteria, and not enough people doing the case finding. On March 1, when CDC stated there were 75 cases nationwide, later modeling suggests there were more like 28,000.¹³⁷ Lack of visibility into penetration meant an inability to target painful measures. As Gottlieb notes,

If we had more insight into where and how the virus was spreading, we would have been able to reserve the most stringent measures, like stay-at-home orders, only for cities where the virus was already epidemic. . . . That's what the 2005 pandemic plan had prepped for. . . . That would have reduced the national burden we incurred. It also would have preserved more credibility for public health officials to adopt these measures in places where stronger action was needed later, when the virus finally became epidemic in the South and Midwest. . . . However, at that point, people in states like Arizona, Florida, and Texas were psychologically done with "lockdowns," having shut down during the spring, when the virus wasn't yet spreading widely in those regions.¹³⁸

Fauci and CDC officials similarly maintained an immodest confidence that transmission was via droplets from symptomatic people,¹³⁹ despite growing evidence to the contrary,¹⁴⁰ which led to the deeply mistaken focus on fomites¹⁴¹ and the widespread belief that masks do more harm than good because people would touch their

137. *Id.* at 70.

138. *Id.* at 214–15.

139. *See supra* note 70 and accompanying text.

140. Apoorva Mandavilli, *Infected but Feeling Fine: The Unwitting Coronavirus Spreaders*, N.Y. TIMES (July 9, 2020), <https://www.nytimes.com/2020/03/31/health/coronavirus-asymptomatic-transmission.html> [<https://perma.cc/S23G-63C5>] (“But since the new coronavirus surfaced in December, they have spotted unsettling anecdotes of apparently healthy people who were unwitting spreaders. ‘Patient Z,’ for example, a 26-year-old man in Guangdong, China, was a close contact of a Wuhan traveler infected with the coronavirus in February. But he felt no signs of anything amiss, not on Day 7 after the contact, nor on Day 10 or 11. Already by Day 7, though, the virus had bloomed in his nose and throat, just as copiously as in those who did become ill. Patient Z might have felt fine, but he was infected just the same.”)

141. GOTTLIEB, *supra* note 8, at 210–11 (“[T]he Coronavirus Task Force believed that contaminated surfaces (fomites) on mass transit systems may have been contributing to spread. . . . The theory sprang from an observation inside the CDC that there were a lot of people falling ill with COVID, where public health workers couldn’t trace their illness back to some symptomatic patient they’d been in contact with. Underlying all this, the CDC believed that the coronavirus was behaving like influenza, and so the most plausible explanation for these mysterious chains of transmission must be some contaminated surface . . . [i]n reality, a lot of those puzzling chains of transmission weren’t the result of fomites, but rather, asymptomatic carriers . . . [a]nd since doctors couldn’t test people for the virus, nobody could firmly uncover those asymptomatic cases. . . . [This preoccupation with fomites] could, in turn, lead to misguided polic[ies] . . . [h]owever, the spread of the virus probably wasn’t from shared surfaces but from the aerosolization of respiratory droplets in confined space.”).

face more often.¹⁴² Failure to understand and then track asymptomatic spread became the “Achilles’ heel of Covid-19 pandemic control.”¹⁴³ Not only did CDC fail to recognize the importance of asymptomatic and aerosol transmission on the Princess Diamond, but they missed the undeniable finding that staff could be infected and transmit, which is exactly what avoidably happened in the massive New York City surge a month later.¹⁴⁴ Other opportunities to confirm aerosol and asymptomatic transmission were frustrated rather than supported. Redfield would not allow the Seattle researchers doing the influenza study to test their nasal samples for almost a month, preventing early understanding of penetration and spread.¹⁴⁵ The important findings from the skilled nursing facility in Seattle sat at CDC for a key month before being published in the Morbidity and Mortality Weekly Report (with thirty coauthors even though it is a simple description of asymptomatic and probable aerosol spread!).¹⁴⁶ It emerged just as the wave was approaching New York City.

Throughout this time period, communications were chaotic and often flatly and confidently inaccurate. On January 31, a day after WHO declared COVID-19 a global health emergency, Azar declared it a public health emergency.¹⁴⁷ That same day, during the first Coronavirus Task Force briefing, Azar told the public: “I want

142. See Steven Taylor & Gordon J.G. Asmundson, *Negative Attitudes About Facemasks During the COVID-19 Pandemic: The Dual Importance of Perceived Ineffectiveness and Psychological Reactance*, PLOS ONE, Feb. 17, 2021, at 8–9, <https://doi.org/10.1371/journal.pone.0246317> [<https://perma.cc/K5YH-CUQC>].

