

2021

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Daniel Hemel  
*University of Chicago*

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### Recommended Citation

Hemel, Daniel (2021) "Four Futures for U.S. Pandemic Policy," *University of Chicago Legal Forum*: Vol. 2021, Article 6.

Available at: <https://chicagounbound.uchicago.edu/uclf/vol2021/iss1/6>

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# Four Futures for U.S. Pandemic Policy

Daniel Hemel<sup>†</sup>

*The COVID-19 pandemic is probably not the last time that a new and deadly infectious disease will sweep the planet. What can the United States do to improve its chances of averting large-scale loss of life the next time? This essay—prepared for The University of Chicago Legal Forum’s symposium issue on “Law for the Next Pandemic”—envisions four “futures” for the United States’ pandemic response and considers the advantages and drawbacks of each. One approach, the Mass Surveillance strategy, relies on widespread population monitoring, rigorous contact tracing, and enforced isolation of the infected. That strategy has enabled several East and Southeast Asian countries to keep case counts low without instituting long lockdowns. In the United States, the Mass Surveillance approach would face surmountable constitutional hurdles but potentially insurmountable cultural obstacles. A second option, the Fortress strategy, combines lockdowns to stop community transmission with border closures to prevent reintroduction of the infection. Australia and New Zealand illustrate the Fortress approach’s lifesaving potential, but their examples will be difficult to replicate in a country with a much larger population and long land borders. A third approach, the Internationalist strategy, emphasizes global cooperation with the goal of preventing animal-to-human transmission and containing any outbreak quickly. That approach is appealing—and worth pursuing—but it faces the high probability that it won’t work. A fourth approach, the Early Vaccination strategy, would truncate the clinical trial process and boost vaccine production capacity so that a large portion of the U.S. population could be vaccinated within several months of an outbreak. This, too, is worth a try, but even a rapidly developed vaccine is unlikely to protect us from a pandemic’s first wave. Ultimately, the essay recommends that the United States follow an all-of-the-above approach—preparing to pursue the Mass Surveillance, Fortress, Internationalist, and Early Vaccination options—with the recognition that none of these strategies on its own stands a very high chance of success.*

## I. INTRODUCTION

In the spring of 2020, when the editors of *The University of Chicago Legal Forum* chose “Law for the Next Pandemic” as the theme for their upcoming fall symposium, the title seemed rather pessimistic. Really,

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<sup>†</sup> Professor of Law, University of Chicago Law School; Visiting Professor of Law, New York University School of Law. Thanks to Daniel Rodriguez, Crofton Kelly, Dylan Moore, and Alan Rozenshtein for thoughtful comments.

we're going to have to do all of this again? As we grudgingly adjusted to life under stay-at-home orders, learned to mute and unmute ourselves on Zoom, and exhausted the Netflix library, the possibility of a “next pandemic” was almost too painful to ponder.

A year later,<sup>1</sup> the title “Law for the Next Pandemic” sounds a note of optimism. Daily deaths from COVID-19 in the United States have dropped dramatically from their January 2021 highs, and over half of the U.S. population is now fully vaccinated.<sup>2</sup> The newfound optimism is bridled by lingering vaccine hesitancy at home and a horrific new wave of infections in India and elsewhere in South and Southeast Asia.<sup>3</sup> But here in the United States, at least, the miracle of mRNA vaccines may allow the United States to return to semi-normalcy in not too long. We finally have the brainspace, as well as the emotional and political bandwidth, to begin planning for the next round.

And there very likely will be a next round. Whether it's a SARS-CoV-2 variant that evades existing vaccines or a new coronavirus or influenza strain or the Nipah virus or a “Disease X” that science has not yet identified, there is little reason to believe that the COVID-19 pandemic will be humanity's last brush with a fast-spreading and fatal infection. Nor is there much reason to believe that the lag between COVID-19 and the next pandemic will be lengthy. As memories of COVID-19 policy failures remain fresh, now is an opportune moment to consider how we might do better the next time.

To that end, this essay imagines four “futures” for the United States' pandemic response and reflects on the challenges posed by each course. The futures are not roads diverging in yellow wood—we might (and hopefully will) follow some combination of the four. Laying out these four courses as distinct options, though, helps to clarify the choices that the United States and other countries face as they take stock of COVID-19's lessons and envision how next time really could be different.

One of these futures is what I will call the “Mass Surveillance” option. The idea is to stop the spread of disease through widespread population monitoring, rigorous contact tracing, and enforced isolation of the infected. That approach has proven to be extraordinarily effective

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<sup>1</sup> This essay was drafted in the spring of 2021 and last substantively updated in the summer of 2021. Figures such as vaccination rates and death rates presumably will have changed by the time of publication.

<sup>2</sup> See Audrey Carlsen, *How Is the COVID-19 Vaccination Campaign Going in Your State?*, NPR, <https://www.npr.org/sections/health-shots/2021/01/28/960901166/how-is-the-covid-19-vaccination-campaign-going-in-your-state> [<https://perma.cc/4CPZ-P6V9>] (last updated Aug. 26, 2021).

<sup>3</sup> See Nectar Gan, *Beyond India, a Growing Number of Asian Countries Are Being Ravaged by Fresh Coronavirus Waves*, CNN (May 7, 2021), <https://www.cnn.com/2021/05/07/asia/asia-covid-hotspots-dst-intl-hnk/index.html> [<https://perma.cc/6ESD-AVAS>].

in South Korea and Taiwan, where the death rate remains below 50 per 1 million people. (The United States, by comparison, has suffered more than 1900 deaths per 1 million people.)<sup>4</sup> But the Mass Surveillance approach collides with civil-libertarian strands in American constitutional doctrine and—more significantly—in American culture. The constitutional challenges are likely surmountable; the cultural challenges might not be.

A second future is what I will call the “Fortress” option. The idea is to keep infection out of the country by closing the borders, and if necessary, imposing a lockdown for as long as it takes to extinguish the infection within. This is the approach that Australia and New Zealand have pursued, and they too have kept death counts low (38 deaths per 1 million people as of July 2021 in Australia, 5 per 1 million in New Zealand).<sup>5</sup> But of course, it’s easier to be a fortress when you’re an island. Implementing the Fortress approach in the United States would require significant investments in border security and would raise serious questions for migration policy.

A third future is what I will call the “Internationalist” option. It is essentially the opposite of the Fortress approach. The third option recognizes that infections do not stop at international boundaries, and the policy response to a global pandemic, therefore, must be global in scope. This would entail a worldwide effort to prevent zoonosis—the transmission of infection from animals to humans—as well as substantial investments in a global infection alert system. It also would entail the development of detailed protocols for international travel restrictions so that an outbreak—wherever it occurs—can be contained and extinguished.

The Internationalist approach initially seems quite attractive, and it is, but it faces two shortcomings. First, and most significantly, there is no assurance that it will work. And like the nuclear nonproliferation effort, the consequences of a single failure can overshadow an otherwise-unbroken string of successes. Second, maintaining constant cooperation on public health with every country will potentially constrain the United States’ pursuit of other foreign policy objectives. Prioritizing pandemic prevention—though very likely worth it—may require us to deprioritize other strategic and humanitarian goals.

The fourth future—and perhaps the easiest to imagine for the United States now that Moderna and Pfizer-BioNTech have become household names—is the “Early Vaccination” option. The idea is to vaccinate a large portion of the population as quickly as possible, which will likely entail a much more abbreviated clinical-trial process. Russia

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<sup>4</sup> *COVID-19 Coronavirus Pandemic*, WORLDOMETER, <https://www.worldometers.info/coronavirus> [<https://perma.cc/Z2QX-X8WP>] (last visited Aug. 26, 2021).

<sup>5</sup> *See id.*

tried something along these lines, approving the Sputnik V adenovirus vector vaccine in August 2020.<sup>6</sup> But by July of the following year, amid widespread distrust of the vaccine across the country, less than 20 percent of the Russian population had received the first of two doses<sup>7</sup> (despite clinical trial results indicating that Sputnik V is safe and highly effective<sup>8</sup>). A hurdle for the United States if it follows the Early Vaccination approach will be overcoming vaccine skepticism without prolonged clinical trials. High rates of vaccine skepticism in the United States *notwithstanding* lengthy clinical trials underscore the challenge.

In addition to these four futures, there is of course another option: the status quo. We could again try the test-trace-and-isolate strategy halfheartedly, allow our borders to remain porous, disengage from global public health institutions, and wait until the end of a lengthy clinical trial process before deploying the vaccine. Maybe we'll get lucky, and the next pandemic will be less deadly than this one, though it also could turn out to be much more so. Sticking with the status quo essentially amounts to rolling the dice on hundreds of thousands of lives and hoping that it comes up with snake eyes.

