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*Independent Task Force Report No. 78*

# Improving Pandemic Preparedness

*Lessons From COVID-19*

Sylvia Mathews Burwell and Frances Fragos Townsend, *Chairs*  
Thomas J. Bollyky and Stewart M. Patrick, *Project Directors*

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# FOREWORD

In the past six months, COVID-19 has upended our lives to an extent few imagined. At the time this report went to print in early September 2020, the virus had already infected at least twenty-five million people around the world, killing over 846,000, numbers that almost certainly underestimate the extent of the toll. And they will continue to mount. The pandemic has also triggered the biggest economic collapse since the Great Depression. As the Task Force rightly asserts, we are living amid the “worst global catastrophe since World War II.”

During the early stages of the pandemic, valuable time was lost because of China’s dissembling over the nature of the virus, the extent to which it had spread within its borders, and its failure to lock down the country. A number of statements made by the World Health Organization (WHO) made a bad situation worse. But while all this helps explain how a local outbreak became a pandemic, it is far from the whole story. What is striking is that once COVID-19 went global, national performances greatly diverged. Some democracies have successfully contained the virus while others have struggled; the same holds for authoritarian systems. Some relatively high-income countries are faring much worse than their lower-income counterparts. The single most important determinant, it turns out, has been the quality of political leadership and execution.

The United States testifies to the consequences of a failure in political leadership. A country with just over 4 percent of the world’s population now accounts for one-quarter of the world’s known cases and more than 20 percent of attributed deaths. Thirty million Americans are unemployed, while U.S gross domestic product fell 9.5 percent in the second quarter of 2020, the largest quarterly decline in the nation’s history.

The Task Force correctly concludes the United States was “unprepared for COVID-19” and its response was “deeply flawed.” Once COVID-19 reached American shores, the federal government did not mobilize a national response, instead leaving it to states to largely figure it out for themselves. The administration failed to communicate a consistent, science-based message, instead politicizing mask-wearing. It did not develop a nationwide system for the sort of testing that would have made a difference—testing that provides quick, accurate results where the test is administered—and neglected to build the capacity to conduct contact tracing. The eventual response, which attempted to balance public health concerns with economic considerations, resulted in worse outcomes across both dimensions. The Task Force diplomatically concludes “the nation and its leaders could—and should—have done much better.”

While we are still living amid the pandemic, and are likely to remain so for some time to come, we can already identify important lessons that must be applied so that the United States and the world are better prepared for future waves of this pandemic and the next one—and there will be a next one. The Task Force puts forward a host of policy prescriptions that we would be wise to adopt. Most fundamentally, the authors emphasize the need to recognize the threat infectious diseases pose to the United States, make pandemic preparedness a national security priority on par with national defense, and organize and invest accordingly. The authors also recommend that the United States reform the Centers for Disease Control and Prevention, clarify federal and state authorities and roles for pandemic response, create a nationwide strategy for testing and contact tracing, and take steps to enhance the resilience of medical supply chains. Without such reforms, the authors



warn, “any future pandemic response will be no better than the current, muddled performance, with high human and economic costs.”

In addition to proposing domestic reforms, the Task Force rightly points out that “the national and international dimensions of the pandemic are mutually reinforcing and cannot be considered in isolation.” In the short run, the report calls for establishing a global framework to ensure the equitable allocation of vaccines. Over the longer term, the authors propose numerous reforms to multilateral institutions, urging the United States to lead these efforts. This would entail rejoining WHO and working within the organization to enhance its effectiveness. Recognizing that even a strengthened WHO would be unable by itself to lead an effective pandemic response, the Task Force advocates that the United Nations assume a more prominent role and that the United States spearhead the creation of a flexible international coalition to mobilize the economic, security, and private-sector response to pandemic threats. The authors further propose that the United States help establish a global epidemic surveillance and forecasting capacity that makes global health security much less dependent on the transparency of early affected states and the risk assessments of the WHO Emergency Committee. The Task Force recommends that the United States partner with other nations and international finance institutions to assist lower-income countries in coping with the current pandemic and improving their pandemic preparedness capabilities. These are all worthwhile endeavors, but I would hope the United States would also consider backing the establishment of an autonomous watchdog group that would report on compliance with the International Health Regulations, the international legal foundation for global health security, given the real possibility that any group associated with the UN system will not be willing to challenge powerful member countries.

It is important also to think about what COVID-19 tells us about the world in which we live. The pandemic is a textbook manifestation of globalization. What happened in Wuhan did not stay in Wuhan. This virus does not respect any borders. Additional global health challenges will continue to present themselves, as will other risks associated with globalization, from climate change to cyberthreats and terrorism. In recent years, much attention has been devoted to U.S.-China relations, which is understandable, but what makes this era different is that international order will not simply be a function of greater power dynamics but will also reflect the world’s ability to come together to meet global challenges.

What is so remarkable, then, is that the response to this global crisis has been almost entirely national. There is little international cooperation and coordination occurring. The United States failed to catalyze a collective response through either WHO, the Group of Twenty, Group of Seven, or the UN Security Council. Countries are closing borders, hoarding medical equipment, and competing to develop a vaccine. The looming question is what will happen once a vaccine is discovered: who will get access to it, and how will it be shared? We don't yet know what will win out: vaccine nationalism or multilateralism. Many lives and countries depend on the answer, even if the vaccine is unlikely to be the panacea that many hope it will be.

This is a serious, authoritative report that deserves a wide and careful reading. I would like to thank the Task Force chairs, Sylvia Burwell and Fran Townsend, for their leadership of this critical project. My thanks extend to all the Task Force members and observers for similarly lending their knowledge and experience, especially when their time is in such high demand. This report would not have been possible without CFR's Tom Bollyky and Stewart Patrick, who directed the Task Force and coauthored this report, and CFR's Independent Task Force Program Director Anya Schmemmann, who ably guided this project. They too have earned our thanks for truly operating at warp speed to produce this report.

**Richard N. Haass**

*President*

Council on Foreign Relations

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**Thomas J. Bollyky**  
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*INDEPENDENT  
TASK FORCE REPORT*

# *EXECUTIVE SUMMARY*

The United States and the world were caught unprepared by the COVID-19 pandemic despite decades of warnings of the threat of global pandemics and years of international planning. The failure to adequately fund and execute these plans has exacted a heavy human and economic price. Hundreds of thousands of lives have already been lost, and the global economy is in the midst of a painful contraction. The crisis—the greatest international public health emergency in more than a century—is not over. It is not too early, however, to begin distilling lessons from this painful experience so that the United States and the world are better positioned to cope with potential future waves of the current pandemic and to avoid disaster when the next one strikes, which it surely will.

This CFR-sponsored Independent Task Force report seeks to do just that, framing pandemic disease as a stark threat to global and national security that neither the United States nor the world can afford to ignore again. It argues that future pandemic threats are inevitable and possibly imminent; policymakers should prepare for them and identify what has gone wrong in the U.S. and multilateral response. One of the most important lessons of this pandemic is that preparation and early execution are essential for detecting, containing, and rapidly responding to and mitigating the spread of potentially dangerous emerging infectious diseases. As harmful as this coronavirus has been, a novel influenza could be even worse, transmitting even more easily, killing millions more people, and doing even more damage to societies and economies alike.

This Task Force proposes a robust strategy consisting of critical institutional reforms and policy innovations to help the United States and the world perform better. Although there is no substitute for

effective political leadership, the recommendations proposed here would if implemented place the nation and the world on a firmer footing to confront humanity's next microbial foe.

The Task Force presents its findings grouped into three sections: the inevitability of pandemics and the logic of preparedness; an assessment of the global response to COVID-19, including the performance of the World Health Organization (WHO), multilateral forums, and the main international legal agreement governing pandemic disease; and the performance of the United States, while also drawing lessons from other countries, including several whose outcomes contrast favorably with the U.S. experience.

*Preparation can mitigate the effects of pandemics.*

- Pandemics are not random events. Outbreaks of well-known infections and new diseases occur regularly. These outbreaks can spread easily on this interconnected planet and impose significant human and economic costs, making preparedness imperative. Since the 1990s, successive U.S. administrations, as well as other governments and international organizations, have acknowledged this reality. In the United States, this recognition has been reflected in multiple national security strategies and intelligence assessments, blue-ribbon commissions, and simulation exercises that anticipated many of the challenges the world encountered in 2020.
- The Task Force finds that U.S. and global efforts to prepare for the inevitability of pandemics provided the illusion—but not the reality—of preparedness. Despite a succession of previous global public health



emergencies, the United States and other governments failed to invest adequately in prevention, detection, and response capabilities to protect the populations most vulnerable to infectious disease outbreaks, or to fulfill their multilateral obligations to international organizations and to one another. The COVID-19 pandemic laid bare these failures in global and U.S. domestic preparedness and implementation, exposing important lessons that had not been learned, critical initiatives left unfunded, and solemn obligations that had not been met.

- The Task Force finds that early action and investment in preparedness have mattered in this pandemic. In the early stages, a diverse group of nations was prepared to respond rapidly and aggressively to COVID-19 with public health fundamentals, including testing, contact tracing, isolating, and clear, science-based risk communication to the public. Others, including the United States, were not.

*Multiple obstacles thwarted an effective multilateral response.*

- The pandemic revealed troubling shortcomings in multilateral arrangements for global health security, including a lack of coordination across nations and a breakdown of compliance with established norms and international agreements, notably the International Health Regulations (IHR), the main international agreement governing dangerous disease events.
- The Task Force finds that primary responsibility for these weaknesses can be laid at the feet of national governments, which remain torn between their desire for effective global health governance and their resistance to expanding the authorities, funding, and capacities of WHO and other international agencies. Rising geopolitical competition—particularly between the United States and China—further frustrated multilateral cooperation at the Group of Twenty (G20), the Group of Seven (G7), and the UN Security Council.
- The Task Force assesses China’s compliance with its reporting and information-sharing obligations under IHR as at best flawed, particularly in the early days of the outbreak, when transparency was most important. As in other recent outbreaks, WHO prioritized solidarity in its international crisis response, proving hesitant to criticize China publicly over these flaws and to declare a public health emergency of international concern (PHEIC) over China’s objections.

- The Task Force finds that WHO has the mandate and expertise to lead global epidemic and pandemic response but that it is beleaguered, overstretched, and underfunded. WHO prompted China to notify the world of the outbreak of the SARS-CoV-2 virus and has successfully supported international coordination of many technical aspects of the COVID-19 challenge, particularly in low-income nations. Yet WHO also cannot ensure that many member states comply with IHR obligations and fails to constructively coordinate with the private sector. The WHO Emergencies Program is under-resourced and lacks surge capacity. The COVID-19 experience confirms that WHO has an important leadership role in the health aspects of public health emergencies but lacks the geopolitical heft to address the broader diplomatic, economic, and security implications of pandemics. The U.S. decision to pull out of WHO, if it occurs as scheduled in July 2021, threatens to make the agency's leadership role even more precarious and the United States even more vulnerable to future pandemics.

*The U.S. performance in this pandemic was deeply flawed.*

- The Task Force assesses the U.S. performance during the COVID-19 pandemic as deeply flawed. The United States has declared pandemics to be a national security threat but has not acted or organized itself accordingly. The federal government lacks a strong focal point and expertise at the White House for ensuring pandemic readiness and coordinating an effective response. Despite intelligence and public health warnings of an imminent pandemic, the United States did not act quickly enough in mobilizing a coherent nationwide response, wasting precious weeks that could otherwise have been used to implement a nationwide strategy and capacity for testing and contact tracing to identify new infections and reduce their spread. These failures had grievous economic and health consequences, forcing states, localities, and employers to resort to blunt interventions, including imposing severe limits on human movement and shuttering businesses and public places. Without clear federal guidance, many states relaxed these public health measures prematurely, resulting in new spikes.
- The Task Force finds that the United States compounded these early mistakes with other unforced errors on public health risk communication. Elected U.S. officials, including President Donald J. Trump himself, often fell short as communicators, failing to offer the American people clear, reliable, and science-based information about the risk of

infection; to adequately defend public health officials against harassment and personal attacks; and to release timely guidance on the utility of the public health measures implemented to combat the spread of the disease.

- The pandemic also exposed the nation's inadequate investment in state and local health systems, many of which were quickly overwhelmed. The failure to maintain an adequate Strategic National Stockpile (SNS)—and to clarify the rules governing its use—led to shortages of essential medical supplies and competition among states over scarce medical equipment. More generally, COVID-19 revealed tremendous confusion over the respective responsibilities of federal, state, local, and tribal governments, resulting in blame-shifting and an incoherent U.S. approach to this public health emergency.
- The COVID-19 pandemic has also revealed the lack of coordination in U.S. and global pandemic preparedness and response in three areas. It has illustrated the risks of overdependence on a single nation, such as China, for essential medicines and medical equipment in a global pandemic. It has exposed the lack of a multilateral mechanism to encourage the joint development and globally equitable distribution of lifesaving vaccines, therapeutics, and diagnostics. Finally, it has revealed the limitations of existing national and global systems of epidemic threat surveillance and assessment, which left public health officials and researchers without access to timely data.

The coronavirus pandemic has spread to nearly every nation, caused a global economic recession, and, as of August 31, 2020, killed more than 850,000 people worldwide. As harmful as COVID-19 has been, a future pandemic of novel influenza could be even more catastrophic, killing millions more people and destabilizing governments and economies alike. To prevent that possibility, the United States and other nations need to learn from their recent, costly mistakes.

This Task Force organizes its recommendations into four sections. We first outline a comprehensive and coordinated strategy and propose new infrastructure and investments to advance pandemic preparedness in the United States and abroad. We then organize the remaining recommendations for responding to the hard lessons learned in this pandemic according to the three fundamental elements of pandemic preparedness: prevention, detection, and response.

*Treat pandemic preparedness as a serious national and global security threat—and invest accordingly.*

- The United States should finally treat pandemics as a serious national security and economic threat by translating its rhetoric into concrete action. The Task Force recommends that the president designate a White House senior official as a focal point for global health, including for pandemic preparedness and response. The secretary of state should designate an ambassador-level official to help coordinate the U.S. diplomatic response to international public health emergencies, in support of the Department of Health and Human Services (HHS), including through U.S. chiefs of mission abroad. The U.S. government should also initiate a review of the responsibilities for pandemic preparedness and response among public health authorities at the federal, state, local, and tribal level, so that U.S. federalism is an asset rather than a liability to achieving U.S. health security.
- In parallel with these domestic reforms, the Task Force recommends that the United States revamp its current approach to pandemic preparedness and response internationally. To start, the United States should remain a member of WHO, working with other nations to strengthen it from within. The UN agency is not a perfect institution, but no multilateral substitute exists to advance U.S. interests in the current pandemic or the next one. The United States should collaborate with other member states to ensure adequate, dedicated funding for WHO's Health Emergencies Program.
- To coordinate diplomatic, economic, and security responses to future pandemics and additional waves of the current one, the Task Force recommends that the United Nations establish a permanent global health security coordinator. This UN coordinator, reporting directly to the UN secretary-general, should be charged with leading a coherent response to global health threats across the UN system, supporting any activity by the Security Council in pandemic response, and maintaining direct links to the leadership of the International Monetary Fund (IMF), World Bank, World Trade Organization (WTO), and other relevant multilateral forums, such as the G20 and G7. WHO should maintain its lead role in mobilizing UN and international collaboration on the health-related aspects of pandemic emergencies.

- UN infrastructure alone will not resolve the geopolitical gridlock that has undermined effective pandemic preparedness and response, nor will it help mobilize more private-sector participation. Accordingly, this Task Force recommends that the United States spearhead the establishment of a Global Health Security Coordination Committee to better mobilize and harmonize broader multilateral economic and emergency responses to pandemic threats. Such a flexible coalition, based on a core of like-minded states but open to critical input from civil society and private-sector actors, would allow national ministers to focus on practical matters, such as coordinating trade policies on essential medical supplies; removing barriers to scientific and technical collaboration; increasing equitable access to vaccines, diagnostics, and therapeutics; and working with international financial institutions to assist hard-hit countries and to help incentivize countries to invest in future pandemic preparedness. A senior WHO representative and the UN special coordinator should serve as technical advisors to the committee.
- The Task Force calls on the executive branch to request and Congress to appropriate funds for a comprehensive health security budget that is commensurate with the pandemic threats the United States faces and that reflects the professional judgment of U.S. public health officials. This federal funding should include increased money for global and domestic epidemiological threat surveillance and assessment, pandemic preparedness at state and local hospitals, the SNS, assistance for vulnerable countries around the world, and pandemic response capabilities of WHO and other essential multilateral agencies, and it should exempt critical budget line items from any future budget caps and sequesters.
- The Task Force further recommends that Congress appoint an independent commission to review the Centers for Disease Control and Prevention's (CDC) record during the initial months of the pandemic, identify obstacles to the CDC's effectiveness, and consider how it could do better in the future, including on surveillance, data transparency, and capacity to scale up nationwide testing and tracing.

*Adopt strategies for better prevention.*

- The leading metrics of pandemic preparedness have not been good predictors of performance during the current pandemic, and many countries were not ready to implement the capacities they had. It is often said

that what gets measured gets done, but the opposite is also true. Countries need to understand where their preparedness gaps are in order to rectify them to better prevent future outbreaks from evolving into pandemics. The Task Force recommends that the United States work with WHO, the Africa CDC, and other international partners to revamp national preparedness capacity assessments and pair them with strategies to promote readiness and implementation. The objective should be to generate community mitigation guidelines and pandemic response triggers so that national and local policymakers have a roadmap for early, targeted, and coordinated implementation of surveillance, non-pharmaceutical interventions, and measures to reinforce medical and public health capacities.

- This pandemic has exposed the failure of the United States to invest adequately in the public health of the U.S. population or to provide sufficient protections to marginalized, at-risk, and underserved groups to prevent outbreaks from accelerating into epidemics. The Task Force recommends that the United States adopt a national policy establishing and enforcing pandemic readiness standards for hospitals and health systems and ensuring that these institutions respect and promote health equity. The CDC, in collaboration with states and localities, should make it standard practice to collect and share data on the vulnerability of specific populations, most notably Black Americans, Native Americans, Latinx Americans, low-income families, and the elderly, to pandemic disease. The U.S. federal, state, and local governments should craft strategies, programs, budgets, and plans for targeted public health investments that increase the resilience of these communities, as well as nursing home residents and essential workers. The Task Force considers this a matter of both social justice and global and U.S. health security.

#### *Improve detection of epidemic threats.*

- COVID-19 has revealed the downsides of relying on a weak IHR system that does not motivate governments to promptly report and share timely, relevant information about public health risks. The Task Force recommends that WHO member states establish an IHR review conference to discuss how to improve member states' compliance with IHR, increase information sharing and transparency, and enhance the competence and consistency of WHO's Emergency Committee when advising on the declaration of PHEICs.

- The current pandemic also demonstrates the inherent vulnerability of an international system of pandemic detection that relies so heavily on the transparency, judgment, and discretion of individual national governments. The Task Force thus recommends that the United States work with other governments and civil society partners to build and integrate national and global epidemic surveillance systems. This voluntary, international sentinel surveillance network should incentivize health-care facilities around the world to regularly share hospitalization data, using anonymized patient information, to improve the availability and reliability of early epidemic threat surveillance and to enable rapid identification, characterization, and tracking of emerging infectious diseases. This data should feed into an integrated global disease surveillance data and assessment platform, created under the auspices of the Health Security Coordination Committee. It should share the results of its assessments with participating government agencies and relevant nongovernmental organizations and raise the alarm over any unusual trends with the UN coordinator, WHO, and the general public. Within the United States, the CDC is the logical home for such a consolidated epidemic threat surveillance and forecasting office.

*Strengthen U.S. and global pandemic response.*

- No factor undercut the early U.S. response to COVID-19 more than the lack of a comprehensive, nationwide strategy and capability for testing, tracing, and isolation. To avoid a reoccurrence of those failures in future pandemics, the Task Force recommends that the United States immediately develop and adequately fund a coherent national strategy and capability to support testing and contact tracing by states and localities, following CDC guidance, that can be rapidly scaled up in any public health emergency, including by leveraging the latest digital technologies, incentivizing research and development of diagnostics such as low-cost rapid tests, and training tens of thousands of contact tracers.
- The United States cannot afford to have public health messages muddled or discounted because they are couched in partisan messaging that seeks to downplay or exaggerate the dangers the country faces or the precautions needed to address these threats. The Task Force calls on all U.S. public officials to accept, as a critical dimension of successful pandemic preparedness and a fundamental obligation of their positions, the responsibility of communicating with the American people in a clear, transparent, and science-based manner. This should include

increased reliance on public health experts—including from the CDC, HHS, National Institutes of Health, Food and Drug Administration (FDA), and other technical agencies—to provide briefings and timely guidance to the American people.

- To ensure that the nation possesses sufficient quantities of essential medicines and equipment in an urgent public health emergency (whether a pandemic or bioterror event), the executive branch and Congress should work together to ensure that the Strategic National Stockpile is appropriately resourced and stocked for future pandemics, and that there is no confusion between federal and state governments as to its purpose. In an extended pandemic crisis, the SNS system should be prepared to act as a central purchasing agent on behalf of state governments.
- In parallel with this step, the United States should use incentives to diversify its global supply chains of critical medical supplies and protective equipment for resilience and reliability, without unduly distorting international trade and running afoul of WTO commitments. This approach could include pursuing emergency sharing arrangements among close U.S. partners and allies and strengthening multilateral regulatory cooperation among major producer nations to ensure common standards and quality control, especially during emergencies. The FDA should produce regular updates on supply chain vulnerabilities.
- Finally, the Task Force urges the United States to support multilateral mechanisms to develop, manufacture, allocate, and deliver COVID-19 vaccines, therapeutics, and diagnostics in a globally fair manner consistent with public health needs. Absent such global coordination, countries have been bidding against one another, driving up the price of vaccines and related materials. The resulting arms race threatens to prolong the pandemic, generate resentment against vaccine-hoarding nations, and undermine U.S. economic, diplomatic, and strategic interests. The Task Force recommends that the United States work with political leaders from countries representing the majority of global vaccine-manufacturing capacity to support the Coalition for Epidemic Preparedness Innovations (CEPI); Gavi, the Vaccine Alliance; and WHO in developing a globally fair allocation system that can be expanded for potential use in future pandemics.



The only certain thing is that when this pandemic is brought under control, another will eventually take its place. Pandemic threats are inevitable, but the systemic U.S. and global policy failures that have accompanied the spread of this coronavirus were not. This report is intended to ensure that in future waves of the current pandemic and when the next pandemic threat occurs, the United States and the world are better prepared to avoid at least some of the missteps that have cost humanity so dearly. Although the recommendations in this report stand on their own, the Task Force stresses that the national and international dimensions of the pandemic challenges are mutually reinforcing, above all when it comes to the role of the United States. If the COVID-19 pandemic has revealed anything, it is that strong and sustained U.S. global leadership remains essential.

# INTRODUCTION

On December 31, 2019, the World Health Organization (WHO) contacted China about media reports of a cluster of viral pneumonias in Wuhan, later attributed to a coronavirus, now named SARS-CoV-2. By January 30, 2020, scarcely a month later, WHO declared the virus to be a public health emergency of international concern (PHEIC)—the highest alarm the organization can sound. Thirty days more and the pandemic was well underway; the coronavirus had spread to more than seventy countries and territories on six continents, and there were roughly ninety thousand confirmed cases worldwide of COVID-19, the disease caused by the coronavirus.

The COVID-19 pandemic is far from over and could yet evolve in unanticipated ways, but one of its most important lessons is already clear: preparation and early execution are essential in detecting, containing, and rapidly responding to and mitigating the spread of potentially dangerous emerging infectious diseases. The ability to marshal early action depends on nations and global institutions being prepared for the worst-case scenario of a severe pandemic and ready to execute on that preparedness before that worst-case outcome is certain.