143. Monica Gandhi, Deborah S. Yokoe & Diane V. Havlir, *Asymptomatic Transmission, the Achilles’ Heel of Current Strategies to Control Covid-19*, 382 NEW ENG. J. MED. 2158, 2159 (2020), <https://doi.org/10.1056/nejme2009758> [<https://perma.cc/QJ8Z-GDPU>] (based on the March 2020 testing, “[a]n important finding of this report is that more than half the residents of this skilled nursing facility (27 of 48) who had positive tests were asymptomatic at testing.”). Unfortunately, they sat on it for weeks, running it through multiple layers of peer review even though it was a descriptive report. When it came out in the Morbidity and Mortality Weekly Report, it was too late to avoid weeks of faulty screening guidance that only symptomatic people should be tested.

144. *Red Dawn’ Emails*, *supra* note 77 (quoting email from Carter Mecher, Senior Med. Advisor, Dep’t of Veterans Affs. (Feb. 20, 2020, 1:32 PM) (“[W]hat happened on the cruise ship is a preview of what will happen when this virus makes its way to the US healthcare system (not to mention institutionalized high-risk populations in the US, like nursing homes). . . . there is going to be chaos and panic to get anything in place. I doubt that what we would then hurriedly put in place will be any better than what they did on that cruise ship.”)

145. GOTTLIEB, *supra* note 8, at 66–67.

146. Anne Kimball et al., *supra* note 88, at 377–81.

147. *Determination that a Public Health Emergency Exists*, U.S. DEP’T HEALTH & HUM. SERVS. (Jan. 31, 2020), <https://www.phe.gov/emergency/news/healthactions/phe/Pages/2019-nCoV.aspx> [<https://perma.cc/TYJ9-DTBP>].

to stress: The risk of infection for Americans remains low.”¹⁴⁸ On February 25, he would suggest that “we’ve actually contained the spread of this virus here in the United States at this point. . . . I think part of the message to the American people is we all need to take a bit of deep breath here.”¹⁴⁹ A few days later, the Surgeon General would tweet advising the public not to buy masks, strongly implying they would not help prevent infection.¹⁵⁰

On February 26, Trump replaced Azar with Pence as head of the task force,¹⁵¹ essentially giving up on concerted and thoughtful action. This was a key moment to address the immediate needs of congregate settings, many of which lacked the resources and incentives to prevent introduction and rapid transmission among high-risk populations. CDC should have immediately warned the country about skilled nursing facility staff carrying the virus from one facility to another.¹⁵² Facilities lacked the testing and PPE to prevent infection well into the summer.¹⁵³ On March 13, CMS guidance suggested that nursing homes could admit patients with COVID-19 who had been released from hospitals.¹⁵⁴ Many states ignored this guidance, creating facilities exclusively for infected patients, while others like New York interpreted it as a mandate

148. Roston & Taylor, *supra* note 120.

149. *Id.*

150. U.S. Surgeon General (@Surgeon_General), TWITTER (Feb. 29, 2020, 7:09 AM), https://twitter.com/Surgeon_General/status/1244020292365815809/photo/2 [<https://perma.cc/9GKY-VJMY>] (“Seriously people- STOP BUYING MASKS! They are NOT effective in preventing general public from catching #Coronavirus, but if healthcare providers can’t get them to care for sick patients, it puts them and our communities at risk!”); Maria Cramer & Knvul Sheikh, *Surgeon General Urges the Public to Stop Buying Face Masks*, N.Y. TIMES (Sept. 12, 2021), <https://www.nytimes.com/2020/02/29/health/coronavirus-n95-face-masks.html> [<https://perma.cc/JU9L-4U9D>].

151. SLAVITT, *supra* note 5, at 84 (describing the strange optics of the Vice President leading a meeting of all HHS secretaries without the secretary there).

152. CDC had a very clear picture of transmission between two skilled nursing facilities in early March but took three weeks to publish it in the Morbidity and Mortality Weekly Report. Anne Kimball et al., *supra* note 88, at 377, 379–80. In the period, facilities could have been preparing to prevent such high-risk arrangements.

153. Dylan Scott, *Why the Coronavirus Has Taken So Many Lives in US Nursing Homes*, VOX (June 3, 2020, 3:30 PM), <https://www.vox.com/2020/6/3/21279431/nursing-homes-coronavirus-covid-19-deaths-cuomo-cdc> [<https://perma.cc/9PF5-Q6JP>] (quoting David Grabowski, long-term care researcher at Harvard Medical School, in June that “we have failed on more straightforward initiatives such as implementing surveillance testing and providing personal protective equipment . . . We are not much further along today in these areas than we were in March.”).