The following four parts of this essay explore these four futures in further detail. No single one of the four emerges as the obviously optimal approach; the essay instead favors an all-four-of-the-above strategy. The clearer conclusion is that we as a society—and as lawyers within that society—need to begin weighing the tradeoffs that each of these four futures involve. In some instances, we may need to change laws. In other instances, the most important changes will be cultural. Whichever combination of the four futures we choose, though, we can't wait for the next pandemic to make the choice.

## II. MASS SURVEILLANCE

South Korea is a fitting place to start our search for a more durable pandemic response strategy. The dense country of more than 50 million people easily could have gone the way of Lombardy, the northern Italian

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<sup>6</sup> *Coronavirus: Putin Says Vaccine Has Been Approved for Use*, BBC NEWS (Aug. 11, 2020), <https://www.bbc.com/news/world-europe-53735718> [<https://perma.cc/92H6-DTKS>].

<sup>7</sup> See *Coronavirus (COVID-19) Vaccinations*, OUR WORLD IN DATA, <https://our-worldindata.org/covid-vaccinations> [<https://perma.cc/Z648-CXDV>] (last visited July 12, 2021); Andrew E. Kramer, *Russia Is Offering to Export Hundreds of Millions of Vaccine Doses, but Can It Deliver?*, N.Y. TIMES (Feb. 19, 2021), <https://www.nytimes.com/2021/02/19/world/europe/russia-coronavirus-vaccine-soft-power.html> [<https://perma.cc/V9K7-A39W>].

<sup>8</sup> See Denis Y. Logunov et al., *Safety and Efficacy of an rAd26 and rAd5 Vector-Based Heterologous Prime-Boost COVID-19 Vaccine: An Interim Analysis of a Randomised Controlled Phase 3 Trial in Russia*, 397 LANCET P671 (2021).

region ravaged by COVID-19.<sup>9</sup> Over the last ten days of February 2020, the number of new daily infections in South Korea grew thirty-fold.<sup>10</sup> By the beginning of March 2020, South Korea had recorded the second highest number of infections in the world, behind only China.<sup>11</sup> Seoul, with a population density more than five times New York City's,<sup>12</sup> looked like it was about to become a viral tinderbox.

And then it didn't. In a matter of weeks, South Korea developed what is probably the most impressive contact tracing strategy in human history. The South Korean strategy relied on three principal data inputs:

- **Financial information.** All credit card and bank transactions in South Korea are logged on a government database, and South Korea offers tax incentives for individuals to use electronic payment methods.<sup>13</sup> South Korea initially established the system for tax enforcement reasons but repurposed it for contact tracing during the pandemic. When an individual tests positive for COVID-19, health officials can retrace the individual's steps using transaction data from restaurants, stores, and other vendors.<sup>14</sup>
- **Mobile phone location data.** Health officials in South Korea have been able to access location data from mobile phone carriers.<sup>15</sup> Even without GPS, mobile phone location data can help officials determine if—for example—two family members traveled from place to place together.<sup>16</sup> GPS data potentially allows

<sup>9</sup> See Barbie Latza Nadeau & Valentina Di Donato, *As Northern Italy is Ravaged by Coronavirus, There's Trouble Brewing Down South*, CNN (Apr. 5, 2020), <https://www.cnn.com/2020/04/04/europe/southern-italy-coronavirus-black-economy-intl/index.html> [https://perma.cc/B7N9-GSC9].

<sup>10</sup> See *South Korea: Coronavirus Cases*, WORLDOMETER, <https://www.worldometers.info/coronavirus/country/south-korea> [https://perma.cc/N24N-PZWP] (last visited Mar. 22, 2021).

<sup>11</sup> See Victor Cha & Dana Kim, *A Timeline of South Korea's Response to COVID-19*, CTR. FOR STRATEGIC & INT'L STUD. (Mar. 27, 2020), <https://www.csis.org/analysis/timeline-south-koreas-response-covid-19> [https://perma.cc/3L7W-MJ68].

<sup>12</sup> See *Population Density by City*, OUR WORLD IN DATA, <https://ourworldindata.org/grapher/population-density-by-city?tab=table> [https://perma.cc/6SRK-5GCQ] (last visited Mar. 22, 2021).

<sup>13</sup> Rajul Awasthi et al., *The Benefits of Electronic Tax Administration in Developing Countries: A Korean Case Study and Discussion of Key Challenges* xv–xviii (World Bank/KDI School of Public Policy Management, Research Paper, 2019).

<sup>14</sup> Justin Fendos, *How Surveillance Technology Powered South Korea's COVID-19 Response*, BROOKINGS INST. (Apr. 29, 2020), <https://www.brookings.edu/techstream/how-surveillance-technology-powered-south-koreas-covid-19-response> [https://perma.cc/X7J3-5AJV].

<sup>15</sup> Sangchul Park et al., *Information Technology-Based Tracing Strategy in Response to COVID-19 in South Korea—Privacy Controversies*, 323 JAMA 2129, 2130 (June 2, 2020).

<sup>16</sup> See Fendos, *supra* note 14.

officials to pinpoint individuals with an accuracy range of a few feet.<sup>17</sup>

- **Closed circuit television (CCTV).** When health officials know approximately where an individual was at a given time, they can gain further information about contacts by consulting CCTV footage.<sup>18</sup> South Korea has one of the highest concentrations of CCTV cameras per person in the world (though well behind the world leader—the United States).<sup>19</sup> South Korea has tapped into that resource for contact tracing during the pandemic.<sup>20</sup>

Identifying individuals who had been exposed to the virus was the first step of South Korea's extraordinary effort. Those individuals then were required to self-quarantine for fourteen days. South Korea took a carrot-and-stick approach to self-quarantine. The government delivered "comfort packages" with fresh produce and various supplies,<sup>21</sup> but it also monitored individuals via mobile app to ensure that they were abiding by quarantine restrictions and slapped them with a fine exceeding \$8,000 if they were not.<sup>22</sup>

By most metrics, South Korea's response has been a success: although Seoul imposed its strictest social-distancing measures to date in July 2021 amid an outbreak fueled by the highly transmissible Delta variant,<sup>23</sup> the country has so far escaped both a prolonged lockdown and large-scale loss of life.<sup>24</sup> The fact that a dense country of more than 50 million people managed this feat prompts the question: can the United States do the same the next time around?

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<sup>17</sup> *Mobile Location Data and Covid-19: Q&A*, HUM. RTS. WATCH (May 13, 2020), <https://www.hrw.org/news/2020/05/13/mobile-location-data-and-covid-19-qa> [<https://perma.cc/6B5G-E3JL>].

<sup>18</sup> See Jung Won Sonn, *Coronavirus: South Korea's Success in Controlling Disease Is Due to Its Acceptance of Surveillance*, CONVERSATION (Mar. 19, 2020), <https://theconversation.com/coronavirus-south-koreas-success-in-controlling-disease-is-due-to-its-acceptance-of-surveillance-134068> [<https://perma.cc/273C-QZN7>].

<sup>19</sup> See Dave Makichuk, *Guess Who Has More CCTV Cameras Per Capita?*, ASIA TIMES (Dec. 10, 2019), <https://asiatimes.com/2019/12/guess-who-has-more-cctv-cameras-per-capita> [<https://perma.cc/6QKL-8YPB>].

<sup>20</sup> See Max S. Kim, *Seoul's Radical Experiment in Digital Contact Tracing*, NEW YORKER (Apr. 17, 2020), <https://www.newyorker.com/news/news-desk/seouls-radical-experiment-in-digital-contact-tracing> [<https://perma.cc/J6YT-UNAJ>].

<sup>21</sup> See SeungJu Jackie Oh et al., *Protecting Health Care Workers in South Korea During the COVID-19 Pandemic* 21–22 (Ariadne Labs, Global Learnings Evidence Brief, May 2020).

<sup>22</sup> See June-Ho Kim et al., *Emerging COVID-19 Success Story: South Korea Learned the Lessons of MERS*, OUR WORLD IN DATA (Mar. 5, 2021), <https://ourworldindata.org/covid-exemplar-south-korea> [<https://perma.cc/U4BP-AEEK>].

<sup>23</sup> See Sangmi Cha, *South Korea Puts Seoul Under Tightest COVID Curbs Amid New Case Records*, REUTERS (July 9, 2021), <https://www.reuters.com/world/asia-pacific/south-korea-raise-covid-19-curbs-highest-level-seoul-says-pm-2021-07-08> [<https://perma.cc/B79E-AB83>].

<sup>24</sup> See Kim et al., *supra* note 22.