The rapid spread of the coronavirus and its devastating death toll and economic harm have revealed a failure of global and U.S. domestic preparedness and implementation, a lack of cooperation and coordination across nations, a breakdown of compliance with established norms and international agreements, and a patchwork of partial and mishandled responses. This pandemic has demonstrated the difficulty of responding effectively to emerging outbreaks in a context of growing geopolitical rivalry abroad and intense political partisanship at home.

Pandemic preparedness is a global public good. Infectious disease threats know no borders, and dangerous pathogens that circulate unabated anywhere are a risk everywhere. As the pandemic continues to unfold across the United States and world, the consequences of inadequate preparation and implementation are abundantly clear. Despite decades of various commissions highlighting the threat of global pandemics and international planning for their inevitability, neither the United States nor the broader international system were ready to execute those plans and respond to a severe pandemic. The result is the worst global catastrophe since World War II.

The lessons of this pandemic could go unheeded once life returns to a semblance of normalcy and COVID-19 ceases to menace nations around the globe. The United States and the world risk repeating many of the same mistakes that exacerbated this crisis, most prominently the failure to prioritize global health security, to invest in the essential domestic and international institutions and infrastructure required to achieve it, and to act quickly in executing a coherent response at both the national and the global level.

The goal of this report is to curtail that possibility by identifying what went wrong in the early national and international responses to the coronavirus pandemic and by providing a road map for the United States and the multilateral system to better prepare and execute in future waves of the current pandemic and when the next pandemic threat inevitably emerges. This report endeavors to preempt the next global health challenge before it becomes a disaster.

# *A Rapid Spread, a Grim Toll, and an Economic Disaster*

On January 23, 2020, China's government began to undertake drastic measures against the coronavirus, imposing a lockdown on Wuhan, a city of ten million people, aggressively testing, and forcibly rounding up potential carriers in makeshift quarantine centers.<sup>1</sup> In the subsequent days and weeks, the Chinese government extended containment to most of the country, sealing off cities and villages and mobilizing tens of thousands of health workers to contain and treat the disease. By the time those interventions began, however, the disease had already spread well beyond the country's borders.

SARS-CoV-2 is a highly transmissible emerging infectious disease for which no highly effective treatments or vaccines currently exist and against which people have no preexisting immunity. Some nations have been successful so far in containing its spread through public health measures such as testing, contact tracing, and isolation of confirmed and suspected cases. Those nations have managed to keep the number of cases and deaths within their territories low.

More than one hundred countries implemented either a full or a partial shutdown in an effort to contain the spread of the virus and reduce pressure on their health systems. Although these measures to enforce physical distancing slowed the pace of infection, the societal and economic consequences in many nations have been grim. The supply chain for personal protective equipment (PPE), testing kits, and medical equipment, such as oxygen treatment equipment and ventilators, remains under immense pressure to meet global demand.

If international cooperation in response to COVID-19 has been occurring at the top levels of government, evidence of it has been scant, though technical areas, such as data sharing, have witnessed some notable successes. Countries have mostly gone their own ways, closing

borders and often hoarding medical equipment. More than a dozen nations are competing in a biotechnology arms race to find a vaccine. A proposed international arrangement to ensure timely equitable access to the products of that biomedical innovation has yet to attract the necessary support from many vaccine-manufacturing nations, and many governments are now racing to cut deals with pharmaceutical firms and secure their own supplies.

As of August 31, 2020, the pandemic had infected at least twenty-five million people worldwide and killed at least 850,000 (both likely gross undercounts), including at least six million reported cases and 183,000 deaths in the United States. Meanwhile, the world economy had collapsed into a slump rivaling or surpassing the Great Depression, with unemployment rates averaging 8.4 percent in high-income economies. In the second quarter of 2020, the U.S. gross domestic product (GDP) fell 9.5 percent, the largest quarterly decline in the nation's history.<sup>2</sup>

Already in May 2020, the Asia Development Bank estimated that the pandemic would cost the world \$5.8 to 8.8 trillion, reducing global GDP in 2020 by 6.4 to 9.7 percent. The ultimate financial cost could be far higher.<sup>3</sup>

The United States is among the countries most affected by the coronavirus, with about 24 percent of global cases (as of August 31) but just 4 percent of the world's population. While many countries in Europe and Asia succeeded in driving down the rate of transmission in spring 2020, the United States experienced new spikes in infections in the summer because the absence of a national strategy left it to individual U.S. states to go their own way on reopening their economies. In the hardest-hit areas, U.S. hospitals with limited spare beds and intensive care unit capacity have struggled to accommodate the surge in COVID-19 patients. Resource-starved local and state public health departments have been unable to keep up with the staggering demand for case identification, contact tracing, and isolation required to contain the coronavirus's spread.

# *A Failure to Heed Warnings*

This failing was not for any lack of warning of the dangers of pandemics. Indeed, many had sounded the alarm over the years. For nearly three decades, countless epidemiologists, public health specialists, intelligence community professionals, national security officials, and think tank experts have underscored the inevitability of a global pandemic of an emerging infectious disease. Starting with the Bill Clinton administration, successive administrations, including the current one, have included pandemic preparedness and response in their national security strategies. The U.S. government, foreign counterparts, and international agencies commissioned multiple scenarios and tabletop exercises that anticipated with uncanny accuracy the trajectory that a major outbreak could take, the complex national and global challenges it would create, and the glaring gaps and limitations in national and international capacity it would reveal.

The global health security community was almost uniformly in agreement that the most significant natural threat to population health and global security would be a respiratory virus—either a novel strain of influenza or a coronavirus that jumped from animals to humans.<sup>4</sup> Yet, for all this foresight and planning, national and international institutions alike have failed to rise to the occasion.

## Significant Reports, Commissions, and Milestones on Pandemic Preparedness

- Institute of Medicine, Microbial Threats to Health (1992)
- National Intelligence Estimate, The Global Infectious Disease Threat and Its Implications for the United States (2000)
- Launch of the U.S. Global Health Security Initiative (2001)
- Institute of Medicine, Microbial Threats to Health: Emergence, Detection, and Response (2003)
- Revision of the International Health Regulations (2005)
- World Health Organization, Global Influenza Preparedness Plan (2005)
- Homeland Security Council, National Strategy for Pandemic Influenza (2005)
- U.S. Department of Health and Human Services, National Health Security Strategy of the United States of America (2009)
- U.S. Director of National Intelligence, Worldwide Threat Assessments (2009–19)
- World Health Organization, Report of Review Committee on the Functioning of the International Health Regulations (2005) in Relation to Pandemic (H1N1) 2009 (2011)
- Pandemic and All-Hazards Preparedness Reauthorization Act of 2013
- Launch of the Global Health Security Agenda (2014)
- Blue Ribbon Study Panel on Biodefense (now Bipartisan Commission on Biodefense) (2015)
- National Security Strategy (2017)
- National Biodefense Strategy (2018)
- Crimson Contagion Simulation (2019)
- Global Preparedness Monitoring Board, A Work at Risk: Annual Report on Global Preparedness for Health Emergencies (2019)
- CSIS Commission, Ending the Cycle of Crisis and Complacency in U.S. Global Health Security (2019)
- U.S. National Health Security Strategy, 2019–22 (2019)
- Global Health Security Index (2019)

# FINDINGS

COVID-19 has confirmed the U.S. and global vulnerabilities that were repeatedly identified in high-level reports, commissions, and intelligence assessments on pandemic threats for nearly two decades prior to this pandemic. COVID-19 has underscored several truths about pandemics and revealed important shortcomings in current global and national capacities to prepare for, detect, and respond to them. This pandemic will not be the last one that the United States or the world faces. To better prepare for the next crisis, and future waves of the current one, the United States will need to devote considerable political capital and economic resources to reducing the domestic and global vulnerabilities that jeopardize individual, national, and global health security.

In this first half of this report, the Task Force presents its major findings grouped into three sections: the inevitability of pandemics and the logic of preparedness; the global response to COVID-19, including the performance of WHO, multilateral forums, and the main international legal agreement governing pandemic disease; and the performance of the United States, also drawing lessons from other countries, including several whose outcomes contrast favorably with the U.S. experience.



# *The Inevitability of Pandemic Threats and the Logic of Preparedness*

Pandemics of emerging and reemerging infectious diseases are inevitable, predictable, and costly.

Pandemics are not random events. Pandemics afflict societies through the established relationships that people have created with the environment, other animal species, and each other. The precise timing and location of the coronavirus outbreak that led to this pandemic were difficult to predict, but the emergence of a novel respiratory virus and the threat it would pose to urbanized nations with extensive travel links and underfunded public health systems were not.

Outbreaks of well-known infections and encounters with new diseases occur regularly.<sup>5</sup> Global population growth and greater encroachment of settlements, agriculture, and mining activities into animal habitats in forested areas make the occurrence of zoonoses—viruses jumping from animals to humans—more frequent than in the past (see figure 1).<sup>6</sup> More than forty new infectious diseases in humans have emerged in these past few decades.<sup>7</sup> At the same time, overuse of existing drugs and underinvestment in new ones produce drug-resistant strains of fungi, protozoa, and bacteria, making routine medical care more dangerous.

These outbreaks of emerging and treatment-resistant pathogens can easily cross national boundaries, given increases in global trade, faster travel, rapid urbanization, and rising global temperatures (resulting in warmer, more vector- and virus-friendly climates).<sup>8</sup> The world is 74 percent urban: 5.4 billion people live in urbanized areas.<sup>9</sup> The United

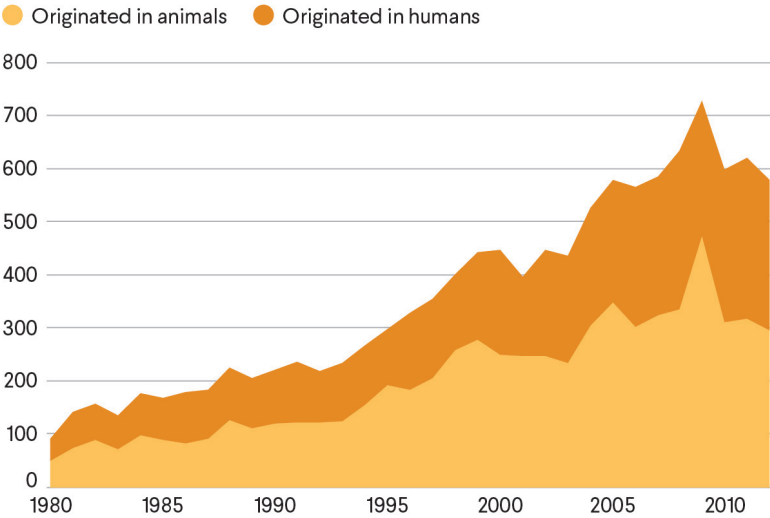
Nations estimates that of the nearly 1.5 billion city dwellers added worldwide since 2000, 90 percent live in lower-income countries. Emerging infectious diseases, such as Ebola, are less likely to burn out in rural villages and more likely to reach the crowded cities that are hubs for commerce, travel, and migration but have limited health systems—ideal incubators for outbreaks. Previous reports have found that many microbes are transmissible before infected individuals exhibit symptoms and could travel far and spread without the knowledge of the infected person.<sup>10</sup> In this era of jet travel, with more than 1.4 billion international tourist arrivals each year, new pathogens, such as SARS-CoV-2, can easily hitch a ride on an unwitting human traveler to anywhere in the world in a matter of hours.

As barriers to the global spread of infectious disease are diminishing, multiple factors are increasing societies' vulnerabilities to emerging and treatment-resistant pathogens. These factors include aging populations, rising numbers of immunocompromised individuals and people living with noncommunicable diseases such as diabetes and chronic respiratory diseases, persistent underfunding of public health systems, widespread adoption of just-in-time supply chains for critical medical supplies, an inability of hospitals to accommodate patient surges, and persistent gaps in adequate health protections for elderly, marginalized, and vulnerable groups.<sup>11</sup>

Infectious agents have demonstrated an ability to ravage populations, overwhelm health systems and economies, and destabilize governments since antiquity.<sup>12</sup> In 2002, the coronavirus causing severe acute respiratory syndrome (SARS) emerged in China and spread to nearly thirty nations, eventually infecting 8,098 people and killing 774 of them, and causing \$40 billion in economic losses worldwide in

*Figure 1. OUTBREAKS OF INFECTIOUS DISEASES HAVE INCREASED*

Total global human infectious disease outbreaks by year



Source: Smith et al., *Journal of the Royal Society Interface*.

six months.<sup>13</sup> Since SARS, the world has been repeatedly rocked by epidemic and pandemic scares, including H5N1 flu outbreaks (2007), the influenza A (H1N1) flu pandemic (2009), the Ebola virus epidemic in West Africa (2013–16), the Zika epidemic in the Americas (2015–16), and the Ebola virus epidemic, again, in the Democratic Republic of Congo (DRC) (2018 to the present). The World Bank estimates that in 2015 the Ebola virus epidemic, in addition to infecting more than twenty-eight thousand and killing eleven thousand people, took \$2.2 billion from the combined GDP of Guinea, Liberia, and Sierra Leone, and more than \$3.6 billion was spent globally to fight the disease.<sup>14</sup> The 2015 outbreak of 153 cases of Middle East respiratory syndrome (MERS), another coronavirus, cost South Korea an estimated \$10 to \$13 billion.<sup>15</sup>

Even before recent outbreaks, history had already shown that the societal and economic disruption from a pandemic of a novel respiratory disease could be horrific. In 1918, a lethal influenza strain killed tens of millions of people worldwide. Premature deaths that occur in

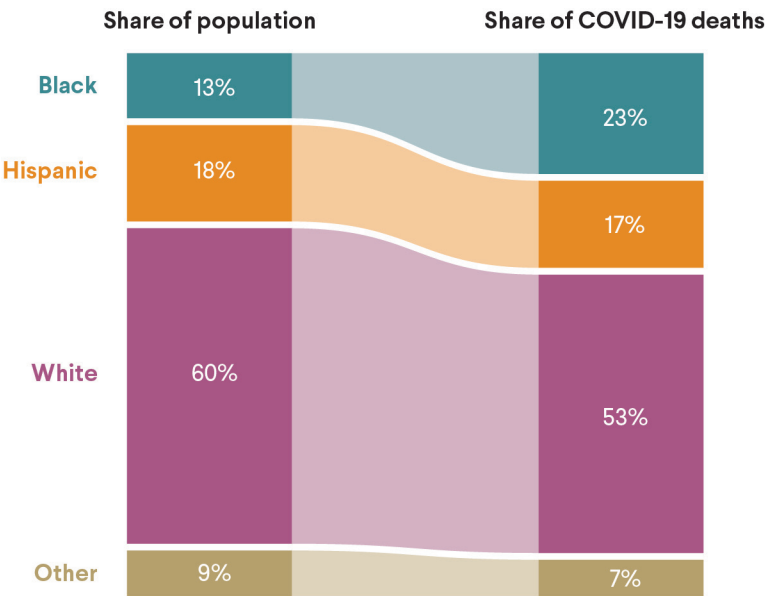
pandemics of that magnitude can significantly reduce the size of labor forces. Widespread, serious illness also leads to increased absenteeism and reduced productivity. In addition, the treatment, mitigation, and control measures taken to contain and suppress the spread of easily transmissible viruses stress already resource-constrained health-care systems. A 2005 study by the Congressional Budget Office estimated that a severe pandemic could, in the United States alone, infect two hundred million people, leave ninety million clinically ill, and kill two million, resulting in a 5 percent decrease in GDP and total U.S. economic costs of \$675 billion, as well as a 3 to 6 percent decline in global output.<sup>16</sup>

The COVID-19 pandemic has confirmed many of these previously identified systemic risks and vulnerabilities. In the weeks before the Chinese government began restricting movement of its domestic population on January 23, millions traveled to and from the city of Wuhan, China, including thousands of infected individuals. Their destinations spanned the globe. Researchers estimate that 86 percent of infections among those travelers went undocumented.<sup>17</sup> A genetic analysis demonstrates that most of the COVID-19 cases in New York City arrived from Europe rather than China, underscoring the rapid spread of the virus.<sup>18</sup>

Acute shortages of critical drugs and PPE, much of which are made in China and other initially hard-hit areas in Asia, have occurred not just in the United States, but also around the world.<sup>19</sup> Lack of international cooperation and deteriorating relations among major powers threaten to undermine the global development and equitable distribution of safe and effective vaccines, therapeutics, and diagnostics for the novel coronavirus.

Pandemics of infectious disease have disparate effects on elderly, low-income, marginalized, and other vulnerable populations within societies. In the current pandemic, infection and mortality rates have been highest among nursing home residents and Black, indigenous, and Latinx communities, especially those inadequately served by the U.S. health-care system and bearing the brunt of socioeconomic disparities.

Figure 2. BLACK AMERICANS ARE OVERREPRESENTED IN COVID-19 DEATHS



Notes: Data is as of July 1, 2020. Hispanic is an ethnicity considered separately from race. The Black, White, and Other categories include non-Hispanic individuals only.

Source: Centers for Disease Control and Prevention.

Health outcomes have been considerably worse for those older than sixty-five and with comorbidities such as diabetes and chronic kidney diseases, but the virus has also spread disproportionately among vulnerable and marginalized populations who are inadequately served by the U.S. health-care system and lack sufficient social protections. Transmission rates have been higher among workers designated as *essential*, including those in health care, food service, and public transportation, as well as those with crowded living and working conditions for whom social distancing is not possible.<sup>20</sup> More broadly, nursing homes, prisons, meatpacking plants, homeless shelters, and psychiatric or developmental care facilities represent nearly all of the one hundred largest clusters of COVID-19 cases that occurred in the United States between January and May 2020.<sup>21</sup> As of August 13, more

than four hundred thousand residents and employees had been infected in nursing homes and other long-term care facilities, leading to more than sixty-eight thousand fatalities—more than 40 percent of the total deaths from the virus in the United States.<sup>22</sup> Residential care facilities in New Jersey, New York, and Pennsylvania were particularly hard hit.

In addition, COVID-19 causes the most severe illnesses in people with preexisting medical conditions such as high blood pressure, diabetes, obesity, and cardiovascular diseases. According to estimates from the Centers for Disease Control and Prevention (CDC), hospitalizations were six times higher and deaths twelve times higher among those with reported underlying medical conditions, compared to those with none reported.<sup>23</sup> Such underlying conditions are more prevalent among vulnerable and economically disadvantaged groups and racial and ethnic minorities with inadequate access to nutrition, health care, and a clean environment, helping explain why these populations have suffered so disproportionately from the pandemic.

In the United States, Black Americans have been among the hardest hit (see figure 2). They make up 13.4 percent of the U.S. population but, as of July 1, 2020, nearly 23 percent of the deaths from COVID-19. The disparity and the toll are even greater in cities and counties where Black Americans represent a larger share of the population than the national average. The COVID-19 infection rate is three times higher in predominantly Black counties than in predominantly white ones, and the mortality rate is six times higher.<sup>24</sup> In cities, such as Chicago, or states, such as Louisiana, Black Americans represent less than one-third of the population but more than two-thirds of the deaths from the disease. Other racial and ethnic minority groups have also been disproportionately affected by COVID-19. In some states, Latinx Americans have more than four times the expected rate of infection based on their share of the population.<sup>25</sup> In New Mexico, Native Americans make up about 11 percent of the population but account for 32 percent of COVID-19 cases.<sup>26</sup>

*Investment in international preparedness was consistently too low.*

Investment in preparedness is cost effective compared to the high costs of an uncontrolled pandemic, yet international and domestic investments in pandemic preparedness have been consistently low relative to the societal and economic risk of dangerous disease events.

The early evidence suggests that investments in preparedness have mattered during this pandemic. Having learned from its experience with an outbreak of MERS in 2015, South Korea was better prepared than most countries when COVID-19 arrived. South Korea has an infectious disease surveillance system in place that provides investigation and incident management guidelines for a number of different types of infectious diseases. Early, widespread testing, tracing, and isolation of cases, along with evidence-based government advisories on physical distancing, were crucial to getting the disease under control.

South Korea confirmed its first case of COVID-19 on January 20, within a day of the United States. South Korea tested three times as many citizens per capita as the United States, kept reported cases to roughly eleven thousand, and maintained a COVID-19 mortality rate 2.5 times lower than that of the United States in the early months of the outbreak. When confronting a case involving an individual who traveled to multiple night clubs in a single evening in May, South Korea conducted more than sixty-five thousand tests in the area in a week, uncovering 170 infections and stopping the outbreak. Thanks to its pandemic preparedness, the South Korean government not only contained the virus but also managed to avoid applying the stringent lockdowns seen in other countries, such as China, France, Italy, and the United Kingdom.

South Korea was not alone in achieving such success. Diverse nations such as Canada, Germany, New Zealand, Norway, Rwanda, Taiwan, and Vietnam have so far managed a robust, rapid response to the pandemic. In many cases, these countries responded with public health fundamentals: aggressive tracing, isolating, and testing *contacts*, people whom confirmed or suspected carriers could have encountered before realizing they were, in fact, SARS-CoV-2 carriers. A common

factor among many, but not all, of these earliest responding nations was having direct experience with previous outbreaks such as SARS or MERS or a higher level of endemic infectious disease.

The world, however, cannot afford to wait for nations to learn from experience whenever a novel pathogen emerges. As Nobel Laureate Joshua Lederberg once aptly wrote, “The microbe that felled one child in a distant continent yesterday can reach yours today and seed a global pandemic tomorrow.”<sup>27</sup>

The virtual inevitability and high potential toll of future pandemics make investments in preventive and mitigatory measures both sensible and cost effective. The amount required to prevent and mitigate such incidents pales in comparison to their costs. A National Academy of Medicine commission estimated in 2016, for example, that increasing global expenditures on pandemic preparedness by \$4.5 billion per year—a negligible fraction of global output—would provide substantial safety increases.<sup>28</sup>

WHO defines pandemic preparedness as “having national response plans, resources, and the capacity to support operations in the event of a pandemic.” Preparedness includes prevention, detection, and containment measures, as well as programs that respond to and mitigate issues that arise from the spread of pandemics, such as PPE shortages, limited hospital capacity, and acquisition of vaccines and other countermeasures. The International Health Regulations (IHR), a binding international agreement revised in 2005 and signed by 196 state parties, includes rules related to identifying and sharing critical information about epidemics and maintaining core capacities to prevent, detect, and respond to dangerous disease events.

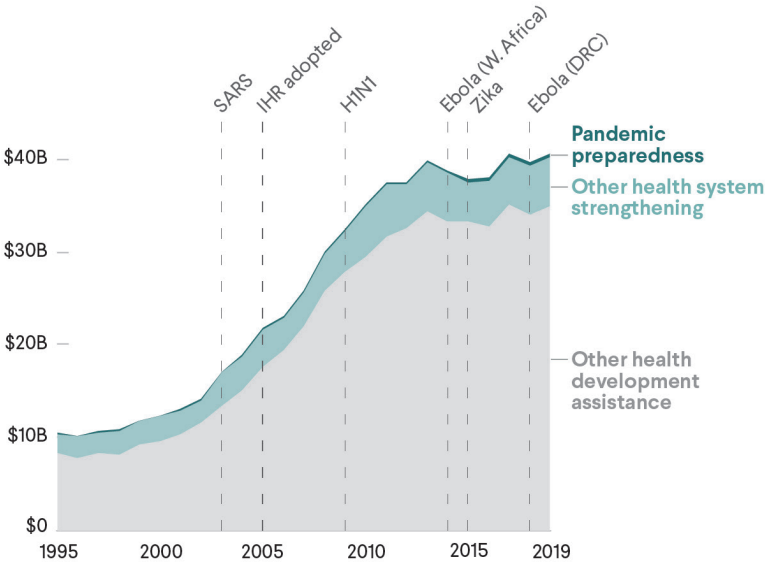
These efforts cost money. To expect nations such as DRC or Somalia, which have total government spending across all sectors of less than \$100 per person, to contribute equally to these critical global health security investments is of course unrealistic. Even in high-income countries such as the United States, however, mobilizing sufficient resources to support pandemic preparedness at home or abroad has proved difficult.