154. CTR. FOR MEDICARE & MEDICAID SERVS., QSO-20-14-NH, GUIDANCE FOR INFECTION CONTROL AND PREVENTION OF CORONAVIRUS DISEASE 2019 (COVID-19) IN NURSING HOMES (*REVISED*) 1, 4 (Mar. 13, 2020).

leading to higher infection rates for residents and staff.¹⁵⁵ The federal government also sent antigen tests out to long term care facilities, which had high false positive rates, leading to instances when residents were infected as a result of inappropriate placement in COVID-19 isolation areas.¹⁵⁶ By May, over two-thirds of deaths in some states would be in such homes.¹⁵⁷ Similar issues plagued carceral settings and high-risk industrial settings like meatpacking plants.¹⁵⁸

IV. WHAT THIS TELLS US ABOUT PUBLIC HEALTH GOING FORWARD

The serious set of failures we have drawn from detailed accounts of the initial months of pandemic response shows that a lot went wrong. Our counterfactual story was meant to drive home the point that these failures were, first and foremost, failures of judgment. U.S. public health agencies and their leaders were confounded by their own professional and personal biases (or so it seems from the outside) and did few or none of the things decisionmakers can do to make good judgments in hard times: recognize and act on the need for diversity and transdisciplinarity in inputs; use debiasing decision processes to reduce mistakes; deploy a long time horizon to identify and anticipate contingent challenges and to use time and learning strategically; act and speak with transparency and humility about the limits of current knowledge; and anticipate,

155. New York adopted guidelines compelling nursing homes to accept patients discharged from the hospital with COVID-19. Luis Ferré-Sadurní & Amy Julia Harris, *Does Cuomo Share Blame for 6,200 Virus Deaths in N.Y. Nursing Homes?*, N.Y. TIMES (Jan. 28, 2021), <https://www.nytimes.com/2020/07/08/nyregion/nursing-homes-deaths-coronavirus.html> [https://perma.cc/DY7P-WEUB]; Kim Barker & Amy Julia Harris, *'Playing Russian Roulette': Nursing Homes Told to Take the Infected*, SEATTLE TIMES (Apr. 24, 2020, 3:29 PM), <https://www.seattletimes.com/nation-world/nation/playing-russian-roulette-nursing-homes-are-told-to-take-the-infected> [https://perma.cc/3LCN-NPV9].

156. Katherine J. Wu, *Nevada Halts Use of Rapid Coronavirus Tests in Nursing Homes, Citing Inaccuracies*, N.Y. TIMES (Oct. 7, 2020), <https://www.nytimes.com/2020/10/07/health/nevada-covid-testing-nursing-homes.html> [https://perma.cc/927C-U87Z].

157. Nina Feldman & Ryan Briggs, *Pa. Caves to Pressure, Reveals Data Showing COVID-19 Battered Smaller Nursing Homes*, WHYY (May 20, 2020), <https://whyy.org/articles/in-philadelphia-region-covid-19-hit-smaller-nursing-homes-the-hardest> [https://perma.cc/AD5N-XM5C].

158. Chad Zawitz et al., *Outbreak of COVID-19 and Interventions in a Large Jail — Cook County, IL, United States, 2020*, 49 AM. J. INFECTION CONTROL 1129, 1129 (2021), <https://doi.org/10.1016/j.ajic.2021.03.020> [https://perma.cc/Z5U2-X52Q]; Talal Ansari, *Covid-19 Cases in Meat Plants Were Much Higher than Previously Known, Report Says*, WALL ST. J. (Oct. 27, 2021, 7:36 PM), <https://www.wsj.com/articles/covid-19-cases-in-meat-plants-were-much-higher-than-previously-known-report-says-11635371970> [https://perma.cc/KMW6-6R74].

accept, and manage negative or complicating social and political reactions to action. On the contrary, the first three months of the response encapsulated behaviors that have bedeviled us to this day: a parochial gaze within the blinders of epidemiology and medicine; reactive decision making unchecked by any apparent awareness of bias; relentless short-termism; a communications approach that assumes Americans have the memories of goldfish; and what looks like considerable confidence in leaders' political acumen and persuasive dexterity.