U.S. constitutional law presents complications for a South Korea-style effort on this side of the Pacific, though those complications can likely be overcome.<sup>25</sup> The federal government probably could require vendors to report electronic transactions in real time—the IRS already requires businesses annually to report wage payments on the Form W-2 and other payments on the Form 1099 series, and there is no obvious constitutional reason why real-time reporting would be off limits. Occasionally, individuals challenge tax-filing requirements on First Amendment (compelled speech) or Fifth Amendment (self-incrimination) grounds, but courts typically wave away these challenges as frivolous.<sup>26</sup> Those reporting requirements are incident to Congress’s power to tax, while reporting for public-health purposes would be incident to Congress’s power over interstate commerce, but it is hard to see why a court would distinguish between reporting requirements for the purpose of preventing tax evasion and reporting requirements for the purpose of preventing the spread of a deadly plague. If anything, the latter ought to receive greater judicial deference.

Mirroring South Korea’s use of cell phone location data would be somewhat trickier. The Supreme Court held in *Carpenter v. United States*<sup>27</sup> that “the Government generally must obtain a warrant supported by probable cause” before acquiring cell-site location information from wireless carriers.<sup>28</sup> *Carpenter* might therefore be seen as a constraint on government efforts to mine cell phone records for contact tracing purposes. On the other hand, the Court has long recognized that the warrant and probable cause requirements can be relaxed “in those exceptional circumstances, in which special needs, beyond the normal need of law enforcement, make the warrant and probable-cause requirement inapplicable.”<sup>29</sup> And a pandemic would seem to be an exceptional circumstance in which special contact tracing needs render *Carpenter* inapplicable.<sup>30</sup>

Federal, state, and local health officials also might avoid a collision with *Carpenter* if carriers share cell phone location data voluntarily. *Carpenter* involved an attempt by prosecutors to obtain a court order

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<sup>25</sup> See Alan Z. Rozenshtein, *Digital Disease Surveillance*, 70 AM. U. L. REV. 1511, 1516 (2021) (concluding that “almost any rationally designed disease surveillance program, whether supported by individualized suspicion or not,” would ultimately survive Fourth Amendment scrutiny “as long as the surveillance is not primarily used for traditional law enforcement purposes”).

<sup>26</sup> See, e.g., *Sortillon v. Comm’r*, 38 T.C.M. (CCH) 1097, 1099 (T.C. 1979).

<sup>27</sup> 138 S. Ct. 2206 (2018).

<sup>28</sup> *Id.* at 2221.

<sup>29</sup> See *O’Connor v. Ortega*, 480 U.S. 709, 720 (1987) (plurality opinion); see also *Ferguson v. City of Charleston*, 532 U.S. 67, 104 n.7 (2001) (discussing origins of the “special needs” exception). The *Carpenter* Court acknowledged the possibility of exceptions to the warrant requirement for searches of an individual’s cell-site records. See *Carpenter*, 138 S. Ct. at 2222–23.

<sup>30</sup> See Rozenshtein, *supra* note 25, at 1543–47.

directing MetroPCS and Sprint to share cell phone location data.<sup>31</sup> What if, instead, public health officials asked nicely or paid carriers to share data rather than going to court? Several federal agencies—including Customs and Border Protection, the Drug Enforcement Agency, the Federal Bureau of Investigation, and the Internal Revenue Service—appear to be purchasing this data already.<sup>32</sup> Public health authorities presumably could follow that lead.

As for video footage, a number of courts have addressed the question of whether police need a warrant in order to install a pole camera outside a suspect's home—most, though not all, have said no.<sup>33</sup> And there is no apparent barrier to public health authorities requesting or purchasing CCTV footage from retailers or others who have installed cameras on their premises. The question of *Carpenter's* application to CCTV only comes up when private parties resist. If South Korea-style surveillance obtained widespread acceptance across the U.S. population, the Constitution would not stand in the way.

Logistically, too, the United States could probably replicate South Korea's expert mining of financial data, cell phone location information, and CCTV footage. Start with financial data. Credit and debit cards, charge cards, and digital and mobile wallets accounted for more than 80 percent of point-of-sale payments in the United States in 2020—cash is king no longer.<sup>34</sup> The overwhelming majority of these transactions are processed via networks controlled by four companies—Visa, Mastercard, American Express, and Discover.<sup>35</sup> Aggregating this information in order to track individuals' transactions would seem to be a task well within the federal government's reach.

Likewise for mobile phone data and CCTV footage. An estimated 85 percent of Americans own smartphones,<sup>36</sup> and the typical GPS-enabled smartphone provides location data that is accurate to within a

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<sup>31</sup> *Carpenter*, 138 S. Ct. at 2212.

<sup>32</sup> See Sara Morrison, *A Surprising Number of Government Agencies Buy Cellphone Location Data. Lawmakers Want to Know Why.*, VOX (Dec. 2, 2020), <https://www.vox.com/recode/22038383/dhs-cbp-investigation-cellphone-data-brokers-venntel> [<https://perma.cc/5YVX-5LHU>].

<sup>33</sup> See, e.g., *Commonwealth v. Mora*, 150 N.E.3d 297, 304 (Mass. 2020) (noting that “[m]ost courts to have addressed pole camera surveillance have concluded that it does not infringe on any reasonable expectation of privacy,” but concluding that a warrant is required under the Massachusetts Declaration of Rights). The First Circuit recently convened en banc to hear arguments on this question. See *United States v. Moore-Bush*, 982 F.3d 50 (1st Cir. 2020).

<sup>34</sup> *Leading Point of Sale Payment Methods in the United States in 2020*, STATISTA (Mar. 4, 2021), <https://www.statista.com/statistics/568523/preferred-payment-methods-usa> [<https://perma.cc/TKS3-N8SQ>].

<sup>35</sup> See Shannon Souza, *Credit and Debit Card Market Share by Network and Issuer*, ASCENT (Oct. 12, 2020), <https://www.fool.com/the-ascend/research/credit-debit-card-market-share-network-issuer> [<https://perma.cc/T5U5-LMH7>].

<sup>36</sup> See *Mobile Fact Sheet*, PEW RSCH. CTR. (Apr. 7, 2021), <https://www.pewresearch.org/inter-net/fact-sheet/mobile> [<https://perma.cc/3QZR-3J53>].

16-foot radius under open sky.<sup>37</sup> This might not be accurate enough to determine all of a person's within-six-foot contacts, but it would allow public health authorities to determine if (for example) a person under quarantine orders still had her smartphone in her home. As for video surveillance, the United States is (by far) the world's leader in CCTV camera concentration, with seven times the number of cameras per person as South Korea.<sup>38</sup> The United States probably has the logistical and technological capacity to do what South Korea did. The burning question is whether we have the will.

Polls are not especially encouraging. In an April 2020 Pew Research Center survey, 54 percent of U.S. adults said that they thought it would be unacceptable for the government to use cell phone location data to identify individuals who had come into contact with someone who had tested positive for COVID-19.<sup>39</sup> An even larger share (62 percent) said they thought it was unacceptable for the government to use cell phone location data to ensure that individuals are complying with social distancing recommendations.<sup>40</sup> A follow-up survey in July 2020 with a slightly different question found broadly similar sentiments (50 percent of U.S. adults said they would be uncomfortable sharing location data from *their* cellphones with public health officials during the pandemic).<sup>41</sup> A survey of U.S. adults by researchers at Cornell University, Stanford University, and the WZB Berlin Social Science Center conducted in June 2020 found similar skepticism regarding the use of financial-transaction data and CCTV: only 31 percent of respondents supported a proposal to allow contact tracers to access credit-card and debit-card transaction data, and 40 percent supported the use of CCTV and drone cameras to enforce social-distancing restrictions.<sup>42</sup>

At least in my view, Americans are making a grave mistake. Given the vast amount of information we already cede to cell phone providers, financial institutions, tech companies, and the federal government, the

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<sup>37</sup> *GPS Accuracy*, GPS.GOV (Apr. 22, 2020), <https://www.gps.gov/systems/gps/performance/accuracy> [<https://perma.cc/LTR5-FTCR>].

<sup>38</sup> See Makichuk, *supra* note 19.

<sup>39</sup> See Monica Anderson & Brooke Auxier, *Most Americans Don't Think Cellphone Tracking Will Help Limit COVID-19, Are Divided on Whether It's Acceptable*, PEW RSCH. CTR. (Apr. 16, 2020), <https://www.pewresearch.org/fact-tank/2020/04/16/most-americans-dont-think-cellphone-tracking-will-help-limit-covid-19-are-divided-on-whether-its-acceptable> [<https://perma.cc/KR55-TRCE>].

<sup>40</sup> See *id.*

<sup>41</sup> See Colleen McClain & Lee Raine, *The Challenges of Contact Tracing as U.S. Battles COVID-19*, PEW RSCH. CTR. (Oct. 30, 2020), <https://www.pewresearch.org/internet/2020/10/30/the-challenges-of-contact-tracing-as-u-s-battles-covid-19> [<https://perma.cc/DKD4-8MEP>].