Many reports have described support for global pandemic preparedness as prone to the cycle of crisis and complacency, but relative to the economic and health risk, describing funding levels as consistently complacent is more apt. Emerging health threats have claimed many more lives than terrorism but receive nowhere near the global or U.S. funding that counterterrorism efforts do.<sup>29</sup> Despite the adoption of IHR, multiple pandemic threats, and numerous reports



*Figure 3. PANDEMIC PREPAREDNESS REMAINS A SMALL PART OF GLOBAL HEALTH AID, EVEN FOLLOWING OUTBREAKS*

Global development assistance for health (2019 dollars)



Note: Dashed lines indicate the starting year of epidemics and the entry into force of the International Health Regulations, a binding agreement with rules on sharing critical information about epidemic threats and pandemic preparedness capacities.

Source: Institute for Health Metrics and Evaluation.

urging more investment, international assistance for pandemic preparedness has never amounted to more than 1 percent of overall global health assistance (see figure 3).

In 2019, a total of \$374 million in global aid, less than 1 percent of total official development assistance for health, was spent on pandemic preparedness in low- and middle-income nations.<sup>30</sup> Another \$5.2 billion was spent on strengthening health systems, some of which could improve countries' ability to deal with global epidemics, but even this spending has been shrinking. Since 2003, global aid for health system strengthening has fallen from 22 percent to 14 percent of overall annual development assistance for health.

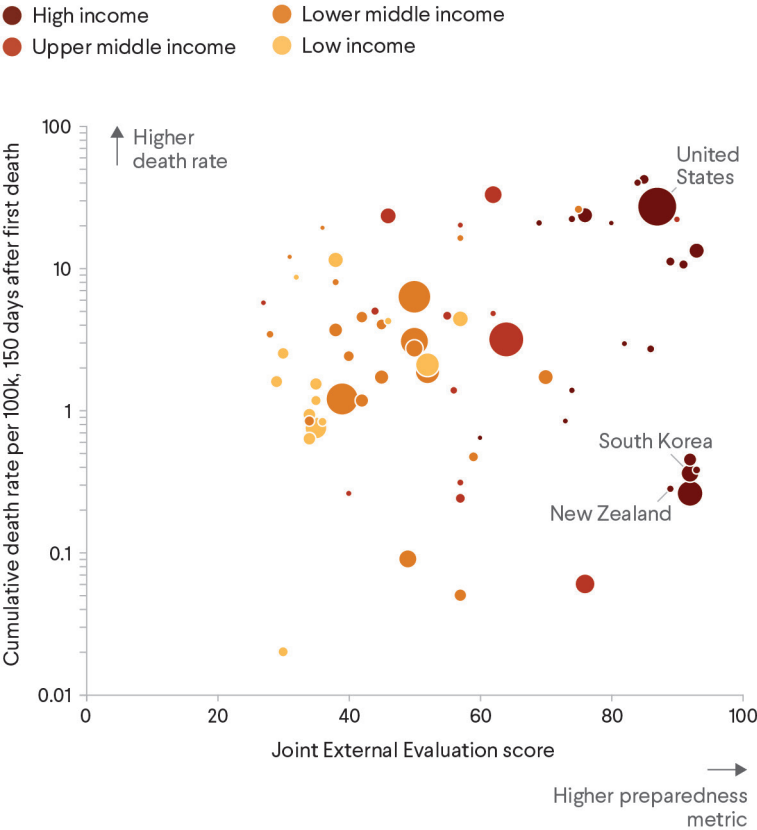
In 2014, the Barack Obama administration, in collaboration with thirty countries and international organizations, launched the Global Health Security Agenda (GHSA). It was designed to elevate the political importance of pandemic preparedness and, during the West Africa Ebola outbreak, was resourced to provide more than \$1 billion in surge funding over five years to build capacity in priority low-income countries and to coordinate action to prevent, detect, and respond to biological threats. Despite congressional attempts to repurpose these funds for a response to the 2016 Zika virus epidemic, the focus on prevention and capacity-building was preserved. Several of the countries that took leading roles in GHSA implementation, including Finland, South Korea, and Uganda, are among the nations that have responded most effectively so far to the coronavirus pandemic.

The Donald J. Trump administration maintained the U.S. commitment to advance the GHSA through 2024 but reduced the funding for international capacity-building and cut the number of U.S. personnel assigned to work with international partners, including in CDC country offices.<sup>31</sup> Overall budget requests for U.S. pandemic preparedness aid have sunk to pre-2014 levels. U.S. pandemic and emerging infectious disease programs have remained on the back burner relative to the attention and funding devoted to cross-border military and terrorist threats.<sup>32</sup>

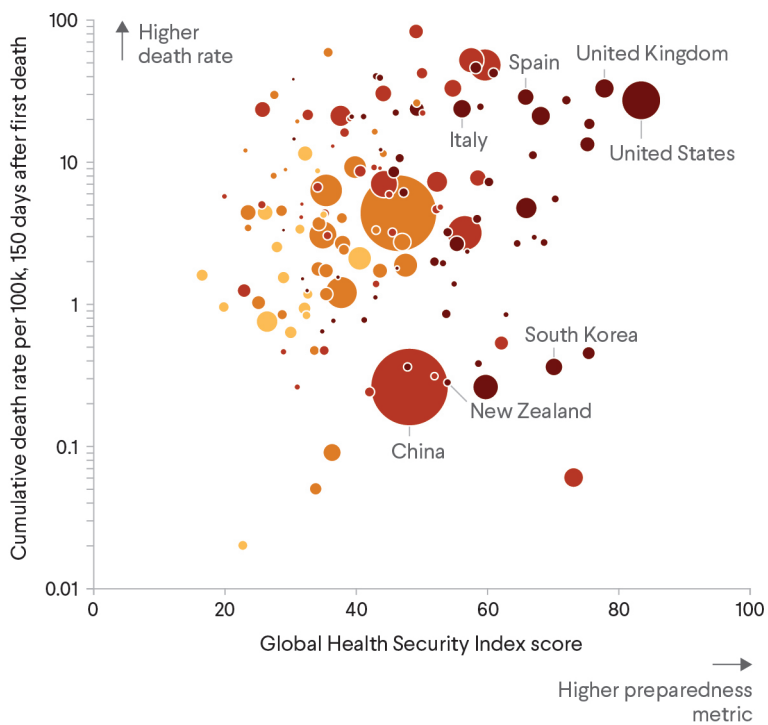
Many other governments have followed the United States' lead in recognizing pathogens as more than public health problems and in failing to provide the resources to match this insight. In 2018, Group of Seven (G7) foreign ministers recognized that epidemic threats deserve the same level of attention as other serious threats confronting their countries, but fewer than half of all nations were in compliance with their IHR core capacity obligations.<sup>33</sup> On four occasions, the G7 has committed to supporting seventy-six countries in building those core capacities but has not monitored countries' limited follow-up on that commitment.<sup>34</sup> Without that monitoring, these multilateral commitments are effectively meaningless.

*Figure 4. PREPAREDNESS METRICS DID NOT PREDICT SUCCESSFUL PANDEMIC RESPONSE*

Higher preparedness metrics generally did not equate to better responses, as many countries with higher indicators of preparedness also had higher death rates.



Notes: Bubbles are sized by population. Joint External Evaluations (JEE) are voluntary processes developed by WHO to monitor countries' implementation of the core capacities under the International Health Regulations. The 2019 Global Health Security (GHS) Index is an assessment and benchmarking tool that measures a country's capacity to rapidly prevent, detect, and respond to the spread of an epidemic. Because COVID-19 is deadlier to older people, an age-standardized death rate is used to account for differences in the average ages across countries.



Sources: Data from Johns Hopkins University, World Health Organization, Global Health Security Index, Global Burden of Disease Study, and World Bank, compiled by Institute for Health Metrics and Evaluation.

*Preparedness metrics were not predictive of success in this pandemic.*

Existing metrics for pandemic preparedness and health system capacity do not reflect the full range of variables, including implementation, that affect a country's response to a severe pandemic.

Much of the attention paid to pandemic preparedness in recent years, including the GHSA, has focused on building up the capacities of low- and middle-income countries for detection, preparedness, and response, on the grounds that global health security is only as strong as its weakest link. Although that principle remains true, COVID-19 surprised the world by having dramatic effects on prosperous countries with relatively modern health-care infrastructure, including China, the United States, and Italy. The experience of this pandemic has demonstrated that readiness capacity remains shockingly low in most nations, and preparedness is insufficient without timely implementation. Even high-income countries were overwhelmed in this pandemic in ways that existing metrics of international preparedness did not anticipate or capture.

In 2010, WHO identified thirteen core pandemic prevention, detection, and response capacities for the purpose of monitoring capacity-building efforts and compliance with IHR obligations. Countries used these core capacities to complete self-assessments and self-reporting to WHO, but these assessments lacked transparency and accountability and were thus not considered representative of the true capacity for health security within countries.

Following the 2013–16 Ebola epidemic in West Africa, WHO developed, in cooperation with the GHSA and with regional consultation, a voluntary Joint External Evaluation (JEE) process to monitor IHR capacities and assess a nation's ability to prevent, detect, and respond to a disease of pandemic potential. More than one hundred nations undertook voluntary JEEs and more than sixty countries developed National Action Plans for Health Security (NAPHSs). The voluntary JEE tool was useful for identifying gaps, but the practical impact of JEEs and NAPHSs on strengthening IHR core capacities has not been apparent in this pandemic.

In 2018, fewer than half of WHO member states were in compliance with their IHR core capacity commitments, and many lacked even rudimentary surveillance and laboratory capacity to detect outbreaks.<sup>35</sup> A May 2020 report of the Independent Oversight and Advisory Committee for the WHO Health Emergencies Program observed no clear relation between JEE scores and country preparedness and response to COVID-19.<sup>36</sup>

The 2019 Global Health Security (GHS) Index includes important and relevant measures for the current pandemic that go beyond the JEE, such as rapid response to and mitigation of the spread of an epidemic, a robust health system to treat the sick and protect health workers, and adherence to norms. As of July 31, the nations that scored among the highest on these and other index measures of pandemic preparedness, such as the United States and United Kingdom, have struggled in their COVID-19 response (see figure 4).<sup>37</sup> Conversely, countries such as Vietnam, which has relatively low JEE and GHS Index scores, so far have been among the most successful in containing the coronavirus pandemic. Indeed, at the time of writing, many of the countries with higher JEE and GHS Index scores have had higher death rates, even when accounting for national differences in population age structure and in the timing of the first COVID-19 death.<sup>38</sup>

# *What Went Wrong Globally*

The ultimate source of the weakness of global governance in preventing, detecting, and responding to international health emergencies resides in sovereign states. National governments remain torn between their desire to have a functioning WHO and their disinclination to provide it with authorities and resources to respond aggressively to outbreaks if doing so were to intrude on national prerogatives and sovereignty. Disease outbreaks are complex events, and no established global mechanism coordinates the diplomatic, economic, health, scientific, security, and surveillance resources needed to mobilize an effective response. This pandemic has been characterized by a patchwork of inadequate domestic responses, a breakdown of compliance with IHR, and a disastrous lack of cooperation and coordination across nations in the multilateral settings where an effective response both to the disease and to its massive economic fallout could have materialized.

*Effective governance of global health security depends on sovereign states.*

IHR, an international agreement dedicated to pandemic preparedness and response, depends on the compliance of states parties to identify and delay or halt the spread of a dangerous novel infection.

In the 2002–2003 SARS outbreak, China’s Ministry of Health was aware for months of a dangerous new type of pneumonia in Guangdong Province before sharing that information with other nations or issuing a nationwide bulletin to hospitals and health professionals on preventing the spread of the disease. That virus spread to twenty-nine countries, sickened thousands of people, and killed 774 before being brought under control in July 2003.

In the wake of this crisis, the World Health Assembly, WHO’s governing body, revised the International Health Regulations in the hopes of preventing another SARS. The revised IHR requires states parties to be transparent; to maintain core capacities to prevent, detect, and respond to outbreaks; and to grant extraordinary powers to WHO. IHR mandates that each state party should notify WHO within twenty-four hours of assessing a serious disease event and continuously communicate to WHO timely, accurate, and sufficiently detailed public health information on the notified event. The WHO director general is empowered to collect information from nongovernmental sources about a potential outbreak and request that states parties verify such information within twenty-four hours. On the basis of information from governmental and nongovernmental sources, the director general can declare an outbreak a public health emergency of international concern, even over the objections of the state or states most directly affected.

The director general can also issue outbreak-specific guidance to inform and influence how other states use trade and travel restrictions, to ensure that those restrictions are science based and do not interfere unnecessarily with international traffic. This trade and travel guidance is nonbinding, but once a PHEIC is declared, the director general must



issue it. Like most international organizations, WHO does not have enforcement powers or investigative capabilities, so it relies on creating incentives for countries to cooperate promptly and fully during crises, including, in the last resort, by naming and shaming.

During the early phase of an emerging novel disease, it is not unusual for national authorities to have an imperfect and evolving scientific understanding of the situation. The current evidence, however, suggests that China's compliance with its IHR obligations was at best flawed, at least in the early days of the outbreak, when transparency was most important.

First, China did not notify WHO in a timely manner of its assessment of the novel coronavirus, though the duration of that delay remains unclear. According to press statements from WHO officials, WHO first learned about the outbreak in Wuhan not directly from Chinese authorities, but rather from press reports posted on December 31, 2019, on the Program for Monitoring Emerging Diseases (ProMED), a U.S.-based open-source platform for early intelligence about infectious disease outbreaks. These press reports concerned an "urgent notice" that the Wuhan Municipal Health Commission issued on December 30, for medical institutions, stating that cases of pneumonia of unknown cause had emerged from the city's Huanan Seafood Wholesale Market. Zhang Jixian, a respiratory doctor in Wuhan, identified those cases between December 26 and 29 and twice reported those cases to local health authorities.<sup>39</sup> Subsequent press reports indicate that the earliest suspected cases began to appear in Chinese hospitals and clinics in early and mid-December.<sup>40</sup> No reports indicate that the Chinese government was aware of any of these earlier cases, but a subsequent analysis in the *Lancet* indicated that the first cases of COVID-19 did not originate at the Huanan Market and date to at least December 1, 2019.<sup>41</sup>

On January 1, 2020, WHO requested verification from China based on the ProMED post, after which China notified WHO of the potentially serious disease event and began sharing information with WHO on January 3. As a recent Congressional Research Service report observes, WHO's first formal statement about the outbreak, on January 5, was vague on how the agency was notified about the virus, indicating that its China Country Office "was informed" of cases of pneumonia of unknown cause in Wuhan on December 31, 2019.<sup>42</sup>

Second, China was slow to share information with WHO and others before January 20, when it began to do so more actively. Indeed, local government officials on January 2 and 3 reportedly threatened and intimidated multiple Chinese health professionals from speaking

or posting on social media about the pneumonia cases.<sup>43</sup> Wuhan Municipal Health Commission issued no updates during a five-day political meeting in the city from January 6 to 10. On January 11, China shared the genetic sequence of the virus with WHO, after it had been posted online by a researcher at Fudan University in Shanghai.<sup>44</sup>

Also on January 11, the Wuhan Municipal Health Commission announced the first death from the virus but stated that it had identified no new infections since January 3, and that no evidence indicated person-to-person transmission or infections among health-care workers.<sup>45</sup> Wuhan medical personnel began falling ill with symptoms similar to their patients' in early January, but Chinese authorities did not officially acknowledge this until January 20.<sup>46</sup> On January 13, Chinese officials told a delegation of health officials from Hong Kong, Macau, and Taiwan that "limited human-to-human transmission cannot be excluded."<sup>47</sup> For the duration of a second major political meeting in the city, January 12 to 17, the Wuhan Municipal Health Commission issued daily updates but reported no new infections. On January 20, reporting a significant increase in COVID-19 cases and several deaths, China's National Health Commission publicly confirmed for the first time that the novel coronavirus was transmissible from person to person and that medical personnel had been infected.<sup>48</sup>

Chinese authorities do not appear to have shared biological samples with WHO or other international partners until January 28, or even possibly later.<sup>49</sup> China's behavior in the early stages of the COVID-19 pandemic widened the cracks in global regimes for information sharing, and its delayed sample sharing undermined international response efforts at a time when specimens were critical for the development and validation of countermeasures.<sup>50</sup> The opacity of the Chinese response in the early weeks of the pandemic sowed diplomatic mistrust, undermining international solidarity at a critical juncture.

Even with perfect transparency and compliance with IHR requirements, it is unclear whether the COVID-19 outbreak could have been fully contained early in China. The evidence does suggest, however, that China's delay in sharing information contributed to the early spread of the virus domestically and internationally. Wuhan's mayor, Zhou Xianwang, has said the decision to go forward with an annual potluck banquet on January 18 in Wuhan's Baibuting neighborhood with more than forty thousand households was "based on the judgment that in this epidemic, transmission between people was limited." A study published in *Nature* estimated that had China implemented widespread testing, created a cordon sanitaire around Hubei, and imposed other

## An Abbreviated Chronology of the Early Outbreak of COVID-19

<b>December 1, 2019</b>	According to a <i>Lancet</i> study published on January 24, the first cases of COVID-19 date to at least December 1, 2019, and did not originate at the Huanan Seafood Wholesale Market.
<b>Late December</b>	Hospitals in Wuhan, China, identify cases of pneumonia of unknown origin.
<b>December 30</b>	The Wuhan Municipal Health Commission issues urgent notices to city hospitals about cases of atypical pneumonia linked to the city's Huanan Seafood Wholesale Market. The notices leak online and are reported in the local press.
<b>December 31</b>	A Chinese media report about the outbreak is posted to ProMED, a U.S.-based open-access platform for early intelligence about infectious disease outbreaks. WHO headquarters in Geneva sees the ProMED post. WHO China Country Office requests verification of the outbreak from China's government.
<b>December 31</b>	The Wuhan Municipal Health Commission issues its first public statement on the outbreak, saying it has identified twenty-seven cases.
<b>January 1, 2020</b>	WHO requests verification of the media reports from China.
<b>January 2–3</b>	Local Wuhan police reportedly reprimand several health professionals, including Dr. Li Wenliang, for spreading allegedly false statements about the outbreak online.

<b>January 3</b>	China notifies WHO of the potentially serious disease event and begins sharing information. Chinese Center for Disease Control and Prevention (China CDC) Director General Gao Fu tells CDC Director Robert Redfield about the outbreak in Wuhan.
<b>January 4</b>	WHO issues first public statement on the outbreak, tweeting, “China has reported to WHO a cluster of pneumonia cases—with no deaths—in Wuhan, Hubei Province.”
<b>January 5</b>	WHO issues formal statement indicating that the China Country Office “was informed” of cases of pneumonia of unknown cause in Wuhan on December 31, 2019.
<b>January 6</b>	HHS Secretary Alex Azar and CDC Director Redfield offer to send CDC experts to China.
<b>January 6–10</b>	Wuhan Municipal Health Commission issues no updates during five-day political meeting.
<b>January 7</b>	China completes genetic sequencing of novel coronavirus later named SARS-CoV-2.
<b>January 11</b>	Fudan University researchers post the genetic sequence of the virus on an open-access platform. China CDC subsequently also posts genetic sequences and shares sequence with WHO.
<b>January 12–17</b>	Wuhan Municipal Health Commission issues daily updates but reports no new infections.

## An Abbreviated Chronology of the Early Outbreak of COVID-19, *Continued*

<b>January 13</b>	China National Health Commission officials tell a delegation of health officials from Hong Kong, Macau, and Taiwan that “limited human-to-human transmission cannot be excluded.”
<b>January 13</b>	Thai authorities confirm the first case of the coronavirus outside China.
<b>January 14</b>	The acting head of WHO’s emerging diseases unit tells a press conference, “It is certainly possible that there is limited human-to-human transmission.” WHO later tweets that preliminary investigations by Chinese authorities “have found no clear evidence of human-to-human transmission.”
<b>January 20</b>	China confirms person-to-person transmission and infections among medical workers.
<b>January 20</b>	Experts from WHO China Country Office conduct a one-day field visit to Wuhan.
<b>January 21</b>	CDC announces the first novel coronavirus case in the United States.
<b>January 23</b>	Wuhan suspends public transportation and bars residents from leaving the city.

measures a week earlier, it would have reduced China's caseload by 66 percent. According to that study, acting three weeks earlier would have cut cases by 95 percent.<sup>51</sup>

From early December until January 23, when China restricted movement, millions of people traveled to and from the city of Wuhan, including thousands who were infected and carried the virus all over the world. For weeks, the global spread went undetected, until January 13, when Thai authorities confirmed the first case of the coronavirus outside China. That first infected individual was a Chinese national who traveled from Wuhan. Nations did not begin imposing travel restrictions against China to stop the spread of COVID-19 until after China restricted domestic movement; the Marshall Islands imposed the first restrictions on travelers from China on January 24.<sup>52</sup>

*WHO lacks authority to enforce IHR and is under-resourced.*

The roles and responsibilities that IHR has assigned to the WHO Secretariat and to member states are neither widely understood nor fit for the purpose of preventing, detecting, and responding to a pandemic. The WHO Emergencies Program is under-resourced and lacks a surge capacity to respond to large-scale emergencies.

The WHO Secretariat's actions are grounded in its duties and responsibilities under IHR. Any evaluation of its performance should consider the limitations of IHR in advancing pandemic prevention, detection, and response and the degree of IHR adherence by member states in their national responses. The COVID-19 experience suggests that WHO lacks sufficient investigative authorities and resources to lead and coordinate coherent international responses to pandemics—in large part because member states are loath to expand those authorities and the budget.

The WHO Secretariat plays a coordinating role and is required to adhere to IHR in its conduct during a novel disease outbreak. It cannot operate in member countries without their permission. WHO lacks independent intelligence-gathering capabilities and cannot compel enforcement of IHR requirements on information sharing and transparency. Although binding on member states, IHR does

not provide the WHO Secretariat with authority to impose sanctions against countries for noncompliance other than publicly cajoling recalcitrant governments. IHR stipulates that it is up to member states to adhere to the regulations, and that the WHO Secretariat could offer assistance, but WHO has limited power, authority, and budget in its own right.

WHO has an expansive global mandate under the WHO constitution but an annual budget of just \$2.4 billion, smaller than some major U.S. hospitals (see figure 5).<sup>53</sup> For the 2018–19 biennium, WHO devoted \$554 million—less than \$300 million per year—to implement its core activities in health emergency management and raised 82 percent of that amount from voluntary contributions.<sup>54</sup> This budget is too modest to carry out all the activities needed to support member states in health emergencies and, at the same time, coordinate a global response to pandemics. The WHO Emergencies Program is currently managing, in addition to the COVID-19 pandemic, the international response to the Ebola epidemic in the Democratic Republic of Congo, health emergencies in Syria and Yemen, and the Rohingya crisis in Bangladesh. The program also responds to hundreds of acute health events globally.