It is crucial to any future for collective, government-driven action for population health that we acknowledge this failure—and that we do not simply pin it on Robert Redfield, Anthony Fauci, or Rochelle Walensky. These people and hundreds or thousands of other health officials and public health professionals that engaged in the COVID-19 response are products of our system of professional training and differentiation. They were taught to see the world through epidemiological or medical eyes and to neglect, if not dismiss, other kinds of knowledge or experience. As many public health historians and commentators have been saying for a long time, twentieth century public health followed a path of bacteriology and biomedical science to a comfortable scientific view of the production of health while abandoning the field's messier roots in social reform and political activism.¹⁵⁹ Sitting in rooms with other people like them, in institutions full of people like them, public health leaders absorbed key beliefs that animated their later actions: that the people who reached positions of leadership had unique insights and moral-social authority; that the deference they paid each other in the pecking order would be paid by people outside the club; that saving lives and preventing morbidity were unquestionably the top social priority; that science—meaning medicine and epidemiology—not only told us what the problem was, but how to solve it, and in so compelling a fashion that anyone with a different idea could be ignored and any consideration of how to implement the solution was entirely superfluous.

In the wake of this latest disaster of American public health practice, something like the picture we have just painted has to be accepted as an approximate truth. It definitely does not describe many public health people and organizations. It does not do justice

159. For a concise recitation of this longstanding critique, see Ed Yong, *How Public Health Took Part in Its Own Downfall*, ATLANTIC (Oct. 23, 2021), <https://www.theatlantic.com/health/archive/2021/10/how-public-health-took-part-its-own-downfall/620457> [<https://perma.cc/YKL7-X3PY>].

to the many strands of public health thought and action that are not just transdisciplinary in the professional sense but are deeply engaged with communities and practice. But our portrait should be accepted at least as an approximate truth—because only if we acknowledge that there is a serious cultural problem can we hope for the painful reflection and action that is needed to change the field and its practices.

It has been our purpose to make the case that change is needed. While a prescription for cure is beyond our capacities as well as our page limits, we will finish the discussion with a few thoughts. Obviously, training is the place to start. We would agree with those who say that training for public health work should aim “to train smart thinkers, not technicians, to embrace challenges and move the expanding field of epidemiology forward”¹⁶⁰—but of course not just epidemiology. That one science, no matter how much one lauds John Snow,¹⁶¹ is obviously a grossly deficient basis for addressing the complex systems and confounding human behaviors that drive population health. Although admittedly a matter of parochial interest for us lawyers, the century-plus failure of public health to properly integrate, train in, and properly practice law as a core skill of the field is a powerful example of what is wrong and what has to change. The same could be said for psychology, sociology, and economics, just to start. As many have said, the cultural problem in public health is not just a commitment to a narrow slice of science, but also a commitment to science to the practical exclusion of engagement in the social, political, and economic mechanisms through which the science of social determinants might be translated into the actual conditions for a high level and fair distribution of health. Taking both of these imperatives into account suggests we have less need for schools of public health training technicians, and more need for schools of social problem-solving, training agents of smart change.

Out in practice, there is a crying need to change where research funding is put. NIH is the bulwark of a narrow focus of health work on biomedical and individualized behavioral interventions. It spends just a fraction of its budget supporting research on mechanisms like law and policy that change social conditions and

160. Bryan Lau et al., *Perspectives on the Future of Epidemiology: A Framework for Training*, 189 AM. J. EPIDEMIOLOGY 634, 634 (2020), <https://doi.org/10.1093/aje/kwaa013> [<https://perma.cc/EP8Z-ZH93>].

161. See Michael A.E. Ramsay, *John Snow, MD: Anaesthetist to the Queen of England and Pioneer Epidemiologist*, 19 BAYLOR UNIV. MED. CTR. PROC. 24, 24–28 (2006).

influence behavior millions at a time.¹⁶² Public health education, research and practice would all be more effective if practitioners were adept in legal epidemiology, and legal epidemiology cannot optimally grow without a strong research component funded by the nation's primary health funder. Of course, legal epidemiology is just an example. We also need more investment in understanding the social, behavioral, and economic drivers of health and health behavior, as well as levers for change. And from the transdisciplinary perspective, these lines all blur in any case.

In practice—in health agencies of all kinds, from CDC to the local health department—little can be done without investing in many more people and the information technology infrastructure. But even if such funding was forthcoming, our argument has suggested that things will not improve by hiring more traditional public health trained staff. The health agencies of the future—if there are any—should be populated by the products of our schools of social problem solving: “smart thinkers, not technicians,”¹⁶³ strategists, and collaborative, humble people who work in and outside professional and agency boundaries. And these little islands of (insufficient) public investment cannot be asked or expected to lead the charge for real reform in the social conditions that ail us. Philanthropies that are already sticking their necks out to fight inequality and system dysfunction will have to take more chances and embrace a longer time frame and a more cooperative approach. The sanitary movement that started in the nineteenth century worked for decades to have an impact—time we probably need but also cannot be sure we have.