<sup>42</sup> See Baobao Zhang et al., *Americans' Perception of Surveillance in the Covid-19 Pandemic*, 15 PLoS ONE e0242652, at 8–9 (2020); *id.* at S1 File tbl.2 (Nov. 19, 2020), <https://doi.org/10.1371/journal.pone.0242652.s001> [<https://perma.cc/H9S7-WK77>].

incremental privacy cost of permitting public health authorities to aggregate that information for purposes of contact tracing and quarantine enforcement seem small. The Defense Intelligence Agency (DIA), Immigration and Customs Enforcement (ICE), and Customs and Border Protection (CBP) already buy location data generated by smart phone users in the United States.<sup>43</sup> And while at least the ICE and CBP data is anonymized,<sup>44</sup> it would not be very hard to infer individuals' identities from the ostensibly anonymized information.<sup>45</sup> As long as we are allowing the federal government to track us in order to prevent unauthorized border crossings, it seems like a small additional sacrifice to allow the government to use essentially the same information in order to contain a deadly infectious disease.<sup>46</sup>

One potential response to the above is that other forms of mass surveillance should stop too: tracking individuals' locations in order to prevent the spread of a deadly infectious disease may be less objectionable than tracking individuals' locations in order to prevent illegal entry, but both are objectionable. (Or so the argument would go.) But why, exactly, is it objectionable for the government to track our whereabouts in order to save potentially hundreds of thousands of lives? Countries that have adopted the mass surveillance strategy during the COVID-19 pandemic have been—in many respects—freer societies than the United States over the past year: individuals have faced fewer restrictions on gathering and movement, and beyond that, they have experienced the fourth of FDR's freedoms ("freedom from fear") to an extent we haven't. Meanwhile, many more of our citizens have experienced the ultimate unfreedom: premature death.

Opponents of the Mass Surveillance strategy still might argue that countries that have adopted that approach are more vulnerable to authoritarianism in the future. But the argument could just as easily be made in reverse: the United States' failure to stop the spread of COVID-19 has led to the dissipation of social capital over the past year, leaving us with weaker civic organizations, weaker community bonds, and less

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<sup>43</sup> See Charlie Savage, *Intelligence Analysts Use U.S. Smartphone Location Data Without Warrants*, *Memo Says*, N.Y. TIMES (Jan. 22, 2021), <https://www.nytimes.com/2021/01/22/us/politics/dia-surveillance-data.html> [<https://perma.cc/RUX7-GYA9>]; Byron Tau & Michelle Hackman, *Federal Agencies Use Cellphone Location Data for Immigration Enforcement*, WALL ST. J. (Feb. 7, 2020), <https://www.wsj.com/articles/federal-agencies-use-cellphone-location-data-for-immigration-enforcement-11581078600> [<https://perma.cc/W3MQ-L7CH>].

<sup>44</sup> See Tau & Hackman, *supra* note 43.

<sup>45</sup> See Jennifer Valentino-Devries et al., *Your Apps Know Where You Were Last Night, and They're Not Keeping It Secret*, N.Y. TIMES (Dec. 10, 2018), <https://www.nytimes.com/interactive/2018/12/10/business/location-data-privacy-apps.html> [<https://perma.cc/QB28-WZ7Y>].

<sup>46</sup> To be sure, most Americans don't expect that DIA, ICE, and CBP will train their sights on *us*. We have given the government the tools of mass surveillance while barely batting an eyelash, apparently on the view that those tools will be used only against foreigners and immigrant communities.

capacity to resist an antidemocratic power grab. Ultimately, it is not clear which approach—the Mass Surveillance tack or the United States’ halfhearted response to the virus—better steels a society against despotism. What is quite clear is that countries that successfully implemented the Mass Surveillance strategy saw many fewer people perish.

### III. FORTRESS AMERICA

The Mass Surveillance strategy represents one path to infectious disease containment, but not the only one. Australia and New Zealand are two notable examples of countries that kept death counts low without significant reliance on electronic surveillance. National governments in both countries unveiled voluntary mobile phone apps for contact tracing, but those apps played a peripheral role in the public health response.<sup>47</sup> How, then, did Australia and New Zealand contain COVID-19 without rigorously monitoring their residents’ movements?

The first step was to maintain lockdowns until the virus had been effectively squelched. In New Zealand, for example, Prime Minister Jacinda Ardern declared a national lockdown in late March 2020—before the country had recorded a single death.<sup>48</sup> By June, the country had zero active COVID-19 cases.<sup>49</sup> In Australia, with a population more than four times New Zealand’s, eradication proved to be more difficult: The city of Melbourne and the surrounding state of Victoria endured a lockdown that lasted a staggering 111 days.<sup>50</sup> But Australia ultimately

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<sup>47</sup> For example, the Australian government’s COVIDSafe app was downloaded 6.5 million times in its first two-and-a-half months (in a country of more than 25 million people). By late August, “the app had only traced six individuals not already identified by manual tracing efforts.” Paul M. Garrett et al., *The Acceptability and Uptake of Smartphone Tracking for COVID-19 in Australia*, 16 PLOS ONE e0244827, at 4 (2021). New Zealand’s NZ Covid Tracer had 2.3 million registered users in November 2020 (in a country of more than 5 million), but only one in six were using it daily. See Sarah Robson, *Covid 19 Coronavirus: Support for Making Covid Tracer App Scanning Mandatory*, N.Z. HERALD (Nov. 13, 2020), <https://www.nzherald.co.nz/nz/covid-19-coronavirus-support-for-making-covid-tracer-app-scanning-mandatory/AVTU5I3ZVPXTBCATLVDEBLBINM> [<https://perma.cc/2SA4-D729>]. The app’s efficacy appears doubtful. See, e.g., Chris Keall, *COVID19 Coronavirus: Tracer App Cost \$6.4 Million To Set Up*, N.Z. HERALD (Feb. 10, 2021), <https://www.nzherald.co.nz/nz/covid-19-coronavirus-tracer-app-cost-64-million-to-set-up/YUXDAQ5RCKEXMIZZSON6A5AHE> [<https://perma.cc/GWJ4-FHNZ>] (“The app is only useful in one very unlikely situation: if the user is diagnosed with Covid-19 and can’t remember where they were on the days they were infectious—and didn’t purchase anything using a bank card that can help them recall.” (quoting Rhema Vaithianathan, director of Auckland University of Technology’s Centre for Social Data Analytics)).

<sup>48</sup> See Sophie Cousins, *New Zealand Eliminates COVID-19*, 395 LANCET 1474, 1474 (2020).

<sup>49</sup> See Damien Cave, *New Zealand Lifts Lockdown as It Declares Virus Eliminated, for Now*, N.Y. TIMES (June 8, 2020), <https://www.nytimes.com/2020/06/08/world/australia/new-zealand-coronavirus-ardern.html> [<https://perma.cc/6U7B-LHRV>].

<sup>50</sup> See Yan Zhuang & Damien Cave, *The Lockdown That Felt Like It Might Last Forever Has Finally Ended*, N.Y. TIMES (Oct. 28, 2020), <https://www.nytimes.com/2020/10/28/world/australia/melbourne-lockdown-ends.html> [<https://perma.cc/L4R6-X94E>].

brought the number of new local COVID-19 cases down to zero by November.<sup>51</sup>

Once these countries had effectively eliminated the virus within their borders, they could reopen their domestic economies while maintaining strict limits on international travel. Citizens and residents returning from abroad were required to pass through fourteen-day hotel quarantines. Those hotel quarantines have themselves been a source of several outbreaks, including the one that led to the 111-day Melbourne lockdown.<sup>52</sup> But notwithstanding these admitted failings, Australia and New Zealand remain the envy of North American and European countries that have seen drastically higher fatality rates.<sup>53</sup>

The success of the Fortress strategy in Australia and New Zealand proves that countries can contain the spread of infectious disease—at least for a significant length of time<sup>54</sup>—without resorting to electronic surveillance on a mass scale. Notably, though, the reverse is probably not true: Countries that adopt the Mass Surveillance approach will need to regulate entry as long as the virus remains rampant elsewhere. South Korea, for example, has opened its borders to foreigners but requires them to pass through a rigorous fourteen-day hotel quarantine upon arrival.<sup>55</sup> Countries thus have a choice between two methods of eradicating the virus—surveillance versus lockdown—but will likely have to impose severe restrictions on international travel in either case.

The United States never maintained a lockdown that was long or stringent enough to stop community transmission. If it had, though, it would have faced the further challenge of keeping the virus from reentering. Australia and New Zealand have the virtue of being islands.

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<sup>51</sup> See Angus Watson, *Australia Records Zero Local Coronavirus Cases for First Time Since June*, CNN (Nov. 1, 2020), <https://www.cnn.com/2020/11/01/asia/australia-zero-local-coronavirus-intl-hnk/index.html> [<https://perma.cc/8DBN-XM3Q>].