Especially in light of these limited resources, aspects of the WHO response to COVID-19 are worthy of commendation. On December 31, within twenty-four hours of posting press reports of a cluster of pneumonia cases of unknown origin, WHO used that nonstate information to prompt China to issue a notification of the outbreak, in accordance with its IHR authorities. On January 5, WHO published the information it had available on its website and in its first news announcement, and alerted all IHR national focal points of the outbreak. In this regard, IHR worked as designed.

Despite resource limitations, WHO has also successfully supported coordination of many technical aspects of the COVID-19 challenge. On January 9, WHO reported that the mysterious pneumonia illness in China was a novel coronavirus, the same type of pathogen that had caused the early 2000s SARS epidemic. The next day, it issued a comprehensive package of technical guidance with advice to all countries on how to detect, test, and manage potential cases. WHO issued the first situation report on January 21 and since then has updated the latest epidemiological data on a daily basis. On January 23, the organization held an international news conference, confirming a basic picture of the virus that holds up reasonably well today: a novel coronavirus that spreads from person to person, is more transmissible than seasonal

flu, and is much deadlier. Since February 4, WHO Director General Tedros Adhanom Ghebreyesus has provided frequent media briefings. WHO has helped coordinate international research and development for coronavirus vaccines, therapeutics, and diagnostics, including organizing a massive, multicountry “solidarity clinical trial” to assess the most promising treatments.<sup>55</sup>

WHO is advising ministries of health through its country offices and supplying working test kits, masks, and personal protective equipment to low-income countries that request them. When needed, WHO has deployed doctors and scientists as boots-on-the-ground to assess, advise, and implement control strategies in countries with weak health systems, such as Iran and Egypt.

*WHO often defers to affected member states in public health crises.*

WHO prizes solidarity in responding to emergencies and has been reluctant to criticize member states in order to improve cooperation and IHR compliance. WHO has also been slow to declare public health emergencies of international concern in outbreaks and epidemics over the objections of the directly affected member states.

WHO has always depended on cooperation from governments to compensate for its limited resources and authority. Yet, despite not having any authority to do so, then Director General Gro Harlem Brundtland used naming and shaming in the 2002–2003 SARS outbreak to induce cooperation from China, convincing it to share its data with WHO. She accused China of withholding information, claiming that the outbreak could have been contained “if the WHO had been able to help at an earlier stage” and exhorting the Chinese to “let us come in as quickly as possible!”<sup>56</sup> Similarly, despite having no formal power to do so, WHO issued advice against traveling to affected areas after SARS spread to Canada, Hong Kong, and Vietnam.

The 2005 IHR revisions were meant to institutionalize the authorities that Brundtland exercised and ground them within a set of rules. Since the adoption of the revised IHR, however, subsequent directors general have tended to prize solidarity, defer to member states



in crises, and exhibit an increasing reluctance to declare a public health emergency of international concern, the highest level of alarm that WHO is authorized to issue under IHR.

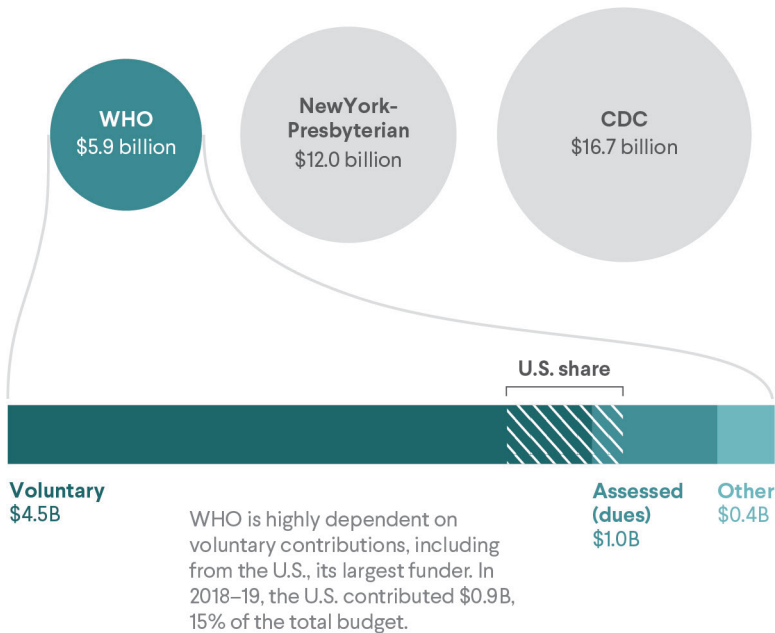
These tendencies are not particular to this pandemic, the current director general, or China. Since the 2009 H1N1 influenza pandemic, in which WHO was criticized for declaring a PHEIC too early, directors general have often been reluctant to declare them. WHO was also criticized in the last two Ebola epidemics for being slow to declare a PHEIC, against the wishes of DRC and the affected West African nations, which are not significant contributors to the WHO budget. In the DRC epidemic, the current director general questioned whether a PHEIC declaration would bring any additional benefits for outbreak response.<sup>57</sup> During the COVID-19 pandemic, WHO has refrained from calling out any nation by name for failing to comply with IHR or follow WHO guidance—on travel bans or anything else.

In the current emergency, WHO's tendency toward deference has manifested itself in some inconsistent communication, a credulous public stance toward Chinese government claims, and unqualified praise for China's response. Internal WHO emails, later leaked to the press, indicate that officials complained during the week of January 6 that China was sharing "very minimal information," hindering assessment of the virus's spread, its risk to the rest of the world, and proper planning to confront it. Yet, WHO officials did not publicize those concerns and instead continued to portray China in the best light, reportedly in hopes of eliciting better cooperation from China.<sup>58</sup> For example, Maria Van Kerkhove, acting head of WHO's emerging diseases unit, acknowledged at a January 14 press conference that "it is certainly possible that there is limited human-to-human transmission." Later that day, reportedly concerned about getting ahead of the Chinese government, WHO tweeted, "Preliminary investigations conducted by the Chinese authorities have found no clear evidence of human-to-human transmission" of SARS-CoV-2.

On January 22, the director general convened the IHR Emergency Committee to address the outbreak of COVID-19. At the time of that meeting, many commentators believed the criteria for a PHEIC had been met: a novel coronavirus had spread to six countries, three hundred cases were reported in China and globally, the Chinese government had confirmed human-to-human transmission, and numerous Asian and Pacific countries had begun to impose airport screening measures on travelers from China.<sup>59</sup> Nevertheless, Emergency Committee members disagreed on whether the outbreak constituted a PHEIC

Figure 5. WHO'S BUDGET IS LIMITED

WHO funding in the 2018–19 funding period compared with NewYork-Presbyterian Hospital and the CDC



Note: NewYork-Presbyterian data is the operating revenue in 2017 and 2018. CDC data is the agency budget authority in 2018 and 2019.

Sources: World Health Organization; ProPublica; U.S. Department of Health and Human Services.

but agreed to reconvene in a matter of days to reexamine the situation. Under IHR, the director general is not required to follow the advice of the Emergency Committee but, as in past epidemics, has consistently done so in this pandemic.

On January 28, the director general traveled to China to assess the situation firsthand. WHO declared the event a PHEIC on January 30. The Emergency Committee reconfirmed human-to-human transmission and recommended comprehensive strategies for country preparedness. The urgency with which member states took action in response to COVID-19 based on the PHEIC designation has varied, both in terms of the timing and the comprehensiveness of public health measures.

Rather than naming and shaming China for delays in sharing information, WHO opted to focus on events after January 20, lauding the extraordinary measures that China took to slow further spread of the outbreak. The “world owes China a great debt,” a WHO official said in late February, suggesting that other nations follow China’s lead in containing the virus.

By late January, the alarms were ringing loudly enough for many Asian nations and territories to move decisively to respond to the coronavirus. Japan, Hong Kong, Singapore, South Korea, Taiwan, and Vietnam all adopted immediate, aggressive public health measures to contain and mitigate the spread of the coronavirus in their communities and health-care systems. Despite having access to the same information, the United States and many European nations responded more slowly, ramping up only after it became apparent that community transmission of the virus was occurring within their borders. The one exception was the issuance of travel restrictions in response to the outbreak in China.

*Most WHO member states disregarded WHO guidance on travel restrictions.*

Few member states complied with the notification requirements for travel restrictions, and many rejected the WHO Secretariat’s shifting guidance on such restrictions during the pandemic.

The WHO Secretariat issued its first COVID-19–related travel advice on January 10, recommending against nations screening travelers upon entry: “It is generally considered that entry screening offers little benefit, while requiring considerable resources.” The guidance also stated, “From the currently available information, preliminary investigation suggests that there is no significant human-to-human transmission, and no infections among health care workers have occurred.”<sup>60</sup> On January 24, WHO updated its travel guidance, still advising against entry screening for travelers but noting that “the majority of exported cases were detected through entry screening.” WHO has repeatedly since softened its technical guidance, advising “that measures to limit the risk of exportation or importation of the disease should be implemented, without unnecessary restrictions of international traffic.”<sup>61</sup>

President Trump has criticized the issuance of WHO travel guidance as “political gamesmanship,” incorrect on the merits, and responsible for delaying other nations from imposing lifesaving travel restrictions to and from China. However, at least forty-five nations had already imposed restrictions on travel to and from China before the U.S. restriction went into force on February 2.<sup>62</sup> As outbreaks spread in Europe and the Middle East, states began widening the scope of their travel restrictions. By March 27, the number of nations that had imposed travel restrictions on one or more countries had increased to 136. Most of these nations failed to notify WHO of the public health rationale and scientific justification for their travel measures until mid-March, long past the forty-eight-hour notification requirement under IHR.<sup>63</sup>

Rules on travel restrictions were included in the revised IHR because, under previous iterations of that agreement, states parties often delayed reporting disease outbreaks to WHO and other nations out of concern that other states would impose unduly strict measures, harming the trade, tourism, and reputation of reporting nations. The new regulations, as revised in 2005, recognize the rights of states parties to implement health-related travel restrictions as long as those measures are based on public health principles and scientific evidence and are not more restrictive of trade and travel than other measures that would achieve the same level of health protection.

Under IHR, the WHO director general can issue guidance on trade and travel measures responding to dangerous disease events and is required to do so after declaring a PHEIC. This guidance is not binding on nations as a matter of international law. However, the widespread adoption of travel restrictions in this pandemic and the failure of member states to notify and explain the reasons for departing from WHO guidance undermines the viability of IHR. If nations do not have confidence that IHR and WHO guidance will restrain nations from imposing unnecessary and unduly strict trade and travel restrictions, those nations could be less likely to report disease outbreaks early in fear of the economic consequences that notification could bring.

Early research and scenario analysis suggest the combination of travel restrictions within China and international travel restrictions against China could have delayed the spread of COVID-19, but were more effective in nations that also used that time to reduce community spread of the virus.<sup>64</sup> Many nations, however, did not do so. During the 2014 Ebola virus epidemic, WHO discouraged travel bans, in part, because of their potential to create “a false impression of control”—

a misperception that the ban was sufficient to stop the spread of disease.<sup>65</sup> The most recent literature on the topic finds limited evidence to support that travel bans helped minimize the spread of four other emerging infections earlier this century, including the coronaviruses MERS and SARS.<sup>66</sup>

*Nations failed to mobilize a multilateral response.*

Much of the responsibility for the weak multilateral response falls on national governments, especially the United States, which often bypassed or ignored WHO and failed to mobilize adequate responses within other critical multilateral forums, including the Group of Twenty (G20), the G7, and the UN Security Council.

Potentially pandemic diseases are a threat to international security, economic prosperity, and global health, but are not treated with sufficient gravity by the multilateral system. There is no established global mechanism charged with coordinating the various diplomatic, economic, health, scientific, security, and surveillance resources needed to mobilize an effective international response to a severe pandemic. What exists instead is a panoply of multilateral institutions, all of which have underperformed in this pandemic, thanks in large part to their member states.

WHO, the ostensible focal point for global health governance, is under siege. Unhappy with its performance, President Trump announced on May 29 that the United States would leave the already beleaguered and resource-strapped agency, depriving it of its most important member and largest funder. Beyond WHO, national governments have failed to use high-level multilateral forums effectively to forge a collective response to COVID-19, due in large part to geopolitical frictions. Strategic rivalry between China and the United States undercut the potential for the G7, G20, and Security Council to provide political direction to the international system, both in orchestrating a robust public health response and in coping with the economic fallout.

The leaders of the G7, representing the world's leading high-income democracies, did not convene until mid-March, in a meeting devoted to little more than information sharing. Later that month, a meeting of G7 foreign ministers dissolved into acrimony amid disputes between the United States and its partners over whether their joint statement should refer to the Chinese origins of the coronavirus. The G20, which comprises the world's most important established and emerging economies, convened to discuss the pandemic for the first time in late March, nearly three months into the crisis, with paltry results. The United States blocked agreement on a joint commitment by the G20 to strengthen WHO's mandate and arm it with additional resources to coordinate the international fight against the disease. The G20 leaders also failed to take several steps that could have expanded global health cooperation, such as lifting export controls on critical medicines, medical supplies, and basic foodstuffs; ending the disruption of supply chains; and agreeing to prioritize the fast disbursement of medicines and vaccines over the rigid protection of intellectual property rights.<sup>67</sup> In mid-April, the group finally agreed to suspend the debt obligations of low-income nations through the end of the year, but the United States rejected a major expansion of International Monetary Fund (IMF) special drawing rights. A planned G20 leaders' meeting later that month collapsed, however, amid continued U.S.-China rancor over WHO.

Even these lackluster efforts, however, outshone the nonexistent response of the UN Security Council, which was paralyzed by geopolitical maneuvering. In March, the United States insisted that any statement from the body mention the Chinese origins of the virus.<sup>68</sup> China, which held the Security Council's rotating presidency, blocked it from considering any resolution regarding the pandemic, arguing that public health matters fell outside the council's "geopolitical ambit." The resulting stalemate prevented the Security Council both from issuing a powerful resolution to mobilize UN agencies and the broader multilateral system and from creating a subsidiary body to provide high-level direction, including to help coordinate the international response in fragile and war-torn states. U.S.-Sino competition helped politicize the pandemic and played a major role in derailing the international response to it. Even during the Cold War, the Soviet Union and the United States worked together to fight polio and smallpox.

The poorly coordinated global response to COVID-19 underscores both a fundamental truth and an inescapable reality. The truth is that

multilateral institutions do not spring magically into life during crises. Their success depends on the enlightened leadership of powerful member states, who should be willing to put their differences aside and mobilize these bodies behind a collective effort. The contrast with the global financial crisis of 2008–2009, during which world powers rose to the occasion, is instructive.<sup>69</sup> The reality is that we live in an age of heightened geopolitical competition that complicates multilateral responses to future pandemics. The return of balance-of-power politics hinders the easy health diplomacy of the immediate post–Cold War years.

# *What Went Wrong Domestically*

The Task Force assesses the U.S. domestic performance in responding to COVID-19 as deeply flawed. Despite having declared the threat of pandemics to be a national security priority for over two decades, the United States was unprepared for COVID-19, having failed to integrate and implement the lessons of earlier epidemics and multiple training exercises, to designate a strong focal point for interagency coordination, to allocate resources commensurate with the magnitude of the threat, or to maintain an adequate Strategic National Stockpile (SNS) and an adequate public health infrastructure.

Once the crisis was upon the country, the federal government and many U.S. states compounded these weaknesses by acting too slowly to mobilize an effective response and adopting ill-conceived and haphazard approaches to balancing public health and economic concerns, which produced suboptimal health outcomes and devastating consequences for the economy. Amid these problems, too many federal, state, and local officials failed to communicate a clear, science-based, consistent message to the U.S. population; to develop a robust nationwide system for testing, tracing, isolation, and quarantine; or to clarify the respective roles of the national, state, and local governments in pandemic response.

The Task Force appreciates that COVID-19, the greatest public health crisis since the Great Influenza of 1918, posed extraordinary challenges to the United States. Nevertheless, the nation and its leaders could—and should—have done much better.



The United States did not act early enough in mobilizing a federal response to COVID-19, and the delay increased both the human and economic toll of the disease.

The Trump administration did not heed multiple warnings from the U.S. intelligence community and WHO of an impending pandemic in early 2020 and was slow to mobilize a vigorous federal response to the virus, despite the pleas of senior U.S. public health officials. Even after WHO declared COVID-19 a public health emergency of international concern, the White House continued to downplay the seriousness of the epidemic during February and into early March, and, other than its imposition of international travel restrictions against China, the administration did not launch a major response to impede and mitigate the domestic spread of the virus until it was well established across the country.

The federal government and many states wasted precious weeks that could otherwise have been used to implement aggressive testing and tracing, social-distancing policies, and isolation, quarantine, and other public health interventions to dampen the rate of new infections. Two prominent epidemiologists estimate that if the government had issued social-distancing guidelines two weeks earlier in March, the United States could have cut death rates by 83 percent in the first months of the pandemic (see figure 6).<sup>70</sup> Had the guidelines been issued just one week earlier, according to these researchers, mortality would have still dropped by 55 percent.<sup>71</sup>

The failure to support travel restrictions with nationwide surveillance and prompt, targeted containment measures on testing, contract tracing, and isolation of infected individuals facilitated the spread of the disease in the United States. It compelled the nation to adopt more drastic and sweeping public health measures to promote physical distancing and suppress the spread of the virus, incurring profound economic dislocation and pain in the process. This pain was compounded in the summer when, following the hasty decision of many U.S. states to relax social distancing and reopen economically, U.S. infection levels spiked again, forcing many state governments to reimpose restrictive measures to mitigate transmission.

## *Lessons were not learned.*

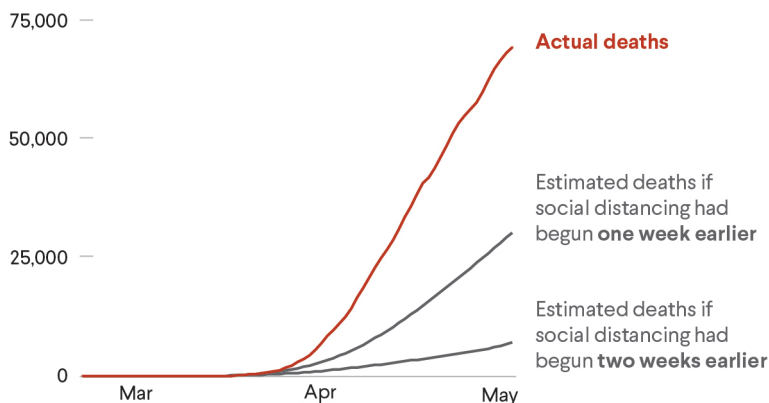
The United States has declared pandemics to be a national security threat but has not acted accordingly, failing to integrate the lessons of past epidemics, multiple crisis simulations, and blue-ribbon reports underscoring the need for pandemic response capabilities, or to organize itself effectively to coordinate such a response.

For more than two decades, through both Republican and Democratic administrations, the U.S. government has explicitly recognized infectious disease as a growing threat to national and international security, a reality reinforced by multiple past epidemics, from SARS to H1N1 to Ebola. The executive branch has drafted numerous detailed strategy documents underscoring these risks, including the George W. Bush administration's National Strategy for Pandemic Influenza (2005) and the Obama administration's National Strategy for Countering Biological Threats (2009) and Executive Order on the Global Health Security Agenda (2016). More recently, the Trump administration issued the National Biodefense Strategy (2018) and Global Health Security Strategy (2019).<sup>72</sup> Congress, meanwhile, has held multiple relevant hearings, including on the reauthorization of the Pandemic and All-Hazards Preparedness Act, first signed into law by George W. Bush in 2006, as well as the quadrennial National Health Security Strategy.<sup>73</sup>

Despite this avowed concern, the Task Force sees a repeated lack of urgency, resources, and political will to prepare the nation for the risks.<sup>74</sup> Rather than developing a standing capacity to prevent, respond to, and mitigate pandemics, the United States has too often paid lip service to readiness, resulting in a pattern of crisis response followed by policy drift. This lack of prioritization is clear in the U.S. federal budget, which devoted \$750 billion to the U.S. military in fiscal year (FY) 2020, but a paltry \$547 million to secure itself from global health security threats of the sort that brought the nation to its knees in early 2020.<sup>75</sup> Breaking this pattern will require elevating pandemics in U.S. national security strategy and making decades-long investments in pertinent resources and institutional structures, rather than reinventing the wheel in response to each new emergency.

*Figure 6. STUDY ESTIMATES THAT IMPOSING LOCKDOWNS ONE WEEK EARLIER COULD HAVE DRAMATICALLY REDUCED DEATHS*

Cumulative COVID-19 deaths in the U.S., February 21 to May 3



Sources: Columbia University; Johns Hopkins University.

Although the specific timing, origin, and epidemiology of COVID-19 were impossible to predict, the U.S. government was well aware of the need for pandemic preparedness. In the years and even months before the current emergency, U.S. government agencies and outside groups organized multiple crisis simulations and issued prominent reports highlighting not only the inevitability of future pandemics but also the multiple public health and other policy challenges such crises would present to the United States.<sup>76</sup> In 2016, the Obama administration sought to distill the lessons learned from the Ebola experience and, in early 2017, prepared for the incoming administration a sixty-nine-page “Playbook for Early Response to High-Consequence Emerging Infectious Disease Threats and Biological Incidents.”<sup>77</sup> From January to August 2019, the Trump administration’s Department of Health and Human Services (HHS) ran an ambitious simulation of a pandemic influenza outbreak in the United States. That scenario, dubbed *Crimson Contagion*, concluded that the national response to such a major public health emergency would be hindered by dangerous gaps in funding and inadequate coordination across government agencies.

Outside government, multiple commissions published reports, including the Bipartisan Commission on Biodefense, the National

Academies of Science, Engineering, and Medicine, and the Center for Strategic and International Studies (CSIS), stressing the need to end the complacency in U.S. pandemic preparedness.<sup>78</sup> The slow and haphazard U.S. response to COVID-19 demonstrated that the United States had failed to internalize these warnings and the lessons of past crises, and to develop the standing capabilities and institutional tripwires needed to galvanize a rapid and integrated government response.

The federal government was poorly organized in early 2020 to coordinate a national pandemic response, an undertaking that requires it to marshal the unique competencies and resources of multiple federal agencies. Experience suggests that the best way to accomplish this goal is to designate a senior official to serve as the focal point for policy coordination within the White House and to charge that person with supervising the design and implementation of a comprehensive, government-wide strategy.

The lack of such a strong central coordinating node in the White House appears to have undercut U.S. performance during the first months of the COVID-19 pandemic. Prior to May 2018, responsibility for coordinating interagency pandemic response fell to the National Security Council (NSC) directorate for Global Health Security and Biodefense. The Trump administration merged that directorate with the counterproliferation directorate, which led to an erosion in expertise and the number of personnel dedicated to global health security at the NSC.<sup>79</sup> At the State Department, the lead for pandemics was assigned to the Office of International Health and Biodefense, a small part of the Bureau of Oceans and International Environmental and Scientific Affairs—the only State Department bureau never to have an assistant secretary nominated by the Trump administration. Lacking a strong focal point in the NSC, the president initially assigned responsibility for coordinating the U.S. government response to a single cabinet department, HHS, before shifting that role to a committee chaired by the vice president, an official with another day job and many other competing demands on his time.

U.S. capacity to monitor and influence health developments in China has also diminished in recent years. The staffing in CDC's China office was cut from forty-seven in 2017 to fourteen, including only three Americans, before the coronavirus outbreak occurred. The bilateral agreement that HHS and the CDC had with the China CDC expired in 2017, and the bilateral protocol between the two nations on sharing information about emerging infectious diseases expired in June 2020.

Although the importance of bureaucratic wiring diagrams is prone to exaggeration, institutional position, staffing, and competencies do matter. Coordinating a whole-of-government response is much more difficult from lower-level department offices than from the beating heart of the executive branch.