The thing we can say with greatest confidence is that the problem will not be solved—or indeed, even addressed—by the public health “summits” and such aimed at figuring out how to get the cold hard world to appreciate our brilliance.¹⁶⁴ A broken engine does not need more gas; it needs to be repaired. Nothing that treats the problem as one of funding or of the public's or policy makers'

162. See generally Jennifer K. Ibrahim, Aaron A. Sorensen, Heidi Grunwald & Scott Burris, *Supporting a Culture of Evidence-Based Policy: Federal Funding for Public Health Law Evaluation Research, 1985–2014*, 23 J. PUB. HEALTH MGMT. & PRAC. 658 (2017), <https://doi.org/10.1097/phh.0000000000000598> [<https://perma.cc/BGS2-7YGB>] (finding that NIH does not support public health law research to the extent necessary to evaluate public health laws efficiently and effectively).

163. Lau et al., *supra* note 162, at 634.

164. See *Future of Public Health Summit Series to Launch; First Summit to Explore How to Achieve a Diverse and Robust Workforce*, CDC FOUND. (Dec. 2, 2021), <https://www.cdc.foundation.org/pr/2021-future-of-public-health-summit> [<https://perma.cc/YH4M-573L>].

failure to appreciate what we do will do any good at all. We should not ask, as we did at another low point a few decades ago: What is the future of public health?¹⁶⁵ Unless we change the culture, there really is not a future worth worrying about.

CONCLUSION

We made the case that much of what was apparently not anticipated and prepared for could have been. Public health officials could have devised a robust, credible strategy that could have saved lives and reduced social and economic harms. Maybe we are wrong, and if so—never mind. But to the extent we are right, to the extent that our national health leaders failed to think, plan, and act strategically based on best evidence and a diversity of inputs—well, that is no way to run a country in the twenty-first century.

There is no guarantee that a better process and plan would have made a big difference: bad leaders, bad budgets, bad institutions, bad Americans, and one big bad virus all made COVID-19 a terrible challenge. But if we in public health are looking for ways to do better next time—in the mirror, at what we did, is where to look. Good judgment can make a difference in any public health matter, even relatively narrow ones like vaping, youth sport injuries, tobacco control, and the like. It is even more important if public health is ever to engage effectively against the social determinants of health, enmeshed as they are in law, politics, inequality, corporate power, and deep social divisions.

Recognizing how enmeshed in deeper social conditions important public health matters are, we should clearly see that epidemiology, even social epidemiology, cannot alone drive a strong program of research and action for change. We are back where we started, arguing again that a new public health is needed, one rooted in its history as a social movement but also aggressively defined as transdisciplinary and silo-breaking. When we understand the social roots of the opioid death storm—just to take one example—we might well think that we need an anthropologist or sociologist or even a legal epidemiologist at the head of the National Institute of Drug Abuse, not an expert in brain chemistry and imaging. We might talk about transforming schools of public health into multidisciplinary schools of social problem solving. We

165. *See generally* INST. OF MED., THE FUTURE OF PUBLIC HEALTH (Nat'l Acads. Press 1988).

might think that we should reorganize some of these NIH institutes into an aggressive National Institute of the Social Causes of Illness and Misery.

We talk about change in the organization of public health because, while good judgments can emerge from practices that support good judgment, these practices will be more likely to emerge in cultural and organizational contexts in which diversity, trans-disciplinarity, and practical problem solving are valued. Good judgment and smart action will do better in a public health culture that questions and breaks down silos rather than strengthening them in schools, agencies, and funding streams. Just before COVID-19 struck, the United States was ranked number one in readiness for a global pandemic: it is worth asking how we could have been so wrong.¹⁶⁶

166. See Naomi Oreskes, *Expert Opinion Can't Be Trusted if You Consult the Wrong Sort of Expert*, SCI. AM. (Mar. 1, 2021), <https://www.scientificamerican.com/article/expert-opinion-cant-be-trusted-if-you-consult-the-wrong-sort-of-expert> [<https://perma.cc/73Y3-8WRM>] (“The GHSI panel was understandably heavy with directors of national and international health programs, health departments and health commissions. But the experts included no professional political scientist, psychologist, geographer or historian; there was little expertise on the political and cultural dimensions of the problem. In hindsight, it is clear that in many countries, political and cultural factors turned out to be determinative.”).