<sup>52</sup> See Frances Mao, *Covid: Why Australia's 'World-Class' Quarantine System Has Seen Breaches*, BBC (Feb. 8, 2021), <https://www.bbc.com/news/world-australia-55929180> [<https://perma.cc/ZAD3-F3TE>]; Amanda Sealy & Maggie Fox, *Coronavirus Spread on Flight, in Hotel Corridor, New Zealand Study Finds*, CNN (Apr. 8, 2021), <https://www.cnn.com/travel/article/coronavirus-airplane-spread-study-scn/index.html> [<https://perma.cc/5UU9-9BGA>].

<sup>53</sup> See, e.g., Naaman Zhou, *Dr. Fauci Praises Australia's Coronavirus Response and Melbourne's Face Mask Rules*, GUARDIAN (Oct. 28, 2020), <https://www.theguardian.com/australia-news/2020/oct/29/dr-fauci-praises-australias-coronavirus-response-and-melbournes-face-mask-rules> [<https://perma.cc/Q9FD-5DCP>].

<sup>54</sup> In October 2021—a year and a half into the pandemic, and as this essay was going to press—New Zealand officially abandoned its goal of completely eliminating COVID-19. See Natasha Frost, *Battling Delta, New Zealand Abandons Its Zero-Covid Ambitions*, N.Y. TIMES (Oct. 4, 2021), <https://www.nytimes.com/2021/10/04/world/australia/new-zealand-covid-zero.html> [<https://perma.cc/DWS5-3AWC>].

<sup>55</sup> See Andrew Evans, *Locked Up Abroad: One Traveler's Experience Inside South Korea's Mandatory 14-Day Quarantine*, BOS. GLOBE (Nov. 25, 2020), <https://www.bostonglobe.com/2020/11/25/lifestyle/locked-up-abroad-one-travelers-experience-inside-south-koreas-mandatory-14-day-quarantine> [<https://perma.cc/PK9Y-22F6>].

South Korea's only land border is buffered by a 2.5-mile wide "demilitarized zone" that—despite its name—is one of the most heavily militarized places on the planet.<sup>56</sup> The United States, by contrast, shares a thinly policed 5,525-mile land border with Canada (the longest international border in the world) as well as a porous 1,954-mile border with Mexico.<sup>57</sup> Would the Fortress strategy even be feasible for a country in the United States' geographic position?

China—which shares land borders with fourteen other countries—offers some reason to believe that geography is not in fact destiny in a pandemic. After containing the initial outbreak in Hubei province in early 2020, China appears to have been successful in staving off a second surge.<sup>58</sup> Border restrictions have been part of the country's strategy. For example, in April 2020, China left some of its own nationals stranded on the other side of its 2,616-mile border with Russia rather than risk a reseeding of the virus.<sup>59</sup> And as the pandemic progressed, China accelerated the construction of a razor-wire-topped fence to cut off entry from Myanmar.<sup>60</sup>

Meanwhile, the United States closed its land borders to "nonessential" travel from March 2020 through April 2021,<sup>61</sup> but unauthorized crossings from Mexico have climbed to their highest levels in fifteen years.<sup>62</sup> In May 2021 alone, U.S. border patrol agents took more than

<sup>56</sup> See, e.g., Hyung-Jin Kim, *DMZ, Where Trump Met Kim, Is A Vestige of Cold War*, ABC NEWS (June 30, 2019), <https://abcnews.go.com/International/wireStory/dmz-trump-met-kim-vestige-cold-war-64044646> [<https://perma.cc/6CNP-7NH6>].

<sup>57</sup> U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES: 2011, at tbl.359 (2011), <https://www2.census.gov/library/publications/2010/compendia/statab/130ed/tables/11s0359.pdf> [<https://perma.cc/8MR8-HDVR>].

<sup>58</sup> See Talha Burki, *China's Successful Control of COVID-19*, 20 LANCET INFECTIOUS DISEASES 1240 (2020). To be sure, the Chinese government's suppression of case and death data early in the pandemic raises doubts about the accuracy of later counts. See, e.g., Nick Paton Walsh, *The Wuhan Files: Leaked Documents Reveal China's Mishandling of the Early Stages of Covid-19*, CNN (Dec. 1, 2020), <https://www.cnn.com/2020/11/30/asia/wuhan-china-covid-intl/index.html> [<https://perma.cc/Y7ZY-H7QZ>].

<sup>59</sup> See Emily Feng & Charles Maynes, *To Avoid New COVID-19 Cases, China Closes Border With Russia*, NPR (Apr. 10, 2020), <https://www.npr.org/2020/04/10/831480479/to-avoid-new-covid-19-cases-china-closes-border-with-russia> [<https://perma.cc/JU5V-FQW3>].

<sup>60</sup> See Sebastian Strangio, *China Building Massive Myanmar Border Wall: Reports*, DIPLOMAT (Dec. 17, 2020), <https://thediplomat.com/2020/12/china-building-massive-myanmar-border-wall-reports> [<https://perma.cc/9JP8-F23D>].

<sup>61</sup> See Jayme Deerwester, *US Borders with Canada, Mexico to Remain Closed to Nonessential Travel Through April 21*, USA TODAY (Mar. 18, 2021), <https://www.usatoday.com/story/travel/news/2021/03/18/us-border-closures-canada-mexico-extended-through-april-21/4751145001> [<https://perma.cc/T2DD-V8K3>].

<sup>62</sup> See Nick Miroff, *Border Crossings in March Jumped to Highest Level in 15 Years, Data Shows*, WASH. POST (Apr. 2, 2021), [https://www.washingtonpost.com/national/march-border-crossings/2021/04/02/150ee61c-93b3-11eb-9af7-fd0822ae4398\\_story.html](https://www.washingtonpost.com/national/march-border-crossings/2021/04/02/150ee61c-93b3-11eb-9af7-fd0822ae4398_story.html) [<https://perma.cc/W87S-792S>].

180,000 migrants into custody along the southern border.<sup>63</sup> (More than 99 percent of all U.S. border apprehensions occur along the southern border.<sup>64</sup>) It would be quite wrong to blame crossings from Mexico for the severity of the pandemic in the United States—and, if anything, blame flows in the opposite direction: travelers returning from the United States were among the first to carry the virus to Mexico.<sup>65</sup> At the same time, it is difficult to see how the United States could replicate Australia's and New Zealand's successes in a future pandemic while border crossings continue in large numbers.

China's apparent ability to avert a significant second wave suggests that the porousness of long land borders is as much a product of political choices as it is a geographically preordained fact. But the political choice—especially in the context of the United States' southern border—is not a straightforward one. Border walls are expensive: A report by the Democratic staff of the Senate Homeland Security and Governmental Affairs Committee in 2017 put the price tag for a thirty-foot-high wall between the United States and Mexico at nearly \$70 billion. And that already-high total does not include substantial land acquisition costs plus approximately \$150 million per year in recurring maintenance expenses.<sup>66</sup> Even more serious than the financial costs are the human and environmental consequences. A wall would split up the homelands of several Native American nations<sup>67</sup> and slice through family farms.<sup>68</sup> It would also bisect ecosystems and disrupt habitats of several endangered species, including the Mexican gray wolf and ocelot.<sup>69</sup> And even a walled border wouldn't be 100 percent impermeable, since

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<sup>63</sup> See Nick Miroff, *May Was Busiest Month Along Mexico Border Since Biden Took Office, CBP Figures Show*, WASH. POST (June 9, 2021), [https://www.washingtonpost.com/national/may-was-busiest-month-along-mexico-boder-since-biden-took-office-cbp-figures-show/2021/06/09/14a87178-c96b-11eb-93fa-9053a95eb9f2\\_story.html](https://www.washingtonpost.com/national/may-was-busiest-month-along-mexico-boder-since-biden-took-office-cbp-figures-show/2021/06/09/14a87178-c96b-11eb-93fa-9053a95eb9f2_story.html) [https://perma.cc/5FQF-HT2N].

<sup>64</sup> See U.S. CUSTOMS & BORDER PROTECT., U.S. BORDER PATROL NATIONWIDE APPREHENSIONS BY CITIZENSHIP AND SECTOR (FY2007–FY 2019), <https://www.cbp.gov/sites/default/files/assets/documents/2021-Aug/USBORD~3.PDF> [https://perma.cc/6G75-NAL7] (last visited Aug. 26, 2021).

<sup>65</sup> See Kate Linthicum, *Some of Mexico's Wealthiest Residents Went to Colorado to Ski. They Brought Home Coronavirus*, L.A. TIMES (Mar. 20, 2020), <https://www.latimes.com/world-nation/story/2020-03-20/some-of-mexicos-wealthiest-residents-went-to-colorado-to-ski-they-brought-home-coronavirus> [https://perma.cc/E5E5-2ZBJ].