*Communications were unclear, inconsistent, and often politicized.*

Communicating clear, credible, and timely information is essential during pandemics. During the first months of the COVID-19 pandemic, U.S. communication campaigns were scattered, inconsistent, and too often politicized rather than grounded in science and public health.

In any public health emergency, the onus is on senior federal, state, and local government officials to communicate with the American people in an honest, transparent, and timely manner about the pertinent pathogen and the danger it poses. The federal government did not meet this obligation in the initial months of the pandemic. President Trump and officials in his administration offered inconsistent opinions about the gravity of the coronavirus, as well as contradictory public health guidance to states, municipalities, and individuals. Administration officials delayed and limited outreach from experts at agencies such as the CDC, which should have been front and center in sharing the latest data and offering timely, unvarnished guidance to the American people.<sup>80</sup> Some state and municipal officials likewise failed to provide consistent messages to the public about the gravity of the threat and the need for evidence-based policy responses.

Within American society more generally, intense ideological divisions often complicated a common understanding among U.S. citizens of the risks of COVID-19 and the most effective strategies to combat it. Individuals and groups retreated to their partisan corners, and the pandemic became a political football. Federal, state, and local public health officials were subjected to harassment and personal attacks.<sup>81</sup> Many people questioned the reality of COVID-19 and the value of basic

measures such as masks and testing, clearly an unacceptable outcome from scientific and public health perspectives.

The experience with COVID-19 underscores the importance of U.S. government officials, from the White House on down, providing U.S. citizens, residents, and visitors with clear, up-to-date, reliable information about the risk of infection and the public health measures needed to combat the spread of the disease. Such education is particularly important given the prevalence of misinformation in the public discourse and its magnification on social media, as well as the dangers posed by foreign state-sponsored information warfare.

Finally, in any pandemic, the government should be prepared to update and fine-tune its public health message as the situation evolves. Mask-wearing provides a case in point. Initially, U.S. public health officials suggested that masks should be reserved for health workers and that only sick members of the general public should wear them. Those officials updated their guidance as evidence emerged on the importance of mask-wearing for reducing community transmission of this virus, but many of the country's political leaders muddled that message.

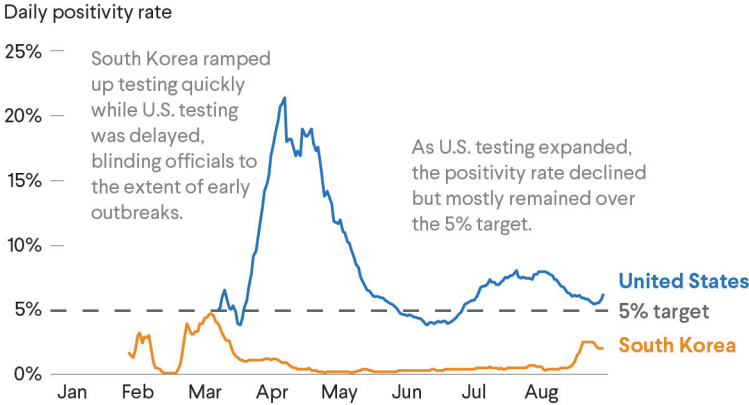
*More testing and tracing were needed.*

The U.S. response to COVID-19 was undermined by the failure to rapidly stand up a reliable nationwide system of testing and tracing. Without a way to accurately identify infected people and those with whom they had been in recent contact, public health authorities were too often operating without crucial information.

A core component of any effective pandemic response is a timely and reliable system for testing and tracing that allows public health officials to identify and isolate sick people, as well as find those with whom the infected have been in recent contact. From the outset of the pandemic, the United States has struggled to meet this objective. Between the release of the genetic sequence of the coronavirus on January 10 and March 1, U.S. public health departments conducted fewer than one hundred tests for coronavirus infection. Without more testing or

*Figure 7. U.S. TESTING LAGGED IN CRITICAL PERIOD AND HAS REMAINED INSUFFICIENT*

The positivity rate shows the average percentage of tests that were positive over the last seven days. A high positivity rate suggests that testing could be focusing on the sickest people and missing many cases.



Note: U.S. data represents the number of tests performed while South Korea data represents the number of people tested. Data for some U.S. states appears to include antibody tests in addition to polymerase chain reaction (PCR) tests. Data is interpolated where daily data is unavailable.

Sources: Data from national sources and European Center for Disease Prevention and Control, compiled by Our World in Data.

even systems for testing in place, local, state, and national authorities faced an uphill battle in gauging the disease's prevalence and rate of transmission, as well as crafting public health interventions that would allow healthy people to continue to go about their lives as the infected and vulnerable were isolated. As late as the end of August 2020, when this report went to press, the United States had failed to develop an accurate, reliable national system for coronavirus testing, to its great cost.

Most countries that have successfully grappled with the pandemic have done two things right: embraced social-distancing policies and implemented an effective nationwide system of testing and tracing. By failing to achieve the latter, the United States allowed the virus to spread and compounded the resulting economic pain. A comparison with South Korea is striking (see figure 7). Within a week of the first reported

case of community transmission in late February, South Korea had tested more than sixty-six thousand people. The United States, whose population is more than six times as large, did not perform a similar number of tests until nearly a month later, exacerbating an already late start.<sup>82</sup> The lack of clear data about who was infected and who was not had economic as well as public health ramifications because it forced states, localities, and employers to implement blunt interventions that effectively shut down social mobility and market activity, rather than separate those infected from the remainder of the population.

After many delays, the availability of testing gradually improved. By early May, some nine million Americans, or 2.7 percent of the country, had been tested, and daily tests had ramped up to three hundred thousand, a figure still below the level needed to make informed decisions about opening schools, businesses, sporting events, summer camps, and social gathering spots. On May 11, the White House announced that it would devote \$11 billion from the funds Congress had previously appropriated for coronavirus relief to assist states in testing.<sup>83</sup> As of mid-August, however, just \$121 million of those funds had been used, and much of an additional \$8 billion appropriated to HHS for expanding testing and developing contact tracing had not been distributed, despite a nationwide spike in COVID-19 cases.<sup>84</sup>

*The federal government underinvested in local preparedness.*

Years of federal underinvestment in pandemic preparedness at the local and hospital level undercut the U.S. response to COVID-19.

Pandemics are global, but the battle against them is won and lost in local trenches. Over the past two decades, federal support for state and local public health emergency preparedness and response has declined by hundreds of millions of dollars. Despite multiple congressional reauthorizations, funding for the CDC's Public Health Emergency Preparedness cooperative agreements has decreased by more than 25 percent since 2002, reducing an essential source of support for core public health capabilities in states, territories, and local areas (see figure 8).



It was not supposed to be this way. In response to the 9/11 terrorist attacks, Congress created the Hospital Preparedness Program (HPP) to mobilize health-care organizations and hospitals with significant federal support in the event of a regional or national emergency. Managed by the HHS office of the assistant secretary for preparedness and response, the HPP program works with 360 health-care coalitions and was involved in the response to the 2009 H1N1 pandemic, the Boston Marathon bombings, and, more recently, Hurricanes Harvey, Maria, and Irma. Since 2004, however, successive administrations and Congresses have halved the HPP budget, reducing the single source of federal funding to help regional health-care systems prepare for emergencies such as pandemics.<sup>85</sup>

In FY 2018, twenty-nine states received 50 percent or more of their public health funding from the federal government. Over the past decade, local public health departments have cut an estimated 56,360 staff positions due to funding issues.<sup>86</sup>

The Coronavirus Preparedness and Response Supplemental Appropriations Act (H.R. 6074, P.L. 116-123), enacted on March 5, 2020, began to address the shortfall in funding to states. It provided \$2.2 billion to the CDC to fund prevention, preparedness, and response efforts, of which \$950 million was allocated to state, local, territorial, and tribal public health response; \$300 million would replenish the Infectious Disease Rapid Response Reserve Fund.

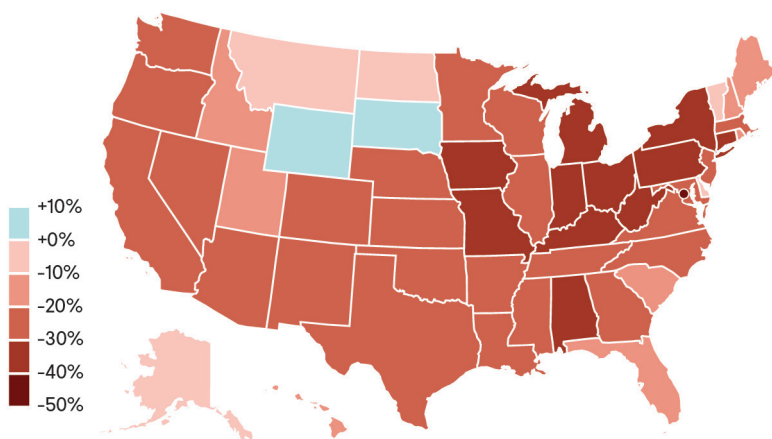
*The U.S. stockpile was not well stocked.*

The pandemic has exposed shortcomings in—and disagreements over the purposes of—the Strategic National Stockpile.

COVID-19 presented the first major test since H1N1 in 2009 of the SNS, an emergency repository of antibiotics, antitoxins, vaccines, protective gear, and other essential medical equipment for public health emergencies, under the auspices of the assistant secretary for preparedness and response at the Department of Health and Human Services since 2018.<sup>87</sup> The stockpile was created to provide state and municipal (as well as tribal and territorial) governments with essential

*Figure 8. FUNDING FOR PREPAREDNESS PROGRAMS HAS DECLINED IN NEARLY EVERY STATE*

Change in funding for U.S. states from CDC Public Health Emergency Preparedness cooperative agreements from 2004 to 2020



Source: Centers for Disease Control and Prevention.

medicines and supplies not otherwise immediately available or which could become quickly depleted during emergencies.<sup>88</sup> During the early phases of the pandemic, the SNS struggled to meet heavy demand from states, exacerbating shortages of pandemic response materials in many areas of the country. The experience exposed several weaknesses in the SNS system: insufficient funding, oversight, maintenance, and transparency; a flawed procurement and distribution system that struggled to fill, in a timely manner, the ongoing inventory needs from the front lines of the health system; and lingering uncertainties about the respective responsibilities of the states vis-à-vis the federal government during emergencies.

The SNS contains around \$8 billion worth of supplies, but insufficient appropriations had left its pandemic response materials under-replenished since their deployment in 2009 to combat H1N1.<sup>89</sup> The coronavirus pandemic placed heavy demands on the stockpile, revealing to the public the extent of the shortages of protective masks, ventilators, and other materials. By April 1, only a few weeks into the pandemic, the Department of Homeland Security acknowledged that the supply of personal protective equipment in the SNS had

been almost entirely depleted. Lack of transparency and oversight have also emerged as concerns, including on Capitol Hill. The Trump administration exercised considerable discretion over the distribution of supplies from the stockpile, prioritizing some states over others and eliciting concerns about the motives behind these distributions.<sup>90</sup> More generally, the pandemic revealed a lack of clarity over the purposes of the SNS and the expectations that states should have for it: many governors argued that the SNS should be the states' first port of call in an emergency, whereas the White House contended that it was designed merely to supplement and resupply inventories of medicines and supplies during emergencies severe enough to exhaust the states' stockpiles, which the crisis had revealed to be minimal.

The Task Force finds that the SNS was not at full strength when the pandemic hit the United States, complicating emergency response. At the same time, the Task Force recognizes that the stockpile was never intended to be a permanent solution to any public health emergency. Rather, it was designed as a temporary, stopgap mechanism, to tide the nation over until private-sector supply chains could respond to demand, or until the president invoked the Defense Production Act (DPA). Many states failed to maintain adequate stockpiles, however, leaving them unprepared when the pandemic struck. Although a better-funded SNS, as well as a more rapid invocation of the DPA, could have ameliorated the situation, the shortages of essential medicines and medical equipment that the nation experienced in early 2020 also reflected more fundamental failures of the U.S. health-care sector, which is based on a model of just-in-time replenishment of inventories in the interest of economic efficiency but at the expense of resilience and preparedness.<sup>91</sup>

*Lines of authority in the United States were unclear.*

Mounting an effective U.S. response to pandemics and other major crises requires clear delineation of authority and responsibility among local, state, and national officials and agencies, as well as strong coordination at the federal level. In the absence of such clarity, U.S. political authorities often worked at cross purposes, increasing the human and economic toll of the pandemic.

The United States has lacked a unified response to COVID-19, given that states have diverged in their strategies for addressing the pandemic amid a paucity of coordination and guidance at the federal level. States such as Washington were quick to implement mitigatory measures such as shelter-in-place orders, whereas states such as Florida tarried in adopting large-scale responsive measures to outbreaks within their borders and eased those social mandates sooner than other states. States competed with one another and even the federal government for essential medical and other supplies, and governors formed regional coalitions to secure pandemic response materials and coordinate policy.

Although the federal government has taken several important measures to respond to COVID-19—including implementing restrictions on international travel, forming a national coronavirus task force, and distributing limited supplies—guidance to subnational authorities has often been lacking or in contradiction to state-level policies, particularly in relation to business and movement restrictions. The Trump administration has disavowed primary responsibility for supplying states with medical and protective equipment, even as disputes have arisen between states and federal agencies, such as the Federal Emergency Management Agency (FEMA), over pertinent shipments. In the absence of federal government support, states scrambled to improvise. In the case of Maryland, the governor relied on his wife (a U.S. citizen of South Korean heritage) for help in securing five hundred thousand coronavirus test kits from the Republic of Korea.<sup>92</sup>

Lack of adequate coordination has led to tensions between authorities at subnational and national levels and highly varied policies and outcomes across U.S. jurisdictions. It has also increased the risk of subsequent spikes in infection rates, given that state lines remain porous to travelers and the pathogens they carry.

Generally speaking, federalism has many benefits for U.S. politics and society, not least in permitting policy experimentation tailored to state circumstances. In the midst of a raging pandemic, however, it can complicate a coherent public health response and impose economic costs, pitting state and local jurisdictions against the federal government and one another, as well as forcing subnational authorities to assume responsibilities and build capacities on the fly.

***The United States lacks adequate mechanisms to coordinate its domestic and international activities on supply chains, vaccine development, and disease surveillance.***

The United States cannot afford to develop and implement domestic preparedness policies and initiatives in isolation, without considering international factors that will help determine their success. The COVID-19 pandemic has exposed the risks of depending on fragile, overextended global supply chains for essential medicines and critical supplies; of relying on purely national efforts to develop disease countermeasures, without a multilateral mechanism to ensure their global manufacturing and equitable distribution; and of failing to link national systems of disease surveillance with an effective global surveillance system.

Complex and opaque globalized supply chains, including for critical medicines and medical equipment, pose major vulnerabilities to the United States and other countries during pandemics.

As the world economy has in recent decades become more integrated, supply chains have become more complex and far-flung, reliant on offshore manufacturing, often spanning multiple countries, and just-in-time modes of production that prioritize quick turnarounds on orders and warehousing as few goods as possible.<sup>93</sup> This new, globalized economic geography has afforded significant consumer savings and other benefits at the cost of decreased national autonomy and greater vulnerability to exogenous and geopolitical shocks, with a single broken link capable of interrupting the entire chain.

COVID-19 has underscored how both crises and political responses to them can disrupt supply chains and exacerbate shortages of crucial goods. Shutdowns in China in January and February highlighted how economic decisions at the national level can reverberate across global markets when production is highly concentrated within a particular country. Decreased exports of medicines, PPE, and other critical supplies led to shortages in the United States, European Union, and elsewhere, reducing pertinent countries' capacity to respond to the

spread of the disease within their borders while heightening geopolitical tensions and undermining international coordination. Policymakers, given their limited knowledge of the structure of these supply chains and little initial recourse to domestic manufacturers, face significant constraints in their ability to ensure adequate supplies of goods in times of crisis.

The international system lacks a widely supported multilateral mechanism to encourage the joint development of and equitable, public health-driven distribution of lifesaving vaccines and treatments. Further, no adequate mechanism is in place for national and global epidemic surveillance and forecasting.

The development and widespread distribution of COVID-19 medical treatments, particularly vaccines, are a common global interest. COVID-19 has already caused scarcity of medical resources in health systems and severely hurt the global economy. Until effective vaccines are developed and widely deployed, SARS-CoV-2 will circulate in human populations unabated, threatening health and economic security.

Vaccine research and development (R&D) is an element of U.S. and global pandemic response that moved extraordinarily quickly. On January 10, scientists from the National Institute of Allergy and Infectious Diseases received the genetic sequence for the coronavirus and four days later had already begun development of several vaccine candidates, working with partners from the Coalition for Epidemic Preparedness Innovations (CEPI). The first U.S. vaccine entered clinical trials sixty-six days after the virus was sequenced. Scientists from across the globe are now racing to develop effective vaccines and therapeutics for COVID-19. Once clinical trials demonstrate which vaccines are safe and effective, doses need to be manufactured to scale. Now is the time to plan for augmenting the manufacturing capacity, financing, and distribution infrastructure necessary to produce sufficient quantities to meet global needs in a fair, public health-driven manner.

Unfortunately, at the time of writing, no adequate financial, legal, and regulatory mechanisms are in place to ensure the equitable, public

health-driven distribution of vaccines, therapeutics, and diagnostics for COVID-19 worldwide. Neither does an adequate mechanism exist to provide the predictable, multiyear financing for the manufacturing and global deployment of these products. Manufacturers will also be hesitant to participate in a global vaccine allocation arrangement without indemnification, product liability insurance, or a capped injury compensation program to mitigate risk. There is no transparent regulatory pathway for approval of COVID-19 products that can instill global confidence, reduce development costs, and expedite access in less remunerative markets. At the time of writing, the European Commission-backed Access to COVID-19 Tools Accelerator—an initiative devoted to rapid development, procurement, and equitable deployment of therapeutics, vaccines, and diagnostics—is promising. It has yet, however, to attract the full participation of major pharmaceutical powers such as the United States, China, India, and even some European nations.

Absent a commitment to such a global plan, governments are likely to prioritize providing early doses to members of their populations—even to low-risk individuals—over international initiatives to end the crisis sooner. Even within those countries, the distribution of treatments could be inequitable. During the 2009 (H1N1) pandemic, high-income nations bought virtually all vaccine supplies. Even after WHO appealed for donations, supplies for low- and middle-income countries were limited. Reportedly, some governments have sought exclusive access to a promising COVID-19 vaccine candidate. European and Asian countries have imposed export controls on PPE and ventilators, and similar export controls are likely to extend to COVID-19 vaccine and therapeutic stocks. The United States, meanwhile, has sought to lock up the global supply of the therapeutic remdesivir to ensure that its own population is covered.

These are dangerous precedents. Over the past decade, R&D and manufacturing capabilities have become more globally distributed. The best treatments and vaccines against COVID-19 could well be developed and manufactured outside traditional centers of pharmaceutical innovation. High-income countries cannot count on outbidding competitors if vaccine and therapeutic stocks are kept by countries that manufacture these therapies. Cooperation thus remains a matter of necessity for all nations, and within nations, to ensure equitable distribution of therapies.

Global and national surveillance and monitoring of epidemic threats remains lacking.

This pandemic has demonstrated the potential and limitations of the existing systems for epidemic surveillance and monitoring. The world first learned of the coronavirus outbreak in December 2019 thanks to a report posted on ProMED, a nongovernmental emerging disease monitoring program established by the Federation of American Scientists in 1994. A flu surveillance program, the Seattle Flu Study, was the first to detect community transmission of SARS-CoV-2 in the United States.

At the same time, the pandemic has revealed crucial gaps in data collection during an emerging outbreak. In the early weeks of this pandemic, there was no single repository at the CDC or WHO for standardized, open-source data where public health officials and researchers could access and analyze cases.

U.S. disease surveillance has long been the job of multiple federal agencies that operate without a true national system for consolidating reporting from states, ensuring its consistency, and sharing and collecting that same data internationally. Differences of measures on infections, COVID-attributable hospitalizations and deaths, and testing have hindered the ability of the U.S. national and local governments to detect threats and to learn from the experience of other national and subnational governments. A similar situation exists internationally, where no universal or standardized way of collecting and reporting epidemiological data across countries has been established. Public health agencies often provide data to the public via their websites and situational reports, but delays in reporting are common, and incompatible formats across reports complicate quantitative analysis.



# RECOMMENDATIONS

The U.S. government and many other national governments long ago recognized mass outbreaks of infectious disease as a global and national security concern and planned for the inevitability of future pandemics, but they failed to adequately fund and execute those plans in the face of this coronavirus pandemic. Preventing a reoccurrence of these failures in future pandemics will require major policy and institutional changes to bolster the foundations of U.S. national and global health security.

The Task Force finds that pandemics are inevitable, possibly imminent, and likely to be devastating to U.S. health, economic, and strategic interests. World leaders have called the coronavirus pandemic a “once-in-100 year” crisis, but there is no reason to expect that to be true.<sup>94</sup> Pathogens frequently emerge; some jump from animal to human and spread swiftly. Those outbreaks can evolve into epidemics, one of which could explode into a pandemic that spreads worldwide and lasts months or years. As harmful as this coronavirus has been, a novel influenza could be even worse, transmitting even more easily, killing millions more people, and destabilizing governments and economies alike.<sup>95</sup>

The coronavirus pandemic is a vivid and painful example of the devastation that emerging pathogens can cause to lives and livelihoods worldwide. The global response has exposed the inherent weaknesses and inequalities in pandemic preparedness and response; it should be a transformative moment. The painful lessons learned should make governments wise enough to avoid such costly mistakes and instead take preemptive steps to advance pandemic preparedness in the United States and abroad.

The Task Force has organized its recommendations into four sections: a strategy for improving U.S. and global pandemic

preparedness, followed by those related to prevention, detection, and response.

This strategy and these recommendations will succeed only with leadership from U.S. policymakers working in concert with their counterparts in foreign governments and multilateral institutions. Without such leadership and partnership, accompanied by institutional reforms and adequate funding, any future pandemic response will be no better than the current, muddled performance, with high human and economic costs.

# *Adopt a Robust Strategy for Domestic and Global Pandemic Preparedness*

This comprehensive and coordinated strategy to advance pandemic preparedness proposes new infrastructure and investments at the national and global levels. At home, the Task Force calls on the United States to elevate pandemic preparedness to a core national economic and security objective and organize and invest accordingly, revitalize the beleaguered CDC, and clarify federal and state authorities and roles for pandemic response. Internationally, we advocate for continued U.S. membership in WHO and support for its lead role on the international health response to pandemics, a more vigorous involvement of the United Nations, the creation of a new Health Security Coordination Committee to mobilize pandemic response on economic and security matters that includes greater involvement of civil society and the private sector, and the establishment of new mechanisms to finance pandemic preparedness and response internationally.

*Prioritize U.S. preparedness—and act and invest accordingly.*

The Task Force recommends that the United States finally treat pandemics as a serious national security threat, translating its rhetorical support for pandemic preparedness into concrete action.

The United States needs to make pandemic preparedness a national security priority not only in word, but also in deed. COVID-19 has revealed health security to be a core component of national security, critical to the safety and well-being of its citizens.<sup>96</sup> The United States should adapt to this reality by approaching pandemic preparedness with the same seriousness of purpose with which it treats national defense. The federal government should formulate and adhere to a nationwide pandemic preparedness strategy and organize itself effectively so that it can rapidly anticipate, prevent, and respond to outbreaks. The United States should also invest more resources in critical institutions and capabilities, at a level commensurate with the threat it faces.

Organizing for success will require bolstering the White House's leadership role in preparing for and responding to pandemics, improving congressional input into and oversight over executive branch efforts, reforming the CDC so that it can perform more effectively, and clarifying the often confused division of labor across federal, state, and local governments in pandemic preparedness and response.

The Task Force recommends that the U.S. federal government adopt a comprehensive national strategy for pandemic preparedness, organize itself for success, and craft a budget commensurate to the challenge.

Pandemic diseases pose grave and growing risks to Americans that match or exceed those presented by transnational terrorism. The executive branch should acknowledge this reality by elevating the threat of new and reemerging infectious disease in the National Security Strategy mandated by Congress, as well as in the strategic plans of the Departments of State, Homeland Security, Health and Human Services, Defense, and the U.S. Agency for International Development (USAID). These strategies and plans should drive the annual appropriations requests to Congress prepared by the Office of Management and Budget (OMB).

The president should designate a focal point within the White House for global health security, including pandemic preparedness and response. This office would have lead responsibility for coordinating the multiple federal departments and agencies in anticipating, preventing, and responding quickly to major disease outbreaks, as well as for liaising with states and municipalities. It would also be responsible for conducting regular exercises among federal actors, as well as with state and local counterparts, to develop patterns of cooperation and standard operating procedures that correspond as closely as possible to real-world scenarios.

To work in conjunction with HHS leadership on global health diplomacy, the secretary of state should designate an ambassador-level official to help coordinate the U.S. diplomatic response to international public health emergencies, including through U.S. chiefs of mission abroad. Such an appointment, reporting directly to the secretary, would elevate global health security in U.S. foreign policy, put the State Department on a stronger footing to coordinate with foreign governments and international organizations, and help integrate the international activities of HHS with those of its own regional and functional bureaus, as well as USAID. Within the White House, OMB should appoint a senior official to ensure consistency of health security funding and management decisions across all agencies and accounts, domestic and international.

In parallel with these steps, the United States should significantly increase the portion of the federal budget devoted to domestic pandemic preparedness and response. The U.S. government spends \$750 billion a year on the U.S. military to deter aggression and to ensure that if war comes, the United States will win. By contrast, the nation spends a relative pittance on domestic and global health security, and it shows. In the case of COVID-19, the lack of adequate preparedness funding placed the United States in an overwhelmingly reactive mode

and forced the government to rely on supplementary appropriations for pandemic response.

The Task Force calls on the executive branch agencies to request and Congress to appropriate funds for a comprehensive health security budget commensurate with the threats that the United States faces from pandemic disease and consistent with the needs identified by U.S. public health officials. This budget would include increased funding for the pandemic preparedness programs, projects, and activities of relevant U.S. agencies, including, among others, the CDC, the office of the HHS assistant secretary for preparedness and response, the National Institutes of Health, the Food and Drug Administration (FDA), the State Department, and USAID, while exempting specific budget line items from Budget Control Act caps, as well as sequesters, in the interest of U.S. public health security.<sup>97</sup>

Important components of the nation's health security budget would include increased funding for state and local hospitals, scientific research on emerging and zoonotic diseases, epidemiological surveillance, the Strategic National Stockpile, vulnerable countries around the world, WHO, and other essential multilateral agencies. This new financial mechanism should be accompanied by additional technical support to accelerate planning and implementation and to monitor progress.

To facilitate such an integrated health security budget, the Task Force recommends that Congress establish bipartisan select committees or formal working groups in both chambers. Today, jurisdiction over global health matters is fragmented across a dozen committees and subcommittees in the House and Senate. Congressional leaders should rectify this by establishing specialized bodies that can provide a coordinated vision for the regular committees of jurisdiction. In parallel with these federal-level steps, state governors and legislatures should maintain their own pandemic preparedness budgets, which COVID-19 has exposed as wanting.

The Task Force recommends a thorough review of the performance of the Centers for Disease Control and Prevention during the COVID-19 pandemic with an eye toward potential managerial and budgetary reforms.

The Centers for Disease Control and Prevention has a “unique mission—to save lives by deploying effective, proven strategies to prevent, detect, and rapidly respond to outbreaks at their source.” Too often during the early phases of the COVID-19 crisis, the CDC fell short in fulfilling this mandate.<sup>98</sup> To this end, the Task Force recommends that Congress appoint an independent commission to review the CDC’s record during the initial months of the pandemic, identify obstacles to its effectiveness, and consider how it could do better in the future. Potential reform priorities could include developing a more sensitive CDC system of surveillance and early warning, strengthening its overseas workforce, enhancing the agency’s ability to sequence and test genetic materials quickly, creating more effective models to project the spread of pandemics, and expanding the CDC’s capacity to scale up nationwide testing and tracing.

Revitalizing the CDC will take money. Between 2002 and 2020, the CDC’s Public Health Emergency Preparedness program to support U.S. states and localities, including for laboratories and contact tracing, declined from \$940 million to \$675 million, even as the dangers of pandemic disease gathered.<sup>99</sup> That trend needs to be reversed, subject to close monitoring of how these additional funds are used. Finally, consistent with the principle that public health specialists should be out in front in communicating with the American people, the Task Force calls on the executive branch, including the White House, to put the CDC front and center in its public health education efforts.

The Task Force recommends that the U.S. government initiate a review of the responsibilities for pandemic preparedness and response among public health authorities at the federal, state, local, and tribal level, so that federalism is an asset rather than a liability to achieving U.S. health security.

The COVID-19 pandemic has tested the U.S. federal system, revealing uncertainty on how authorities, responsibilities, and burdens for pandemic preparedness and response are and should be apportioned among the federal government, fifty states, and 2,634 local and tribal public health departments. The United States cannot afford ambiguities over federal, state, and local responsibilities in the throes

of a public health emergency unless it is willing to risk political paralysis and unnecessary deaths. Nor can the country allow pandemic response to devolve into a modern caricature of the Articles of Confederation, in which U.S. states and cities compete frantically for scarce medical supplies, whether from domestic or foreign sources.<sup>100</sup> Although many state governors and mayors have acquitted themselves well, adopting innovative and at times successful policies to fill the federal vacuum, few of their constituents would hope to repeat such a frantic and haphazard experience.

To avoid such a prospect, the Task Force recommends that the White House reverse its practice of weakening federal guidance to states, which has resulted in a patchwork response to the current pandemic. This should involve ensuring that all state governors have timely access to the best available evidence from the CDC, providing more presidential support to states and public health officials seeking to implement federal advice even amid local political pressure, and replacing competition that currently exists among states with more coordination of the procurement of scarce medical resources. The current pandemic demonstrates the need for federal officials to initiate a review process to define more clearly the respective roles and responsibilities of public health officials at the federal, state, and local levels amid a nationwide pandemic. The authority to advance this effort should leverage both carrots (the spending power of Congress) and sticks (U.S. federal authority to oversee interstate commerce) if needed to enable more coordination at the national level of state and local responses to public health emergencies.<sup>101</sup> Independent bodies, such as the National Academy of Medicine, could be enlisted to advise on this project.

*Revamp the multilateral system for preparing and responding to pandemic threats.*

The Task Force recommends that the United States remain a member of WHO and work with other nations to strengthen its capacity and effectiveness in preventing, detecting, and responding to epidemic threats. The UN agency is a flawed institution, but there is no multilateral substitute to advance U.S. interests in the current pandemic or the next one.



The Task Force recognizes that WHO is not a perfect institution. Its limitations, bureaucratic processes, and dysfunctions have, at times, been evident in this pandemic. However, no multilateral alternative to WHO in global public health emergencies exists. In many important respects, the performance of WHO in the current epidemic has improved because of the reforms instituted after the West Africa Ebola epidemic. U.S. policy should seek to enhance WHO's independence and effectiveness, not degrade it during the present crisis or before the next serious disease event. Doing otherwise will only make Americans less safe from this and future pandemics.

The United States can strengthen WHO and advance needed improvements to IHR and pandemic preparedness and response in only one way: remain a WHO member state and advance reform from within the institution. Any new, U.S.-led initiative that seeks to assume the role of WHO on coordinating the health-related activities on global preparedness and outbreak response management would be duplicative and lack the UN agency's international legal authorities and ties with health ministries. WHO is able to respond to outbreaks and epidemics in nations where the United States cannot or prefers not to become involved, such as Venezuela's measles outbreak and the Ebola epidemic in civil war-torn Democratic Republic of Congo. The U.S. government has heavily invested in and benefits from WHO activities on polio eradication; efforts to tackle tuberculosis, malaria, and vaccine-preventable diseases; and its global influenza program. Walking away risks reversing the hard-won gains from those U.S. investments and abandoning WHO when that body is most needed—as the epicenter of the pandemic shifts from high-income to low-income nations.

The legitimate concerns about WHO's performance in this pandemic include its reluctance to push China to allow a robust, on-the-ground WHO team early in the outbreak; its public, unqualified praise of China's transparency despite WHO staff's knowledge and sentiments otherwise; and its occasional scientific miscommunications on issues such as travel restrictions, masks, and the asymptomatic spread of the virus.

The deference of WHO to its member states, and the latter's insistence on preserving their sovereign prerogatives, is likely to thwart many proposals to strengthen WHO to address these and other concerns. Member states' opposition would almost certainly extend to proposals for empowering WHO with the investigative authorities akin to the challenge inspections authorized by the Chemical Weapons

Convention or the special inspections conducted by the International Atomic Energy Agency.<sup>102</sup>

However, certain feasible reforms, which this Task Force supports, could help strengthen the independence and effectiveness of WHO.

The United States should work with other WHO member states to ensure adequate dedicated funding of the Health Emergencies Program, which is resource-starved and overstretched. Also deserving of support is the Independent Oversight and Advisory Committee's recommendation that the WHO Health Emergencies Program better use the deep expertise of its independent WHO collaborating centers to help generate technical recommendations in fast-moving international health crises. Further, increasing assessed member state contributions will not be easy in the current global geopolitical and economic environment, but doing so would enhance WHO independence and reduce the share that voluntary contributions represent of the WHO budget (roughly 80 percent), bringing them closer to levels that existed two decades ago (roughly 50 percent).

The biggest impediment to WHO's success in this pandemic, however, has been the failure of its member states to respond effectively to the pandemic threat and to comply fully with IHR. The coronavirus pandemic has revealed how resistant member states remain to implementing their commitments and how little leverage WHO has to ensure that they do so.

The Task Force recommends that the UN secretary-general establish a global health security coordinator and the United States work with partner nations to create a Health Security Coordination Committee to facilitate a prompt and coherent multilateral response to global health threats.

The COVID-19 experience reaffirms that though WHO has strong technical attributes, it lacks the political heft to mobilize and lead the multilateral system and struggles to constructively partner with the private sector. It is ill suited to respond to potentially pandemic diseases that are a threat to national and economic security as well as health. That role should ideally fall to the world's high-level international

groupings, including the UN Security Council, the G20, and the G7. The involvement of these apex forums in the current crisis has been episodic at best, thanks in part to geopolitical tensions that could or could not persist.

To begin to correct these deficiencies and break logjams in multilateral cooperation, the Task Force supports the appointment of a permanent global health security coordinator, reporting directly to the UN secretary-general. This coordinator would be charged with leading a coherent response to public health emergencies across the UN system, supporting Security Council involvement in such crises, and maintaining direct links to the leadership of UN member states, as well as WHO, IMF, World Bank, UN agencies, G20, G7, and international nongovernmental organizations such as Médecins Sans Frontières (MSF) and the International Federation of Red Cross and Red Crescent Societies (IFRC). The coordinator would help the UN secretary-general direct and supervise a unified UN response to epidemics, pandemics, and other global health emergencies; provide political cover for the technical work of WHO and other UN agencies; and manage the UN's collaboration with international financial institutions.<sup>103</sup> WHO should maintain its lead role in mobilizing UN collaboration on issues that fall within the scope of the health field.

The Task Force further recommends that the UN secretary-general respond to any PHEIC designation by requesting that the Security Council convene to discuss potential collective responses to the emergency. Such a step would have both symbolic and practical importance. It would reinforce the precedent set in 2014, when the Security Council declared the West African Ebola outbreak to be a threat to international peace and security (UN Security Council Resolution 2177). More practically, should geopolitical tensions permit, it would allow the Security Council to issue declarations and even pass resolutions with the binding force of international law, to throw its political weight behind WHO, and to determine which other multilateral assets are needed to mobilize a unified global response. The global health security coordinator should provide ongoing support to any Security Council authorized actions.

In parallel with the creation of this supporting UN infrastructure, the United States should work with partner nations to lead the charge to create a Health Security Coordination Committee to mobilize and harmonize crisis response for vulnerable communities. The committee would convene leadership of the United States, interested G20 and G7 partners, and other countries and private- and nonprofit-sector

representatives in support of the UN coordinator and WHO to ensure a coordinated health and economic response globally, especially with respect to vulnerable countries. The relevant heads of state and government could provide high-level political guidance, and their cabinet ministers for finance, foreign policy, trade, and global health could focus on practical matters such as harmonizing trade policies on essential medical supplies; removing barriers to scientific and technical collaboration; increasing shared access to vaccines, diagnostics, and countermeasures; and working with international financial institutions to provide foreign assistance and craft debt relief packages for the hardest-hit countries. A senior WHO representative and the UN special coordinator should serve as technical advisors to the committee.

The benefits of this separate, flexible structure are that it would reduce dependence on the multilateral bodies and forums that have been paralyzed by geopolitics in responding to this pandemic. It would be open to the inputs of nonstate actors such as civil society, nonprofits, and the private sector, and would support, not duplicate, WHO and UN processes. The committee would be open in principle to participation by all nations that share the purposes of the grouping, which the United States and a core of like-minded governments should seek to define.

No multilateral architecture, of course, can substitute for effective political leadership or guarantee that great powers will subordinate geopolitical rivalry to combat a common microbial foe. Nevertheless, the right institutional framework can make a difference, ensuring that appropriate tools are at hand should governments decide to use them.

The Task Force recommends that the United States and partners increase international assistance and pursue external sources of financing to assist low- and lower-middle-income countries both in coping with the current pandemic and adopting measures to improve lasting capabilities for pandemic preparedness and response. Such aid is not a matter of charity but a strategic investment in U.S. and global health security.

International funding needs for responding to the current pandemic and preparing for future ones are significant. Although strengthening

its domestic health safety net needs to be a priority, the United States cannot afford to ignore global health security vulnerabilities anywhere. It has a compelling national interest, as well as a moral responsibility, to help prevent the spread of pandemic threats in low- and middle-income nations. The United States should approach foreign aid to fight COVID-19 the same way it has treated the President's Emergency Plan for AIDS Relief and other global health programs: as strategic health diplomacy and an investment in U.S. foreign policy, national security, and economic interests.<sup>104</sup>

The coronavirus pandemic, which struck high-income nations first, is now ravaging nations in Latin America, South Asia, and sub-Saharan Africa, where many people cannot sustain social-distancing measures. The pandemic is overwhelming underfunded and short-staffed health systems and destabilizing fragile economies, threatening to erode decades of economic and social gains and reverse progress on the internationally agreed Sustainable Development Goals.<sup>105</sup> Rising unemployment, poverty, hunger, inequality, and instability in the developing world are matters of not only humanitarian but also economic, political, and strategic concern to Americans. The probability is also high that uncontrolled outbreaks abroad of other preventable illnesses amid this pandemic will eventually wash up on U.S. shores, leading to new waves of disease.

The United States should work through the Health Security Coordination Committee to mobilize the United Nations, World Bank, regional development banks, and the IMF, as well as like-minded governments within the G7 and G20, to help ameliorate human suffering, counter economic despair, and mitigate political upheaval in low-income nations. Immediate priorities for international action include expanding issuance of special drawing rights from the IMF, extending debt relief for the lowest-income nations beyond 2020, facilitating renegotiation of debt owed to private creditors, and maintaining and extending preferential trade access to least-developed countries.<sup>106</sup>

The U.S. Congress has already appropriated more than \$2 billion in emergency funding to address global health and development needs associated with COVID-19.<sup>107</sup> The IMF has lent more than \$20 billion to countries to help with COVID-19 and, with support from Japan and the United Kingdom, has created a special facility to enable countries to miss some debt repayments. The WHO Strategic Preparedness and Response Plan called for \$675 million from February to April 2020. The World Bank announced up to \$1.9 billion in initial disbursements

to assist lower-income countries coping with the health and economic fallout of the global outbreak.<sup>108</sup>

Much more relief, unfortunately, will be needed given the size of the crisis. The United States should work with multilateral institutions and its allies to increase the assistance necessary to stabilize and preserve human security and welfare in low-income nations, including greater debt forgiveness. Without increased U.S. leadership abroad on pandemic preparedness and response, Americans will be less safe and prosperous at home.

Although immediate relief is obviously a priority, the world should also look beyond the current pandemic and set a goal of fostering enduring pandemic preparedness and resilience in developing countries. This goal will require finding sustainable, external sources of financing for pandemic preparedness that rely less on traditional foreign assistance. One possible financing mechanism would be user fees on international economic activity, such as international travel or financial transactions, that depend particularly on improved pandemic detection, preparedness, and response. Unitaid, a global health fund, is already partially funded by a tax on international air travel levied by several countries.<sup>109</sup> Multiple reports also advocate another economic incentive for preparedness: the IMF and the World Bank integrate preparedness into their systematic country risk, policy, and institutional assessments.<sup>110</sup>

## *Bolster Pandemic Prevention*

Armed with a robust national and global strategy, more effective organization, and adequate funding, the United States and international partners should be better positioned to implement the essential elements of pandemic preparedness and to execute quickly and effectively when the next pandemic erupts. Based on the painful lessons of the current pandemic, the Task Force makes recommendations for improving U.S. and global capacities to deliver each of the three fundamentals of pandemic preparedness: prevention, detection, and response.

To strengthen pandemic prevention, the Task Force recommends revamping the metrics for assessing and monitoring national pandemic preparedness capacity; prioritizing readiness with response triggers, mitigation guidelines, and rehearsals; and strengthening protections for the front lines of the U.S. health-care system and at-risk U.S. populations in future pandemics.

*Revamp national preparedness capacity assessments and pair them with strategies to promote readiness and implementation.*

The Task Force recommends that the United States work with WHO and with other nations to assess and revise pandemic preparedness capacity measures and to ensure full implementation of mitigation guidelines and regular rehearsals for pandemic response.

It is often said that what gets measured gets done, but the opposite is also true. Countries need to understand where their preparedness gaps lie in order to address them and reduce the likelihood of an outbreak spreading. International organizations should likewise be able to identify where gaps in preparedness exist so that they can target resources to help nations make the necessary improvements. Uncertainty over how to assess accurately a country's preparedness to prevent, detect, and respond to pandemic threats undermines efforts to convince donors and policymakers to invest more in preparing for future global health security threats.

The Task Force recommends continued efforts during the current pandemic to assess and improve the performance of the JEE, GHS Index, and other preparedness metrics. Such indices remain important tools for measuring and improving the accountability of national capacity to prevent, detect, and respond to epidemic threats. At the same time, these capacity metrics have not been good predictors of performance in this severe global pandemic, suggesting that three other areas merit greater weight in future preparedness assessments.

The first is institutional trust—having a government that citizens trust and listen to. In the months after an outbreak of a novel pathogen and before the development of effective therapeutics and vaccines, nonpharmaceutical strategies, such as contact tracing, isolation, physical distancing, and mask-wearing, are the only way a biological threat can be contained. Accurate, science-based risk communication and strong public confidence in authorities are essential for these nonpharmaceutical strategies to succeed.

Second, investments need to be paired with periodic rehearsals as well as mitigation guidelines, so that governments are in a position to



implement their pandemic response capacities quickly when a deadly disease emerges. Countries should prove through exercises that they can actually marshal and effectively use the capacities they possess to prevent, detect, and respond to high-consequence biological threats. The 2019 GHS Index report indicates that 85 percent of countries included showed no evidence of having completed a biological threat-focused IHR simulation exercise with WHO in the prior year, and notably few nations test their emergency operations center annually.<sup>111</sup>

The United States should work with the proposed UN coordinator and Health Security Coordination Committee, WHO, and other partners to establish comprehensive planning frameworks for pandemic response and to review and rehearse national, regional, and global responses regularly. Each national government should designate an emergency operation center for pandemic response or leverage an existing one to conduct these rehearsals. Internationally, these exercises would be analogous to military preparedness exercises conducted by the North Atlantic Treaty Organization (NATO) but would include a broader range of actors, including manufacturers as well as public health and emergency response agencies.<sup>112</sup>

The United States should work with WHO, the Africa CDC, and other regional partners to generate community mitigation guidelines and pandemic response triggers, so that national and local policymakers have a road map for early, targeted, and coordinated implementation of nonpharmaceutical interventions. Such guidelines have long informed U.S. and international policies for responding to pandemic influenza, but they were not used in the early COVID-19 response.<sup>113</sup> They should be expanded, updated, and improved upon for other epidemic threats. As part of this effort, the United States and other nations should enhance their capacity for just-in-time research on the risk of transmission in different settings, such as schools and workplaces, as well as on the effectiveness of alternative mitigation strategies, based on cross-country comparative studies.

Third, policymakers, particularly in the United States, need to understand how critical primary care is for effective pandemic preparedness and response, and rethink how society should value and pay for it, as well as reimburse such expenses. Primary care systems help nations respond to pandemics in multiple ways. They provide a ready infrastructure for disease surveillance. They promote healthier populations by preventing and managing chronic illnesses that often worsen health outcomes from emerging infections. They nurture trust, cultivated in strong patient-provider relationships, which reduces

the harm of medical misinformation and disinformation campaigns. Finally, they can bolster surge capacity during pandemics, particularly when patient volume spikes in emergency care settings. These multiple benefits suggest that greater investments in primary care should be a central element of any effort to strengthen the pandemic response capacity of the U.S. health-care system.

*Strengthen the front lines of the U.S. health-care system.*

The Task Force recommends that the United States adopt national policies and pandemic readiness standards to promote health equity in hospitals and health systems.

Health systems throughout the United States have struggled to survive while fighting to keep their patients safe and healthy during the current pandemic. In areas with exponential surges of COVID-19 cases, hospitals have confronted multiple shortages, including of emergency and critical care specialists, testing kits, essential medicines, ventilators, hospital beds, personal protective equipment, and other critical health resources and services. Simultaneously, a majority of hospitals across the country, including outside COVID-19 epicenters, have suffered severe budget shortfalls, thanks to fluctuations in patient volumes and loss of revenue from foregone elective procedures and surgeries. Although these trends have weakened the entire U.S. health system, the damage has been most acute on emergency departments and ancillary primary care services, which continue to care for the nation's most vulnerable populations.

During the initial phase of the pandemic, patients seeking medical attention for COVID-19 overwhelmed emergency rooms and urgent clinics, underscoring the urgent need to reinforce and expand the nation's primary care services. Unfortunately, funding and logistical support for family medicine, trauma surgery, pediatrics, and obstetrics and gynecology has remained stagnant. Simultaneously, many hospitals are reacting to sharpening budgetary constraints by reducing staffing and resources for their emergency departments, in effect decreasing their frontline capacity in the middle of a pandemic. In addition to endangering frontline responders and patients, these cutbacks render

hospitals even less ready to respond to mass casualty incidents, including a second wave of COVID-19.

To reverse these trends and reduce risks to providers and patients alike, the Task Force advocates a national policy to increase the nation's primary care capacity and to establish and enforce pandemic readiness standards for hospitals and health systems to ensure that these institutions advance both safety and equity. Important elements of such a national policy should include

- investment in telemedicine to improve reach to patient populations in underserved communities;
- national credentialing and onboarding systems to expedite staffing reinforcement during mass casualty incidents;
- support for task-shifting models to rapidly increase staffing in areas with chronic health workforce shortages targeting underserved and rural communities;
- centralized tracking systems for personnel, equipment, and hospital bed capacity to encourage sharing of health resources within and across health systems at the local and regional level;
- standard bed and spacing requirements with predetermined alternative care sites for emergency departments to reduce the risk of nosocomial transmission; and
- standard stockpiles of personal protective equipment prioritized for the emergency department to safeguard frontline staff.