<sup>66</sup> RANKING MEMBER'S OFFICE, SENATE HOMELAND SEC. & GOVERNMENTAL AFFS. COMM., MINORITY STAFF REPORT ON THE SOUTHERN BORDER WALL 1, 5 (Apr. 18, 2017), <https://www.hsgac.senate.gov/imo/media/doc/Southern%20Border%20Wall%20-%20HSGAC%20Minority%20Report.pdf> [https://perma.cc/SVC9-9M7Z].

<sup>67</sup> See *id.*

<sup>68</sup> See, e.g., Manny Fernandez, *South of the Wall, North of the Border: Life in Texas' No Man's Land*, N.Y. TIMES (Mar. 27, 2019), <https://www.nytimes.com/2019/03/27/us/border-wall-texas-no-mans-land.html> [https://perma.cc/VLB9-4FFK].

<sup>69</sup> See Vanda Felbab-Brown, *The Wall: The Real Costs of a Barrier Between the United States and Mexico*, BROOKINGS INST. (Aug. 2017), <https://www.brookings.edu/essay/the-wall-the-real-costs-of-a-barrier-between-the-united-states-and-mexico> [https://perma.cc/B3MX-XAJY].

migrants still could potentially pass through underground tunnels or (assuming freight continues to move across the border) in cargo holds.<sup>70</sup>

The burdens of border restrictions, moreover, do not fall evenly across demographic groups. Solidifying the southern border, in particular, would impose disproportionate costs on Americans with family and/or economic ties to Mexico and Central America, as well as on individuals from Mexico and Central America seeking to enter the United States. On the other hand, *not* taking stronger action against a future pandemic also will likely yield demographically disproportionate costs. For example, through March 2021, the Hispanic/Latino death rate for COVID-19 in the United States was 1.24 times the death rate for whites, while the COVID-19 death rate among African Americans was 1.44 times the death rate for whites.<sup>71</sup> The COVID-19 experience is consistent with past pandemics that have struck hardest against groups already having economic and social disadvantages.<sup>72</sup> In other words, inaction and action both have the potential to exacerbate inequalities.

Hard questions about U.S. border policy are distinct from—but inextricably linked to—the privacy concerns associated with a Mass Surveillance approach as well as the libertarian objections to a long lockdown. These questions are certainly distinct in their political and ideological valence: Democrats and liberals in the United States tend to be more opposed to a border wall than Republicans and conservatives<sup>73</sup> but also more accepting of contact tracing and lockdowns.<sup>74</sup> Those positions are not necessarily inconsistent: For example, pro-lockdown, anti-border-wall liberals might say that they would be willing to solidify the United States' land borders *if* the country committed to the other elements of the Fortress strategy. (I would count myself in that group.) But if we are unwilling to close our borders, it is unclear how much good

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<sup>70</sup> See Elian Peltier, *Longest Smuggling Tunnel Is Found at U.S.-Mexico Border*, N.Y. TIMES (Jan. 30, 2020), <https://www.nytimes.com/2020/01/30/world/americas/tunnel-us-mexico-border.html> [<https://perma.cc/Z7YK-BKGP>].

<sup>71</sup> *The COVID-19 Racial Data Tracker*, THE COVID TRACKING PROJECT AT THE ATLANTIC, <https://covidtracking.com/race> [<https://perma.cc/GG35-YCAU>] (last updated Mar. 7, 2021).

<sup>72</sup> See Lori Uscher-Pines et al., *Planning for an Influenza Pandemic: Social Justice and Disadvantaged Groups*, HASTINGS CTR. RPT., July–Aug. 2007, at 32.

<sup>73</sup> See Chris Cioffi, *Support for 'Wall' at All-Time High Among Republicans, Low for Democrats, Study Finds*, ROLL CALL (Jan. 16, 2019), <https://www.rollcall.com/2019/01/16/support-for-wall-at-all-time-high-among-republicans-low-for-democrats-study-finds> [<https://perma.cc/8L94-S6AY>].

<sup>74</sup> See, e.g., Colleen McClain, *Key Findings About Americans' Views on COVID-19 Contact Tracing*, PEW RSCH. CTR. (Oct. 30, 2020), <https://www.pewresearch.org/fact-tank/2020/10/30/key-findings-about-americans-views-on-covid-19-contact-tracing> [<https://perma.cc/35SM-YX96>] (finding that 60 percent of Republican and Republican-leaning adults would be uncomfortable sharing location data from their cell phone with public health officials during the coronavirus outbreak, versus 42 percent of Democratic and Democratic-leaning adults).

an Australia/New Zealand approach inside the country would ultimately do.

So far the discussion of border closures has focused on international lines. Australia's approach, in particular, also has relied upon *internal* movement restrictions that have lasted longer than local lockdowns.<sup>75</sup> For example, a small outbreak in Brisbane, the capital of Queensland, in March 2021 led to a lockdown there and restrictions on movement from Queensland to other states.<sup>76</sup> These internal movement restrictions mean that (for example) a cluster of cases in Brisbane doesn't disrupt daily life 2,240 miles away in Perth.

U.S. states also implemented restrictions on interstate movement during the pandemic, but these were rarely enforced.<sup>77</sup> Hawaii was a notable exception;<sup>78</sup> not coincidentally, it also had the lowest rate of COVID-19 cases and deaths.<sup>79</sup> Hawaii, to be sure, also has the benefit of being an island. Other U.S. states would have more trouble policing restrictions on internal movement given the sheer number of ways of getting in and out.

The challenge of internal movement is as significant as the challenge of movement across international borders, and there are no easy solutions. The Fortress strategy does not seem sustainable if every cluster of cases anywhere in the country triggers lockdowns from Arizona to Maine. On the other hand, internal movement restrictions enforced only by Scout's honor seem destined to fail. A robust Fortress approach would probably require a rigorously enforced system of internal movement restrictions that could be triggered when an outbreak emerges in one part of the country. The Centers for Disease Control and Prevention already appears to have statutory authority under the Public Health Service Act of 1946 to impose such a system.<sup>80</sup> But statutory authority

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<sup>75</sup> See *Australia's Internal Travel Restrictions Are Tested in Court*, ECONOMIST (Aug. 8, 2020), <https://www.economist.com/asia/2020/08/06/australias-internal-travel-restrictions-are-tested-in-court> [https://perma.cc/8BUY-BHHD].

<sup>76</sup> See, e.g., Rachael Dexter et al., *'Easter Is Good to Go': Victorian Isolation Restrictions Eased as Brisbane Lockdown Lifted*, AGE (Apr. 1, 2021), <https://www.theage.com.au/national/victoria/new-cases-in-victoria-as-brisbane-lockdown-decision-looms-20210401-p57frl.html> [https://perma.cc/L67A-VANS].

<sup>77</sup> See Olga Khazan, *The Real Reason Americans Aren't Quarantining*, ATLANTIC (Dec. 8, 2020), <https://www.theatlantic.com/politics/archive/2020/12/states-coronavirus-travel-restrictions-quarantine-hawaii/617321> [https://perma.cc/KE4W-XP3].

<sup>78</sup> See *id.*

<sup>79</sup> See *Coronavirus in the U.S.: Latest Map and Case Count*, N.Y. TIMES, <https://www.nytimes.com/interactive/2021/us/covid-cases.html> [https://perma.cc/TXD3-N6QN] (last updated Aug. 26, 2021).

<sup>80</sup> See 42 U.S.C. § 264(a) ("The Surgeon General, with the approval of the Secretary [of Health and Human Services], is authorized to make and enforce such regulations as in his judgment are necessary to prevent the introduction, transmission, or spread of communicable diseases . . . from one State or possession into any other State or possession."). A surprising May 2021 opinion by a

is the easy part. Much more difficult will be delineating and enforcing sensible internal boundaries.

The discussion of those challenges here will be cursory, but the brief consideration ought not obscure the magnitude of the task. One challenge is line-drawing. State borders don't always track the realities of daily life. Chicago, for example, is much more closely connected economically and socially to Gary, Indiana, than to East St. Louis, Illinois. Another challenge is deciding what sorts of essential services should be exempt from internal movement restrictions. Still another is choosing which interstate roads to monitor by checkpoint or camera, which ones to barricade, and which ones to leave unpoliced. Advance planning potentially matters as much as the details of the plan. Trying to jury-rig a system of internal movement controls in the chaotic days immediately after an outbreak is a recipe for chaos.