*Identify at-risk populations and reduce their vulnerabilities.*

The Task Force recommends that federal and state governments take prompt steps to identify those U.S. citizens most vulnerable to epidemic disease, seek to reduce these disparities, and improve the resilience of these communities before the next pandemic strikes. The Task Force considers this a matter of both social justice and global and U.S. health security.

The COVID-19 pandemic has brought wide attention to gross disparities within American society, including stark inequities in access to quality health care and glaring differences in infection and mortality rates among privileged versus marginalized communities. It has also revealed the extraordinary vulnerability of the country's elderly population, particularly residents of nursing homes, and of essential workers, whose employment heightens their exposure to disease. Such troubling and persistent differences in health outcomes are not only an affront to social justice, but also a source of national vulnerability. Addressing these long-standing inequities is thus both a moral imperative and a critical dimension of pandemic preparedness and national security.

True health security would entail a system of comprehensive, universal health care that delivers for all U.S. citizens, but the details of such a complex, sweeping reform effort are beyond the scope of this report. However, federal, state, and local governments can take important, immediate steps to reduce the vulnerability of marginalized, at-risk, and underserved groups to epidemic disease.

An immediate priority, if the United States wishes to achieve health equity in its pandemic preparedness and response, concerns data. As of June 2020, the United States lacked information on race or ethnicity for 52 percent of its reported coronavirus cases, and recent federal guidance to begin gathering such data via testing was not scheduled to go into effect until August.<sup>114</sup> This is unacceptable. The CDC, in collaboration with states and localities, should make it standard practice to collect and share data on the vulnerability of specific populations—most notably Black Americans, Native Americans, Latinx Americans, those with lower incomes, and the elderly—to pandemic disease. These statistics

should be publicly available to permit independent analysis, including of the policy changes needed to produce more equitable outcomes during a pandemic.

Armed with a more disaggregated picture of relative vulnerability, U.S. federal, state, and local governments should craft strategies, programs, budgets, and plans for pandemic preparedness that address the most relevant disparities in health access and outcomes, including making targeted public health investments that increase the resilience to pandemics of traditionally underserved communities, as well as nursing home residents, with full input from the beneficiaries regarding specific needs. These interventions could include establishing early, accessible, convenient, and free testing facilities for communities likely to be hardest hit; universal paid sick leave in declared pandemics; making public facilities available free of charge for those in need of isolation and quarantine; and offering special workplace protections and PPE to essential workers.<sup>115</sup>

Experience from around the world suggests that such investments can have society-wide benefits. Consider the case of Singapore, where initial success in the response to the pandemic was later imperiled because of outbreaks of COVID-19 among migrant workers especially vulnerable to infection and lacking access to quality health care. In any modern and mobile society, whether Singapore or the United States, health security depends on preventing infectious disease from getting a national foothold.

# *Improve Pandemic Detection*

To improve detection of pandemic threats, the Task Force calls for reforms to improve the functioning of IHR and for the creation of modern global and U.S. systems for dangerous disease event surveillance and forecasting.

## *Reform the International Health Regulations.*

The Task Force recommends that the United States and other interested nations consider measures to improve member states' compliance with the IHR, focusing on improving information sharing, transparency, and the independence and competence of the Emergency Committee.

A fundamental tension exists between an international infectious disease control regime predicated on national sovereignty and the scientific reality that epidemic threats know no national borders. IHR respects the rights of its states parties to determine their own public health responses, but also establishes rules, obligations, and procedures that reflect an understanding that national and collective outcomes are best advanced by governments working together, sharing information, and relying on the best available scientific evidence. Without more significant consequences for violating the agreement, however, the balance tilts toward sovereignty over safety.

IHR cannot effectively improve global health security unless governments promptly identify and report dangerous novel infections so that countries can delay, or halt, their spread. The sooner health authorities know about a novel event, the more quickly they can mount an effective response. Nations fear that once an outbreak of an emerging infection is disclosed, other governments and private-sector actors could impose travel and trade restrictions, which could have severe economic consequences. The widespread adoption of travel restrictions in the present coronavirus pandemic, over WHO guidance to the contrary, only reinforces that impulse.

More contagious than the Ebola virus and more deadly than influenza H1N1, COVID-19 has exposed the dangerous consequences of this system, but problems with IHR compliance have long been recognized. There were delays in notification and a lack of transparency in West Africa during the Ebola epidemic and in Saudi Arabia during MERS.<sup>116</sup> In 2011, the IHR Review Committee, considering the functioning of the agreement in the H1N1 pandemic, stated that “the most important structural shortcoming of the IHR is the lack of enforceable sanctions.”<sup>117</sup> In 2015, the Ebola Interim Assessment Panel came to similar conclusions, stating that nations did not “take seriously” their IHR obligations and recommending that the IHR Review Committee “examine options for sanctions” in cases of noncompliance.<sup>118</sup>

WHO has potential tools to improve compliance, but implementing them would require revising IHR and seeking approval from the World Health Assembly. IHR could, for example, be amended to make it mandatory for WHO to share with all states parties when a state party does not respond within twenty-four hours to a verification request of a potentially serious disease event or accept WHO’s offer of collaboration. Alternatively, WHO could seek to expand Article 7 of WHO’s constitution, which provides that member states that fail to meet obligations could have their voting privileges or other services suspended. The WHO director general could seek World Health Assembly approval to invoke Article 7 in cases of severe noncompliance with IHR. However, the World Health Assembly comprises member states that are unlikely to grant that authority, lest it be applied to them, and WHO, given its preference for solidarity and deference to member states, would be unlikely to exercise it.

Whether to reopen the text of IHR to improve its effectiveness is worth considering, but reform would likely necessitate a multiyear negotiating process at a time when many governments have expressed

hostility toward multilateral institutions and international treaties. Fortunately, the United States, working with other WHO member states, could pursue other measures to improve the functioning of IHR in the interim that do not require reopening the entire text to renegotiation.

The Task Force recommends that WHO member states establish an IHR Review Conference to discuss how IHR has been used during this pandemic; to consider issuing interpretive guidance to inform WHO and member states' actions on information sharing, particularly of pathogen samples and genetic sequence data; and to improve the effectiveness of how the Emergency Committee advises on the declaration of a public health emergency of international concern.<sup>119</sup> Similar review mechanisms have been used in arms control treaties to agree on interpretation and treaty implementation and improve state party compliance.<sup>120</sup>

IHR requires nations to provide relevant public health information to WHO following a potential PHEIC notification, including case definitions; laboratory results; case and death counts; and information concerning the source and risk posed by the epidemic threat, the conditions affecting its spread, and the health measures that have been deployed. The text of IHR does not explicitly include genetic sequences or isolates, and neither does WHO policy, but the phrase “public health information” could be broadly interpreted to do so.<sup>121</sup> Extending the scope of IHR in this manner would not address all information-sharing concerns that have arisen in the present pandemic but would help increase genetic sequence and sample sharing, and that alone would markedly improve global health security.<sup>122</sup>

In deciding not to declare the coronavirus a PHEIC on January 23, WHO Director General Tedros cited the divided views of the Emergency Committee, which ultimately advised it was “too early” for the declaration and that there were “a limited number of cases abroad.”<sup>123</sup> The WHO director general has sole power to declare a PHEIC, and acceptance of the advice of the Emergency Committee is not mandatory, but no director general has departed from the committee's recommendation in the thirteen years since the revised IHR entered into force. The competence and lack of transparency of the Emergency Committee have long been criticized, and a recent assessment found considerable inconsistencies in the Emergency Committee's statements regarding the application of PHEIC criteria and among the body's recommendations of whether they had been



met.<sup>124</sup> The procedures, independence, and functioning of the Emergency Committee could and should be improved via the Review Committee process, even without renegotiating IHR.

*Build global surveillance and forecasting capabilities.*

The Task Force recommends that the United States lead international efforts to build a modern national and global epidemic surveillance and forecasting capacity.

In a global crisis involving a highly transmissible novel pathogen, some heterogeneity in national responses is to be expected. Yet the current pandemic demonstrates that an international framework for pandemic detection and response that relies so heavily on the transparency, judgment, and discretion of individual national governments leaves too many opportunities for failure. The Task Force recommends the following measures to improve the availability and reliability of early epidemic threat surveillance and to enable rapid identification, characterization, and tracking of emerging infectious diseases.

First, the United States should work with other governments and civil society partners to build and integrate national and global epidemic surveillance systems, which would detect, share, and publicize early signs of an outbreak in near real time. This framework should establish a voluntary, international sentinel surveillance network, founded on health-care facilities around the world that regularly share hospitalization data, using anonymized patient information, to identify unusual trends. National voluntary sentinel surveillance systems could target vulnerable communities—such as nursing homes or low-income neighborhoods—which could allow for the detection of new, dangerous outbreaks within these groups before they became unstoppable. Participation in these international and national sentinel networks should be incentivized with grants and technology transfers.

Other surveillance methods being used in this and previous outbreaks are worth expanding. Wastewater surveillance to detect the presence of certain viruses was pioneered in polio eradication and is now being harnessed in some settings to track coronavirus trends. Kinsa, which uses internet-connected thermometers to predict the

spread of the flu, has been used to identify anomalous fever spikes that could be COVID-19 related. These and similar methods, known as syndromic surveillance, could be used more broadly to identify presence of pathogens with outbreak potential, even before people start becoming sick.

Just as national security agencies have expanded their activities to include and rely on data surveillance expertise, so should public health communities. Since 2013, the CDC has fostered an open collaboration, called FluSight, to improve the science and usability of epidemic forecasts of influenza for public health decision-making. Proposals to create similar systems for sharing data on epidemic threats are worthy of support.<sup>125</sup>

This data should feed into an integrated global disease surveillance data platform, created under the auspices of the Health Security Coordination Committee. This platform should enlist participating government agencies and relevant nongovernmental agencies to standardize assessment of data and characterization of threats. It should share the results of those assessments and raise the alarm over any unusual trends with the UN coordinator, WHO Emergency Program, and the general public. This global surveillance architecture should be linked to public health agencies in participating nations, including the CDC, so that the data can be used to directly inform preparedness and response activities to both global and domestic threats.

Within the United States, disease surveillance is a responsibility that has been split across multiple federal agencies without a true national system for consolidating reporting and assessment. A consolidated U.S. government office for epidemic threat surveillance and forecasting should be established, the most obvious location being within the CDC.

# Strengthen Pandemic Response

Finally, the Task Force recommends improvements in U.S. and global pandemic response. U.S. officials should deliver clear, science-driven communications on public health matters; create a nationwide U.S. strategy and capacity for testing, tracing, and isolation; adopt policies to improve the resilience of global supply chains for essential medicines and equipment; and establish a global framework to ensure the equitable allocation of vaccines.

*Deliver clear, science-based communication.*

The United States should build and execute on its capacity to deliver clear, transparent, and science-based communication with the American people as a critical dimension of successful pandemic preparedness and a fundamental obligation for all public officials.

Given the societal challenges that pandemics pose, educating the public will be critical to effective preparedness and response. Public officials from the president on down need to ensure that when they communicate with the American people, they are clear and credible and that their public health guidance on current and future risks and necessary policy measures is grounded in the best available science and the most up-to-date information. The United States cannot afford to have public health messages muddled or discounted because they are

couched in partisan messaging that seeks to downplay or exaggerate the dangers the country faces or the precautions needed to address these threats.

To help prevent domestic and global health security from becoming a political football, public officials at all levels, from the White House to state houses to city halls, should place physicians, epidemiologists, and other public health professionals front and center in public briefings, and they should showcase their expertise when describing the pandemic to the American people. Political authorities should be prepared to adjust their public health guidance as scientific evidence emerges and pandemics themselves evolve, for instance, in response to new research on the effectiveness of nonpharmaceutical measures or to unexpected spikes or recurrent waves of infection.

*Develop a national strategy for testing and tracing.*

The Task Force recommends that the United States immediately develop a national strategy and capability to support testing and contact tracing by states and localities that can be rapidly scaled up in any public health emergency.

No factor undercut the early U.S. response to COVID-19 more than the lack of a comprehensive nationwide strategy and capability for timely and accurate testing, tracing, and isolation. Without reliable, daily

estimates of the number of people infected across U.S. states and localities, public officials cannot know how quickly a pathogen is spreading, when a lockdown is required, or when resuming normal activities is safe. To avoid such debilitating knowledge gaps from recurring in the future, the executive branch and Congress should develop a coherent national strategy and capability, accompanied by sufficient funds, to help state and local health departments—with guidance from the CDC—bolster their existing systems for testing, reporting, and contact tracing.<sup>126</sup> The resulting system should deliver both speed and accuracy. It should be capable of being rapidly scaled up during public health emergencies and should leverage the latest digital technologies, including (with adequate U.S. privacy protections) contact tracing apps.<sup>127</sup>

To be successful, any nationwide scheme for testing and tracing needs to meet several hurdles. First, it should incentivize and expedite the development and manufacture of quality diagnostics by the private sector and university researchers, so that millions of individuals can be quickly tested to determine not only who is infected but also who has been exposed to the virus. Second, it should involve testing on a far more ambitious pace and scale than anything attempted during the first half of 2020 in the United States, including by mobilizing smaller labs rather than relying on a few large companies, streamlining supply chains for laboratory equipment, developing and deploying low-cost rapid tests for home use, and making broad community screening free for all individuals.<sup>128</sup> Third, testing should be accompanied from the start by a robust system of contact tracing, involving the training of tens, and potentially hundreds, of thousands of individuals in the complex skills needed to perform this task, based on national guidelines.<sup>129</sup>

The proposal for a federally funded National Public Health Corps staffed by hundreds of thousands of trained contact tracers, which has attracted bipartisan congressional support, is an idea worth exploring, even in a post-COVID world.<sup>130</sup> The Task Force believes, however, that any such initiative should ideally build on existing infrastructure, such as the U.S. Public Health Service Commissioned Corps, a six thousand–strong corps of uniformed public health professionals, or the Federally Qualified Health Centers, a nationwide network of community-based primary health-care providers that focuses on underserved areas.

Finally, patients who test positive need to have the ability to isolate themselves, in accordance with CDC guidelines, not only from their communities, but also from families and loved ones. Many Americans currently do not have the available lodging, requisite income, or child and elder care support to isolate effectively.

## *Maintain a dependable national stockpile.*

The Task Force recommends that the executive branch and Congress work together to ensure that the Strategic National Stockpile is appropriately resourced and stocked for future pandemics, and that there is no confusion between federal and state governments as to its purpose.

The United States cannot be caught in the same position as it was in early April 2020, when 90 percent of the stockpile's protective equipment was already gone, leading to a free-for-all by states and cities to try to obtain such materials themselves. To avoid such a scenario in the future, the government should fully fund the SNS and ensure that its contents are sufficient to provide U.S. states confronting an urgent public health emergency (whether a pandemic or bioterror event) with indispensable medicines and equipment before the private sector can be mobilized to meet local needs. The most critical products required for any such emergency should be prioritized over highly specialized products. These include, for example, antibiotics, emergency medical devices, PPE, and other essential materials.

The federal government should adopt a policy of transparency with respect to the contents of the SNS so that both federal and state officials are aware of what it does and does not contain, and institute clear procedures for fulfilling requests from states based on need and urgency during moments of crises. To improve the reliability and timeliness of the SNS distribution capacity, the executive branch and Congress should consider creating a public-private partnership that has the ability to ship drugs and medical equipment directly to health systems based on their daily or weekly needs. Such an entity should also have the ability to balance total supply against demands across the nation. The SNS should be prepared to address demand surges and shortages of essential medicines during a pandemic, including by careful management of inventory for drugs and equipment routinely sold to health systems through normal distribution channels to avoid the waste associated with letting SNS products expire. In an extended pandemic crisis, the SNS system should be prepared to act as a central purchasing agent on behalf of state governments to prevent competition

from driving up prices and leading to unnecessary shortages of PPE and essential medical supplies.

At the same time, states should devote a greater share of their budgets to maintaining emergency stockpiles of certain essential materials of their own at levels adequate for their respective populations. The SNS is designed to support and supplement, not supplant, these state-level stockpiles. Federal and state governments should collaborate in the negotiation of standing contracts with private-sector corporations to surge production of essential medicines, equipment, and materials that could become quickly depleted during emergencies. To help ensure both the efficiency of the national stockpile and its accountable use, relevant congressional committees should hold regular hearings on the adequacy of its contents and provisions for its deployment, as well as on defining potential triggers for invoking the Defense Production Act to meet critical needs in public health emergencies.

### *Diversify global supply chains.*

The Task Force recommends that the United States diversify its global supply chains of critical medical supplies and protective equipment for resilience and reliability without unduly distorting international trade.

The COVID-19 pandemic has shown the need to strengthen and diversify global supply chains for medicines so that the United States is not left vulnerable to disruptions, shortages, price volatility, and quality questions when it comes to pharmaceuticals and other critical medical supplies.<sup>131</sup> Today, most of the active ingredients in the pharmaceuticals used by U.S. consumers are manufactured abroad. An estimated one-third of these supplies come from China and India. During the early months of the pandemic, China discontinued production and India restricted exports of certain medicines.

The United States should adopt a multifaceted approach to reducing its exposure to such shocks in the future, with the objectives of protecting against supply chain disruption. Important steps to reduce U.S. vulnerabilities would include

- creating an essential medicines list to set priorities for policy, investments, and regulatory reviews;
- improving the transparency of global supply chains, including enhanced data on the sourcing, pricing, and quality of drugs;
- diversifying overseas sources of production;
- expanding domestic production of critical medicines through government incentives for building new U.S. manufacturing capacities;
- increasing U.S. stockpiles of critical medicines, including within the SNS;
- enhancing crisis cooperation on global supply chains among close U.S. partners and allies, including through emergency sharing arrangements; and
- strengthening multilateral regulatory cooperation among major producer nations to ensure common standards and quality control, including during emergencies.<sup>132</sup>

To protect against disruptions, the FDA should produce regular updates on supply chain vulnerabilities relevant to both branded and generic drugs, from raw materials to finished products and the ancillary supplies (vials, syringes, etc.) involved in their use.

*Support multilateral mechanisms for the equitable allocation of vaccines.*

The Task Force recommends that the United States support multilateral mechanisms to manufacture, allocate, and deliver COVID-19 vaccines, therapeutics, and diagnostics in a globally fair manner consistent with public health needs.

Development of COVID-19 vaccines is progressing rapidly around the world. Numerous trials are also underway to find effective therapeutics to treat the disease, with several promising candidates even further



advanced than the potential vaccines. This Task Force recommends that the global allocation and delivery of COVID-19 therapeutics, diagnostics, and vaccines should be equitable, public health-driven, and globally coordinated.

Absent global coordination, countries could bid against one another, driving up the price of vaccines, therapeutics, diagnostics, and related materials. The result could be not only an unnecessary loss of life and economic costs for already suffering economies, but also a legacy of resentment against vaccine-hoarding nations. That resentment would undermine the global cooperation required to tackle future outbreaks and have ongoing, adverse economic, diplomatic, and strategic consequences for U.S. interests.<sup>133</sup>

If, for example, early doses of COVID-19 vaccines were fairly distributed to protect health workers and those most likely to die or become hospitalized, the human and economic toll of the disease globally would be significantly reduced, allowing many economies to begin recovering. In the interim, additional doses of the vaccine should be manufactured and made available to the less vulnerable over time. Developing a globally fair, public health-driven allocation system for the earliest available vaccine doses is critical for preparing and responding to the next pandemic.

CEPI, Gavi, and WHO are developing a globally fair allocation system to ensure that the limited early doses of any COVID-19 vaccines are equitably distributed. The Task Force recommends that the United States work with a coalition of political leaders from countries representing the majority of global vaccine-manufacturing capacity to support these organizations and help fund their efforts on distribution and allocation. Building a globally fair allocation system requires commitments from the pharmaceutical industry to make their early doses available for purchase through that global procurement facility and commitments from countries to buy their first doses through the facility. Countries should enter into a COVID-19 trade and investment agreement, which articulates the conditions for sharing vaccine supplies and includes commitments to forgo export bans and expropriation of those supplies against other parties to the agreement.<sup>134</sup> This enforceable infrastructure would facilitate country sharing of vaccines and could be developed and expanded for potential use for therapeutics, diagnostics, and other essential medical supplies and in future pandemics.

# CONCLUSION

The COVID-19 pandemic is not over. It continues its deadly march, and the specter of new waves of the disease will haunt us until scientists develop a vaccine. The only thing that is certain is that when this virus is vanquished, another will take its place. This report is intended to ensure that in future waves of the current pandemic and when the next one occurs, the United States and the world are better prepared to avoid at least some of the missteps that have cost humanity so dearly.

Pandemics are inevitable, but the systemic policy failures that have accompanied the spread of this coronavirus were not. As this report documents, the United States, other nations, and international organizations have failed to prepare for the inevitability of pandemic disease, neglecting to invest in the national and multilateral public health institutions and systems required to respond quickly when a novel pathogen strikes. The cost of such complacency can be tallied in the lives lost and livelihoods upended.

The recommendations in this report are designed to ensure that such a tragedy of this magnitude never happens again. The Task Force stresses that the national and international dimensions of the pandemic are mutually reinforcing and cannot be considered in isolation. This is true above all when it comes to the role of the United States. If the COVID-19 pandemic has revealed anything, it is that strong and sustained U.S. global leadership remains essential for effective multilateral cooperation. There is simply no substitute. When the United States adopts an insular posture, rather than working to rally the world behind a common objective, there is nobody to pick up the baton. The result is more likely to be a haphazard and disjointed international response, as nations go their own way, regardless of the formal and informal organizational structures that exist.

A world without U.S. leadership, in which the United States eschews any responsibility for what occurs beyond its borders, is a less safe and prosperous place, not least for Americans.

# ADDITIONAL AND DISSENTING VIEWS

How can the United States prepare for a truly equitable response to the next pandemic?<sup>135</sup>

***First, we should acknowledge that pandemics typically exacerbate preexisting disparities.***<sup>136</sup> When health and economic crises co-occur, such as with COVID-19, socially disadvantaged groups face a double jeopardy.<sup>137</sup> Low-wage workers are less likely to have paid sick and family leave or even minimal savings to pay for essentials such as food, housing, and health care.<sup>138</sup> And because of structural racism, Black, Latinx, and other people of color are more likely to be frontline workers, live in overcrowded housing, suffer from chronic diseases, and be denied access to testing, treatment, and PPE.<sup>139</sup>

***Second, if it is not measured, it will not be managed.*** Weeks passed before public health officials recognized and reported that people of color were suffering disproportionately from COVID-19. At the start of pandemics, public health agencies should disaggregate and then publicly report data by age, race, ethnicity, gender, disability, zip code, and other sociodemographic characteristics.<sup>140</sup> Disaggregation should extend not only to case, hospitalization, and mortality data, but also to the availability of testing, treatment, PPE, and safe places to isolate when sick; receipt of social and economic supports; and the downstream socioeconomic harm of pandemics.

***Third, populations most affected by health and economic challenges should be included in decision-making.*** Policymakers should consult with community-based organizations to identify barriers to health and social services, disseminate public health guidance in culturally

and linguistically appropriate ways, and lift up grassroots policy options.<sup>141</sup> These relationships should begin during periods of calm: if the first interaction is during a pandemic, it is too late to build trust and collaboration. States and communities should also establish teams dedicated to promoting racial equity in response efforts. These entities should include leaders of color from the public and private sectors, be integrated into the broader public health and economic response, and be accountable to the public. These teams could ensure that critical health and social supports are distributed fairly and proportionately to need.