The upshot of all this is that if the United States seriously pursued the Australia/New Zealand approach, the strict lockdown required to bring community transmission to zero would constitute barely half the battle. We also would need some system to prevent new infections from coming into the country as well as some system to contain clusters of cases within our borders. Australia's geographic advantage is not only that it is an island, but also that it is an island whose states are largely separated by outback.<sup>81</sup> The United States might be able to implement the Fortress strategy, but it would likely require significant advance planning.

#### IV. THE INTERNATIONALIST APPROACH

The Fortress strategy looks inward; another possible approach to the next pandemic would look outward. The Internationalist approach would recognize that infectious diseases don't respect international lines, and so the United States' best bet is to try to stamp out infection wherever it arises rather than beating it back at our borders.

One element of a comprehensive Internationalist approach would focus on the present pandemic: vaccinate the world against SARS-CoV-

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federal district court judge—in a case about the CDC's nationwide moratorium on certain evictions—suggested that 42 U.S.C. § 264(a) authorizes only measures “directed toward animals or articles . . . found to be so infected or contaminated as to be sources of dangerous infection to human beings.” See *Alabama Ass'n of Realtors v. U.S. Dep't of Health & Hum. Servs.*, No. 20-CV-3377, 2021 WL 1779282, at \*5 (D.D.C. May 5, 2021) (internal quotation marks omitted). However, later subsections of 42 U.S.C. § 264 explicitly address circumstances in which the agency uses 42 U.S.C. § 264(a) authority to regulate the movement of individuals. See 42 U.S.C. § 264(b)–(c).

<sup>81</sup> Largely but not entirely. See, e.g., *Australia's Internal Travel Restrictions Are Tested in Court*, *ECONOMIST* (Aug. 6, 2020), <https://www.economist.com/asia/2020/08/06/australias-internal-travel-restrictions-are-tested-in-court> [<https://perma.cc/T2KL-DLS6>] (noting challenges of patrolling small streets in Gold Coast, Queensland, that lead to neighboring New South Wales).

2.<sup>82</sup> As long as SARS-CoV-2 circulates elsewhere, new variants will emerge that threaten our own vaccine defenses. And as long as international travelers bring SARS-CoV-2 back into the United States, we can expect to see new case clusters here even if the United States were to reach the elusive herd immunity threshold. The case for massive U.S. investment in global vaccination is straightforward.<sup>83</sup>

But vaccinating the rest of the world against SARS-CoV-2 still leaves us vulnerable to new coronaviruses and influenza strains, as well as Nipah virus or another Disease X. The Internationalist approach to *those* pandemic threats would involve at least three prongs. One prong would focus on preventing zoonosis—the transmission of infectious disease from animals to humans. That would entail (among other steps) improving hygienic standards in wildlife markets, protecting natural habitats from encroachments that increase human-animal contact,<sup>84</sup> and regulating factory farms here and abroad more stringently.<sup>85</sup> Another prong is the development of a “global alert system” so that an outbreak in one part of the world can be quickly contained.<sup>86</sup> A third prong would be an agreed-upon set of protocols for restricting cross-border movement once the global alert system detects a potential outbreak. For example, shutting down China-to-United States travel after an outbreak in Wuhan can accomplish only so much if travelers continue to move from China to Europe and Europe to the United States. All three prongs would likely require substantial financial assistance from the United States and other advanced economies to less developed countries—to incentivize biodiversity conservation and regulation of wild animal markets, to strengthen public health infrastructure, and to

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<sup>82</sup> See, e.g., Helene Gayle et al., *America Can—And Should—Vaccinate the World*, FOREIGN AFFS. (Mar. 19, 2021), <https://www.foreignaffairs.com/articles/united-states/2021-03-19/america-can-and-should-vaccinate-world> [https://perma.cc/L9QF-3F4J].

<sup>83</sup> See *Vaccinations and the Economic Recovery: Hearing of the U.S. Cong. J. Econ. Comm.*, 117th Cong. (Apr. 14, 2021) (statement of Dr. Alexander Tabarrok), [https://www.jec.senate.gov/public/\\_cache/files/49745904-fe8d-4aca-bd5c-cf1723f9495f/tabarrok-jec-testimony-2.pdf](https://www.jec.senate.gov/public/_cache/files/49745904-fe8d-4aca-bd5c-cf1723f9495f/tabarrok-jec-testimony-2.pdf) [https://perma.cc/5AG3-SJ4U]; see also Juan Camilo Castillo, *Market Design to Accelerate COVID-19 Vaccine Supply*, 371 SCIENCE 1107, 1108 (2021) (estimating that an increase in annual vaccine production capacity of 1 billion courses—if achieved by July 2021—would avert an estimated \$576 billion in losses).

<sup>84</sup> See Vanda Felbab-Brown, *Preventing Pandemics Through Biodiversity Conservation and Smart Wildlife Trade Regulation*, BROOKINGS INST. (Jan. 25, 2021), <https://www.brookings.edu/research/preventing-pandemics-through-biodiversity-conservation-and-smart-wildlife-trade-regulation> [https://perma.cc/UJS5-HHUM].

<sup>85</sup> See Sigal Samuel, *The Meat We Eat Is a Pandemic Risk, Too*, VOX (Aug. 20, 2020), <https://www.vox.com/future-perfect/2020/4/22/21228158/coronavirus-pandemic-risk-factory-farming-meat> [https://perma.cc/JPV9-XCHH].

<sup>86</sup> See Bill & Melinda Gates, *Our 2021 Annual Letter: The Year Global Health Went Local*, GATESNOTES (Jan. 27, 2021), <https://www.gatesnotes.com/2021-Annual-Letter> [https://perma.cc/V2ZK-ZXT7].

cushion the economic blow of international travel restrictions in the event of an outbreak.<sup>87</sup>

At first glance, the Internationalist approach might seem like it dominates the alternatives. Virtually all of us would prefer to solve the problem of pandemics through cooperation rather than through mass surveillance or long lockdowns. It is, at the very least, almost certainly worth a try. But the Internationalist approach, like the others, comes with significant drawbacks.

First and foremost, the Internationalist approach might fail. Indeed, the Internationalist approach probably will fail. It will be very difficult to curtail wild animal markets abroad or even to shut down factory farms here at home. International intervention might slow the pace of habitat encroachment but won't bring it to a halt. And a global alert system aimed at early detection of an outbreak still might not sound the alarm early enough. Reports from France and Italy suggest that SARS-CoV-2 reached Europe in November 2019,<sup>88</sup> or potentially even earlier,<sup>89</sup> before reports of a mysterious pneumonia-like illness in Wuhan began to mount.<sup>90</sup> If that is the case, then shutting down travel out of China in late 2019 or early 2020 might not have protected other regions from COVID-19.

Second, while the choice to pursue an Internationalist approach seems easy, the actual implementation of that strategy will entail difficult tradeoffs. For example, the United States may want to impose economic sanctions on another country in response to human rights violations. But our leverage may be limited if our pandemic prevention strategy depends upon every country's cooperation. Hopefully, countries will be able to avoid issue linkage and will continue to cooperate on pandemic prevention even as tensions over other subjects boil. Yet it is also possible that our pursuit of a united global front against future pandemics will require us to sacrifice other foreign policy priorities.

To be clear, the moral and strategic case for U.S. leadership in the effort to vaccinate the world against COVID-19 is overwhelmingly strong, and the case for U.S. leadership in the global effort to avert a

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<sup>87</sup> On economic incentives for the disclosure of infectious-disease outbreaks, see generally Ramanan Laxminarayan et al., *Incentives for Reporting Infectious Disease Outbreaks*, 46 J. HUM. RES. 176 (2011).

<sup>88</sup> See Fabrice Carrat et al., *Evidence of Early Circulation of SARS-Cov-2 in France: Findings from the Population-Based "CONSTANCES" Cohort*, 36 EUR. J. EPIDEMIOLOGY 219 (2021).

<sup>89</sup> See Giovanni Apolone, *Unexpected Detection of SARS-Cov-2 Antibodies in the Prepandemic Period in Italy*, TUMORI J., Nov. 11, 2020, <https://journals.sagepub.com/doi/pdf/10.1177/0300891620974755> [<https://perma.cc/LD23-YYTX>].

<sup>90</sup> See James P. Horsley, *Let's End the COVID-19 Blame Game: Reconsidering China's Role in the Pandemic*, BROOKINGS INST. (Aug. 19, 2020), <https://www.brookings.edu/blog/order-from-chaos/2020/08/19/lets-end-the-covid-19-blame-game-reconsidering-chinas-role-in-the-pandemic> [<https://perma.cc/V6QU-EGH3>].

future pandemic is powerful too. But a plan that rests on the premise that we can prevent another pandemic or contain it very quickly is, at least from today's vantagepoint, utopian. Utopian visions still may be worth pursuing—and this one almost certainly is. But if we go down the Internationalist path, we ought to do so with an understanding that we still need a Plan B.

## V. EARLY VACCINATION

A fourth future—and probably the brightest of all—relies on the medical miracle of mRNA vaccines. While it took nearly a year for Moderna and Pfizer-BioNTech to obtain emergency use authorizations from the U.S. Food and Drug Administration (FDA) for their mRNA vaccines, the design of the vaccines didn't take very long at all. Moderna, in tandem with the National Institutes of Health (NIH), designed its mRNA-1273 vaccine over two days in January 2020 after Chinese scientists released the SARS-CoV-2 genetic sequence.<sup>91</sup> Pfizer and BioNTech selected four mRNA candidates for human testing in April.<sup>92</sup> Significantly shortening the time lag between vaccine design and deployment could have saved hundreds of thousands of lives in the United States and many more abroad.

The first step toward that goal is to accelerate production. Producing a single dose of an mRNA vaccine soup to nuts now takes more than a month. The key steps along the way—duplicating DNA, converting DNA to mRNA, putting synthesized mRNA into a fatty envelope, and testing for sterility—each require a week or more.<sup>93</sup> Pfizer said in February 2021 that it had cut its production time down to sixty days;<sup>94</sup> Moderna reported that it was able to ship its first batch of vaccines to the NIH forty-two days after sequence selection.<sup>95</sup> Even in the best-case

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<sup>91</sup> See Noah Weiland et al., *Moderna Vaccine Is Highly Protective Against Covid-19, the F.D.A. Finds*, N.Y. TIMES (Dec. 15, 2020), <https://www.nytimes.com/2020/12/15/health/covid-moderna-vaccine.html> [<https://perma.cc/J7KM-UP8X>].

<sup>92</sup> See Jared S. Hopkins, *How Pfizer Delivered a Covid Vaccine in Record Time: Crazy Deadlines, a Pushy CEO*, WALL ST. J. (Dec. 11, 2020), <https://www.wsj.com/articles/how-pfizer-delivered-a-covid-vaccine-in-record-time-crazy-deadlines-a-pushy-ceo-11607740483> [<https://perma.cc/6T2L-3C2U>].

<sup>93</sup> See Jared S. Hopkins et al., *mRNA Covid-19 Vaccines Are Fast to Make, but Hard to Scale*, WALL ST. J. (Mar. 3, 2021), <https://www.wsj.com/articles/mrna-covid-19-vaccines-are-fast-to-make-but-hard-to-scale-11614776401> [<https://perma.cc/NA3C-ULQL>].

<sup>94</sup> See Isaac Stanley-Becker & Christopher Rowland, *Vaccine Makers Pfizer and Moderna Pledge Massive Boost to U.S. Supply After Sluggish Rollout*, WASH. POST (Feb. 23, 2021), <https://www.washingtonpost.com/health/2021/02/23/vaccine-distribution-pfizer-moderna> [<https://perma.cc/DHR6-HW3J>].

<sup>95</sup> See Press Release, Moderna, Inc., *Moderna Provides Updates on the Clinical Development and Production of Its COVID-19 Vaccine Candidate* (Dec. 3, 2020), <https://investors.modernatx.com/news-releases/news-release-details/moderna-provides-updates-clinical-development-and-production-its> [<https://perma.cc/X95Y-SYMR>].

scenario, where we have a vaccine ready at the very beginning of the outbreak, there will be a time lag before shots are ready to enter arms.

And that doesn't yet account for the biggest obstacle to rapid vaccination: the clinical trial process. Typically, the clinical trial process consists of a phase one study focusing on safety, a phase two study focusing on efficacy, and a large randomized controlled phase three trial. The NIH-Moderna team finalized the sequence for its mRNA vaccine on January 13, 2020 and then entered phase one on March 16, phase two on May 29, and phase three on July 27.<sup>96</sup> Florian Krammer, a prominent vaccinologist, has suggested that vaccine developers could speed up the beginning of this process by designing vaccines now for representative strains of virus families with the greatest pandemic potential.<sup>97</sup> By testing the safety of these vaccines in phase one studies and assessing immune responses in phase two, researchers potentially could be ready to go straight into phase three once an outbreak strikes.<sup>98</sup> In that case, Moderna might have been ready to launch its phase three trial as early as late February or March 2020.

The launch of a phase three trial is an important step along the way to mass vaccination, but it is not the end of the road. We still will need to wait for patients in the phase three trial to develop antibodies. And after that, we will need to wait until enough patients in the control group have contracted the disease so that we can draw cross-group comparisons. Much-debated human challenge trials—in which young and healthy volunteers are deliberately exposed to the virus—could possibly accelerate the process somewhat, but human challenge trials involving young and healthy volunteers won't tell us much about efficacy for older populations. Krammer envisions a very optimistic scenario in which vaccine rollout on a wide scale starts three months after a virus sequence is published.<sup>99</sup> In the COVID-19 context, that likely would not have been soon enough to avert the first wave of the pandemic in the United States in spring 2020.

Beyond the concern that even very early vaccination might not come early enough to avoid significant loss of life, the early vaccination approach encounters the additional obstacle of vaccine hesitancy. As of March 2021, according to a Kaiser Family Foundation survey, 13 percent of U.S. adults said they definitely did not want to get a COVID-19

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<sup>96</sup> See *id.*; Stephanie Soucheray, *Phase 3 Trial for Moderna COVID-19 Vaccine Begins Amid US Summer Surge*, CTR. FOR INFECTIOUS DISEASE RSCH. & POL'Y (July 27, 2020), <https://www.cidrap.umn.edu/news-perspective/2020/07/phase-3-trial-moderna-covid-19-vaccine-begins-amid-us-summer-surge> [<https://perma.cc/GC5H-DM73>].

<sup>97</sup> Florian Krammer, *Pandemic Vaccines: How Are We Going to Be Better Prepared Next Time?*, 1 MED 28, 29 (2020).

<sup>98</sup> See *id.* at 30.

<sup>99</sup> See *id.* at 31.

vaccine, and an additional 17 percent said they would “wait and see.”<sup>100</sup> These numbers might decline as Americans learn more about the safety and efficacy of the FDA-authorized vaccines. But they might well rise if a new vaccine springs onto the market three months after a faster-than-ever-before trial process. Federal- or state-level vaccine mandates might be one way to cut through that reluctance, but mandating vaccination would be an uncomfortable—even if constitutional<sup>101</sup>—policy option in the context of a vaccine that has passed through a much-accelerated testing process.

The bottom line for the Early Vaccination approach, as with the Internationalist approach, is that it almost certainly ought to be one among several strategies pursued. That means not only investing in research and development of vaccines against known strains, but also investing in outreach to the vaccine hesitant. Both of these challenges—developing a vaccine in a span of three months, and then convincing reluctant Americans to take it—are tall orders. There is no assurance that the United States and the rest of the world will be able to deploy a safe and effective vaccine early enough in a pandemic to avert a catastrophic death toll, but we are virtually assured to fail if we don’t try.

## VI. CONCLUSION

Experiences of other countries during the COVID-19 pandemic suggest that the outbreak of a lethal and highly transmissible infection need not lead ineluctably to the massive loss of life. Countries that implemented the Mass Surveillance and Fortress strategies have fared dramatically better than the United States, with death rates that are a tiny fraction of our own. Replicating their successes in the United States, though, is not straightforward. In particular, cultural constraints complicate the implementation of a Mass Surveillance strategy here, and geographic factors make it more difficult for the United States to adopt the Fortress approach.

The Internationalist and Early Vaccination strategies seem more appealing, and they are, but they are also far from foolproof. The notion that global cooperation will nip the next outbreak in the bud echoes the utopianism of the League of Nations movement a century ago. Perhaps COVID-19 will be the pandemic to end all pandemics, but much could go wrong that would dash that hope. The techno-optimism underlying

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<sup>100</sup> See *KFF COVID-19 Vaccine Monitor*, KAISER FAMILY FOUND., <https://www.kff.org/coronavirus-covid-19/dashboard/kff-covid-19-vaccine-monitor-dashboard> [https://perma.cc/AFJ8-XYCP] (last visited Apr. 23, 2021).

<sup>101</sup> On the constitutionality of state-level vaccine mandates, see *Jacobson v. Massachusetts*, 197 U.S. 11 (1905). A federal-level vaccine mandate would raise novel questions regarding the scope of Congress’s interstate commerce powers.

the Early Vaccination approach seems somewhat better supported in light of recent mRNA breakthroughs, but even in the best-case scenario, it is hard to see how early vaccination could have saved us from COVID-19's first wave. One risk is that the theoretical possibility of the Internationalist and Early Vaccination approaches—which seem to involve smaller sacrifices—will deter us from taking the steps necessary to make the Mass Surveillance and Fortress strategies work. Ultimately, a diversified portfolio of pandemic responses dominates any single one.