***Fourth, the United States should improve living conditions and remove barriers to health in good times and advance a robust policy response in times of crisis.*** Bolstering the U.S. health and social safety net will lead to better, more equitable outcomes in future pandemics and recessions.<sup>142</sup> The United States needs a comprehensive public health system, which will require sizable reinvestments from all levels of government.<sup>143</sup> In addition, the United States should join other Organization for Economic Cooperation and Development (OECD) nations by ensuring that all residents have paid sick and family leave; living wages; affordable, accessible, high-speed internet; and comprehensive, affordable health insurance.<sup>144</sup> In the next few months, the twelve holdout states should expand Medicaid for its proven ability to boost health, reduce disparities, and provide a strong return on investment.<sup>145</sup> During pandemics, emergency health, economic, and social supports should be available to all residents regardless of work or immigration status. Such supports should be automatically triggered based on predefined criteria and should continue for the duration of the pandemic or related recession.

**—Richard E. Besser**  
***joined by Luciana Borio, William H. Frist, Helene D. Gayle,***  
***Amy Pope, Sonya Stokes, and Rajeev Venkayya***

Despite great admiration for the scholarship it reflects and appreciation for many of its findings and recommendations, I am unable to join in endorsing the final report and instead have accepted the Council on Foreign Relations' invitation to submit dissenting views.

My reservations stem more from the report's omissions than its conclusions. Among the topics I believe would have improved the report include the following:

- Despite the frequent references to the need for science-based information, as the pandemic unfolded, much new evidence suggesting alternatives to early lockdown strategies was disregarded, or even actively suppressed. Responsible public health policy should be not just open to but also vigorously inquisitive about emerging contrary data, especially in the case of a new and not well-understood pathogen.
- The rationale given to the public for the policy choices being made sometimes shifted to fit the existing strategy. This engendered public confusion and, too often, cynicism and resistance.
- Many of the world's health authorities took too long to identify the starkly different danger of the virus across age and health status categories, or to recognize and react to those facts. This led to thousands of additional deaths, while imposing excessive social, medical, mental health, and economic costs on millions. It would not be necessary to criticize any individuals for decisions made on the imperfect early information in order to still point out the costs of not sooner recognizing and acting upon the disease's disparate effects.
- In a related omission, there is no mention of the relative outcomes in nations that chose less restrictive and intrusive approaches; many of them appear to have fared better than the United States and countries with similar, restrictive policies and could look better still over time.
- The essence of public leadership, especially in a cataclysmic circumstance like COVID-19, is the balancing of multiple risks and interests. A global health system that makes little or no attempt to estimate the inevitable costs and consequences of various medical strategies, but rather focuses one-dimensionally on stopping a disease regardless of costs or downside effects, does not serve as well as it should.

- The report takes no account of the fiscal challenges that the United States, and in fact a world of heavily indebted governments, faces but rather urges the spending of more money on a host of programs old and new. At a minimum, it would have been useful to suggest some current expenditures in the global health realm that are of lower priority and could serve as a source for some of this flood of new funding.

I regret my inability to embrace the study fully, but deeply appreciate the invitation to take part in the Task Force and the many insights I gained from listening to its stellar assembly of participants.

—*Mitchell E. Daniels Jr.*

Compliance with IHR obligations will inevitably conflict with the sovereignty of participating nations. Understandably, member states will be inclined to put the needs and rights of their respective governments and citizens above global health prerogatives without appropriate incentives and disincentives. The expectation for the WHO to compel cooperation from a given country is irrational and antithetical to the institution's basic mandate; WHO cannot serve the dual roles of advisor and enforcer without compromising one for the other. It is therefore prudent to maximize intelligence gathering and operational capabilities through means and methods that bypass sovereignty.

As we seek out and embrace newer, more efficient models to prevent, detect, and respond to pandemics, we should recall that in the many weeks preceding the PHEIC declaration, clinicians were connecting through back channels on social media and communicating urgent findings to their colleagues and, eventually, to the world. We should remember that it was an ophthalmologist in Wuhan, China, and later an intensive care specialist in Bergamo, Italy, who sounded the alarms forcing their countries to listen and act. Perhaps these warnings came too late, but there is a strong argument that the major inflection points in the pandemic came from health-care providers on the front lines raising their voices at great professional and personal risk.

Information sharing and response coordination across tenuous trust networks can be strengthened by placing these front-line providers in central roles of epidemiologic surveillance. Front-line providers

already possess the prerequisite access and expertise, and their primary responsibility is to the safety and well-being of their patients above all other concerns, including sovereign interests. With the right resources and authority, they can become leaders in the early detection and rapid response to any future pandemic. And putting power in the hands of front-line providers creates a mutually reinforcing system that also empowers WHO with leverage that prioritizes the health and security of all nations before the individual sovereignty of one.

—*Sonya Stokes*  
*joined by Rajeiv Venkayya*

The progress we have made in developing vaccines, therapeutics, and diagnostics for COVID-19 creates an opportunity to change the trajectory of the next pandemic. Three factors make this possible: a clearer understanding of the pandemic threat; advances in biomedical science, product development, and manufacturing platforms; and an enduring concern that could motivate unprecedented investment and action. While the following recommendation goes beyond the scope of the Task Force report, it is relevant to future preparedness.

Prior to COVID-19, experts assumed an influenza virus would cause the next pandemic, and that assumption was the basis for planning and investments. The world faced one mild influenza pandemic in 2009, but two other threats came from the coronavirus family: SARS (2003) and MERS (2012) before the emergence of SARS-CoV-2. Between COVID-19 and the discovery of more than fifty SARS-related viruses in bats alone, we can reasonably conclude that coronaviruses have joined influenza viruses as the greatest pandemic threats.<sup>146</sup> And given the frequency of recent outbreaks, we could confront the next pandemic within the next five to ten years.

By early 2021, we will have massively expanded our understanding of coronavirus biology, targets for drug and vaccine interventions, the viability of new vaccine platforms to rapidly develop and manufacture effective vaccines, the effectiveness and safety of several new adjuvants, and the most promising rapid diagnostics. These advances could drive a renaissance in virology, vaccinology, vaccine manufacturing, and antiviral development that would make it possible to develop broadly protective antivirals, monoclonal antibodies, and vaccines for future



threats. When combined with innovations in clinical development and regulatory science, as well as advances in diagnostics, we could envision creating a robust toolkit of countermeasures for coronaviruses and influenza viruses before the next pandemic.<sup>147</sup>

Now is the time for a “Mars Shot” public-private partnership to take coronaviruses and influenza viruses off the table as future pandemic threats. Governments, the biopharmaceutical industry, and the scientific community should commit to developing a suite of universal countermeasures for these two families of viruses, targeting common antigens and pathways, with a high likelihood of efficacy against a broad range of potential pandemic viruses identified in animal populations. The utility of this initiative would not be limited to pandemic preparedness. Seasonal influenza and coronavirus infections cause a substantial global burden of illness that would benefit from better tools.

Thousands of industry and academic groups that are working on COVID-19 could be enlisted in this effort, and there will be no shortage of talent. The pandemic will leave an indelible mark on a generation of students and young professionals who will commit themselves to careers in science, public health, medicine, and biotechnology, just as happened with the space race in the 1960s.

In 1980, the world eradicated smallpox after millennia of illness, suffering, and death. We have an extraordinary opportunity to develop the right tools for the next pandemic before the first person is infected by an as-yet-unknown virus. This is the challenge before us, and one that we should accept.

*—Rajeev Venkayya  
joined by Helene D. Gayle and Sonya Stokes*

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# ACRONYMS

**CDC**

Centers for Disease Control and Prevention

**CEPI**

Coalition for Epidemic Preparedness Innovations

**CSIS**

Center for Strategic and International Studies

**DPA**

Defense Production Act

**DRC**

Democratic Republic of Congo

**FDA**

Food and Drug Administration

**FEMA**

Federal Emergency Management Agency

**FY**

fiscal year

**G7**

Group of Seven

**G20**

Group of Twenty

**GDP**

gross domestic product

**GHSA**

Global Health Security Agenda

**GHS Index**

Global Health Security Index

**H1N1**

2009 Influenza A Virus

**HHS**

Department of Health and Human Services

**HPP**

Hospital Preparedness Program

**IFRC**

International Federation of  
Red Cross and Red Crescent  
Societies

**IHR**

International Health Regulations

**IMF**

International Monetary Fund

**JEE**

Joint External Evaluation

**MERS**

Middle East Respiratory  
Syndrome

**MSF**

Médecins Sans Frontières

**NAPHS**

National Action Plan for  
Health Security

**NATO**

North Atlantic Treaty  
Organization

**OMB**

Office of Management  
and Budget

**PHEIC**

Public Health Emergency of  
International Concern

**PPE**

personal protective equipment

**ProMED**

Program for Monitoring  
Emerging Diseases

**R&D**

research and development

**SARS**

Severe Acute Respiratory  
Syndrome

**SARS-CoV-2**

Severe Acute Respiratory  
Syndrome Coronavirus 2

**SNS**

Strategic National Stockpile



**USAID**

United States Agency for  
International Development

**WHO**

World Health Organization

**WTO**

World Trade Organization

# TASK FORCE MEMBERS

Task Force members are asked to join a consensus signifying that they endorse “the general policy thrust and judgments reached by the group, though not necessarily every finding and recommendation.” They participate in the Task Force in their individual, not their institutional, capacities.

**Richard E. Besser** is president and CEO of the Robert Wood Johnson Foundation (RWJF). Besser is the former acting director for the Centers for Disease Control and Prevention (CDC) and ABC News’ former chief health and medical editor. At RWJF, Besser leads the largest private foundation in the country devoted solely to improving the nation’s health. While at ABC News, Besser traveled all over the United States and around the globe to cover major medical news stories. Previously, Besser worked as director of the CDC’s Coordinating Office for Terrorism Preparedness and Emergency Response and acting director of the CDC from January to June 2009, during which time he led the CDC’s response to the H1N1 influenza pandemic. Besser began at the CDC in 1991, working on the epidemiology of foodborne illness; he then served for five years on the faculty of the University of California, San Diego, as the pediatric residency director, and returned to the CDC in 1998 as an infectious disease epidemiologist. He is the author or coauthor of hundreds of abstracts, papers and presentations, including the book *Tell Me the Truth, Doctor: Easy-to-Understand Answers to Your Most Confusing and Critical Health Questions*, and has earned many awards for his work in public health and for his volunteer service. Besser received his BA in economics from Williams College and his MD from the University of Pennsylvania. He completed a residency

and chief residency in pediatrics at Johns Hopkins University Hospital in Baltimore and is a member of the National Academy of Medicine.

**Thomas J. Bollyky** is director of the Global Health program and senior fellow for global health, economics, and development at CFR. He is also an adjunct professor of law at Georgetown University. Bollyky is the author of the book *Plagues and the Paradox of Progress: Why the World Is Getting Healthier in Worrisome Ways* and the founder and managing editor of Think Global Health, an online magazine that examines the ways health shapes economies, societies, and everyday lives around the world. Prior to coming to CFR, Bollyky served in a variety of positions in the U.S. government, most recently at the Office of the U.S. Trade Representative. Bollyky has testified multiple times before the U.S. Senate, and his work has appeared in many publications including *Foreign Affairs*, *New York Times*, *Science*, and *New England Journal of Medicine*. He has served as a consultant to the Bill & Melinda Gates Foundation and as a temporary legal advisor to the World Health Organization. In 2013, the World Economic Forum named Bollyky as one of its global leaders under forty. Bollyky received a BA in biology and history from Columbia University and a JD from Stanford Law School.

**Luciana Borio** is vice president of technical staff at In-Q-Tel, an independent, nonprofit, strategic investment firm that works to identify, adapt, and deliver innovative technology solutions to support the missions of the United States intelligence community. She also serves as a senior fellow for global health at the Council on Foreign Relations. She specializes in biodefense, emerging infectious diseases, medical product development, and complex public health emergencies. She served as director for medical and biodefense preparedness at the National Security Council from 2017 to 2019, where she coordinated the response to the Ebola epidemic in West Africa, efforts to combat antimicrobial resistance, and the development of an executive order to modernize America's influenza vaccines. Before that, she served as the acting chief scientist of the U.S. Food and Drug Administration from 2015 to 2017 and the assistant commissioner for FDA counterterrorism policy from 2010 to 2017. Borio is an adjunct assistant professor of medicine at Johns Hopkins University. She obtained her MD from George Washington University. Borio completed a residency in internal medicine at New York-Presbyterian/Weill Cornell Medical Center and a combined fellowship in infectious diseases at Johns Hopkins and critical

care at the National Institutes of Health. She continues to practice medicine part-time at Johns Hopkins.

**Sylvia Mathews Burwell** is the fifteenth president of American University in Washington, DC. She previously served as secretary for the U.S. Department of Health and Human Services under President Barack Obama. Prior to that, she was director of the White House Office of Management and Budget, to which she was confirmed by the Senate on April 24, 2013. From 2012 until her appointment at OMB, Burwell served as president of the Walmart Foundation, and before that, she was president of the global development program at the Bill & Melinda Gates Foundation, where she worked for ten years and was also the first chief operating officer. During the Bill Clinton administration, she served as deputy director of OMB, deputy chief of staff to the president, chief of staff to the secretary of the Treasury, and staff director of the National Economic Council. Burwell is on the boards of the Council on Foreign Relations and GuideWell. She received an AB from Harvard University and a BA from Oxford University.

**Isobel Coleman** is an advisor to a variety of global development and multilateral institutions. From 2018 to 2020, she was the chief operating officer of GiveDirectly, an innovative nonprofit tackling extreme poverty through cash transfers. She served as U.S. ambassador to the United Nations for management, reform, and special political affairs from 2014 to 2017. During that time, she represented the United States in the UN General Assembly on budgetary matters and in the UN Security Council with responsibility for Africa and peacekeeping issues. From 2002 to 2014, Coleman was a senior fellow at the Council on Foreign Relations, where she wrote extensively about the economic development of the Middle East and sub-Saharan Africa for publications such as *Atlantic*, *Foreign Policy*, *Foreign Affairs*, and *Washington Post*. She started her career at McKinsey & Company in New York, where she ultimately became a partner in the firm's financial institutions group. She is the author and coauthor of numerous books, including *Pathways to Freedom: Political and Economic Lessons from Democratic Transitions* and *Paradise Beneath Her Feet: How Women Are Transforming the Middle East*. She graduated from Princeton University and attended Oxford University, where she earned her MPhil and DPhil in international relations.

**Tony Coles** is executive chairman and chief executive officer of Cerevel Therapeutics, a biotechnology company specializing in the development of new therapies for central nervous system diseases. Coles is chairman of Yumanity Therapeutics, a biotechnology company focused on transforming drug discovery for neurodegenerative diseases caused by protein misfolding, such as Alzheimer's, Parkinson's, and amyotrophic lateral sclerosis (ALS). Previously, Coles was chairman and chief executive officer of Onyx Pharmaceuticals, Inc. Prior to joining Onyx, he was president, chief executive officer, and a member of the board of directors of NPS Pharmaceuticals, Inc. Before that, Coles was senior vice president of commercial operations at Vertex Pharmaceuticals Inc., and earlier, held a number of executive positions at Bristol-Myers Squibb Company and several positions at Merck & Co., Inc. He is a board member of McKesson Corporation, Regeneron, and the Council on Foreign Relations; a member of the board of trustees for the Metropolitan Museum of Art; a member of the council for the Smithsonian's National Museum of African American History and Culture; and a member on the Harvard Medical School Advisory Board. Educated at Johns Hopkins University, he earned a master's degree in public health from Harvard University and a medical degree from Duke University. He completed his cardiology and internal medicine training at Massachusetts General Hospital and was a research fellow at Harvard Medical School.

**Mitchell E. Daniels Jr.** is the twelfth president of Purdue University. He was elected Indiana's forty-ninth governor in 2004 and reelected in 2008. During his tenure, Indiana went from an \$800 million deficit to its first AAA credit rating, led the nation in infrastructure building, and passed sweeping education and health-care reforms. At Purdue, Daniels has prioritized student affordability and reinvestment in the university's strengths. Breaking with a thirty-six-year trend, Purdue has held tuition unchanged from 2012 through at least the 2021–22 academic year. Prior to becoming governor, Daniels served as chief of staff to Senator Richard Lugar, senior advisor to President Ronald Reagan, and director of the White House Office of Management and Budget under President George W. Bush. He was also the chief executive officer of the Hudson Institute. During an eleven-year career at Eli Lilly and Company, he held a number of top executive posts including president of North American pharmaceutical operations. Daniels earned a bachelor's degree from Princeton University's Woodrow Wilson School of Public and International Affairs and a law degree from Georgetown University.

He is the author of three books and a contributing columnist for *Washington Post*.

**William H. Frist** is a heart transplant surgeon, former U.S. Senate majority leader, and founding partner at Frist Cressey Ventures, where he works to solve health care's most pressing challenges with innovative private-sector solutions. Frist represented Tennessee in the Senate for twelve years and was elected majority leader in 2003. He served on the Senate Foreign Relations Committee and chaired the Subcommittee on Africa and Global Health Policy. He led the passage of historic PEPFAR HIV/AIDS legislation that has saved millions of lives worldwide. As founder and director of the Vanderbilt Transplant Center, he performed over 150 heart and lung transplants, authored more than one hundred peer-reviewed articles, and published seven books. He continues to serve as an adjunct professor of surgery at the Vanderbilt University School of Medicine. In 2004, Frist founded Hope Through Healing Hands, a global health nonprofit that annually places health leaders around the world. He has performed surgery in twelve African nations on medical mission trips and has written on medicine as a currency of peace. Frist has annually led emergency response teams to disasters around the globe, including to Sri Lanka after the Indian Ocean Tsunami, Bangladesh, Sudan, New Orleans after Hurricane Katrina, Haiti after the 2010 earthquake, and the Horn of Africa. Frist graduated from Princeton University's Woodrow Wilson School of Public and International Affairs and Harvard Medical School. He completed surgical training at Massachusetts General Hospital and Stanford University Medical Center.

**Helene D. Gayle** joined the Chicago Community Trust as president and chief executive officer in 2017. She began her career as a physician before entering the public health and global development fields. She has worked for the Centers for Disease Control and Prevention, Bill & Melinda Gates Foundation, CARE, and McKinsey Social Initiative (now McKinsey.org). Gayle earned a BA at Barnard College, an MD at the University of Pennsylvania, and an MPH at Johns Hopkins University.

**Margaret (Peggy) Hamburg** is an internationally recognized expert in medicine and public health and a leading authority on emergency preparedness and response. She recently completed her term as foreign secretary for the National Academy of Medicine. Previously, Hamburg was commissioner of the Food and Drug Administration, where

she was known for advancing regulatory science, medical product innovation, and the globalization of the agency, while also overseeing the implementation of laws to curb tobacco use and to enhance food safety. Hamburg's previous positions include president and chair of the American Association for the Advancement of Science; vice president and senior scientist at the Nuclear Threat Initiative; New York City health commissioner; assistant secretary for planning and evaluation, Department of Health and Human Services; and assistant director of the National Institute of Allergy and Infectious Diseases, National Institutes of Health. She serves on numerous boards and advisory committees. She is a graduate of Harvard College and Harvard Medical School.

**Rebecca L. Katz** is a professor and director of the Center for Global Health Science and Security at Georgetown University Medical Center. She teaches courses on global health diplomacy, global health security, and emerging infectious diseases in the School of Foreign Service. Since 2007, much of her work has focused on the domestic and global implementation of the International Health Regulations, as well as global governance of public health emergencies. From 2004 to 2019, Katz was a consultant to the U.S. Department of State, working on issues related to the Biological Weapons Convention, pandemic influenza, and disease surveillance. Katz received her undergraduate degree from Swarthmore College, an MPH from Yale University, and a PhD from Princeton University.

**Juliette Kayyem** is a professor at Harvard University's Kennedy School of Government, where she is faculty chair of the homeland security and global health projects. She is also an on-air national security analyst on CNN. Previously, she served as President Barack Obama's assistant secretary at the Department of Homeland Security and the homeland security advisor to the governor of Massachusetts. The author of *Security Mom*, she is also a Pulitzer finalist for her opinion columns in *Boston Globe*. Kayyem is the founder of Kayyem Solutions, LLC, which provides strategic advice in cybersecurity, resiliency planning, risk management, mega-event security, infrastructure protection, and cybersecurity. She is a graduate of Harvard College and Harvard Law School.

**Jimmy Kolker** was assistant secretary for global affairs in the Department of Health and Human Services for the 2014 to 2016 Ebola and Zika outbreaks and the scale-up of the U.S. government-led global health security agenda. He represented the United States at the World Health Organization and the Global Fund to Fight AIDS, Tuberculosis and Malaria. As ambassador to Uganda, Kolker helped launch President George W. Bush's emergency plan for AIDS relief and further defined the field of health diplomacy in subsequent jobs at the UN Children's Fund and as head of global affairs at HHS. During his thirty-year foreign service career, Kolker was ambassador to Burkina Faso and Uganda and deputy chief of mission in Botswana and Denmark, and won awards for political reporting in earlier posts in Mozambique, Zimbabwe, Sweden, and the United Kingdom. In retirement, he serves on the boards of foundations and nongovernmental organizations dealing with Africa and with global health. He co-teaches a graduate course at Georgetown School of Foreign Service on global health security and was a member of the Center for Strategic and International Studies commission that produced the December 2019 report *Ending the Cycle of Crisis and Complacency in U.S. Global Health Security*. He has a BA and honorary doctorate from Carleton College and an MPA from Harvard University's Kennedy School of Government.

**Stanley McChrystal** is founder of McChrystal Group LLC, a retired four-star general, and the former commander of U.S. and International Security Assistance Forces (ISAF) Afghanistan, as well as the former commander of the nation's premier military counterterrorism force, Joint Special Operations Command (JSOC). His JSOC leadership is credited with the 2003 capture of Saddam Hussein and the 2006 location and killing of Abu Musab al-Zarqawi, the leader of al-Qaeda in Iraq. In addition to commanding ISAF and JSOC, he has held leadership and staff positions in the Army Special Forces, Army Rangers, 82nd Airborne Division, the XVIII Army Airborne Corp, and the Joint Staff. McChrystal has served on several corporate boards of directors, including Deutsche Bank America, JetBlue Airways, Navistar, Siemens Government Technologies, Fiscal Note, and Accent Technologies. He is a senior fellow at Yale University's Jackson Institute for Global Affairs and chair of the board of Service Year Alliance. He is the author of *My Share of the Task: A Memoir*, *Team of Teams: New Rules of Engagement for a Complex World*, and *Leaders: Myth and Reality*. McChrystal is a graduate of West Point and the U.S. Naval War College and completed



fellowships at Harvard University's Kennedy School of Government and at the Council on Foreign Relations.

**Christopher J. Murray** is institute director of the Institute for Health Metrics and Evaluation (IHME) and professor and chair of health metrics sciences at the University of Washington. Murray's career has focused on improving health for everyone worldwide by improving health evidence. A physician and health economist, his work has led to the development of a range of new methods and empirical studies to strengthen health measurement, analyze the performance of public health and medical care systems, and assess the cost-effectiveness of health technologies. IHME provides rigorous and comparable measurement of the world's most important health problems and evaluates the strategies used to address them. Before founding IHME, Murray served as executive director of the evidence and information for policy cluster at the World Health Organization, director of the Harvard Initiative for Global Health and Harvard Center for Population and Development Studies, and Richard Saltonstall professor of public policy at the Harvard School of Public Health. He is an elected member of the National Academy of Medicine and 2018 co-recipient of the John Dirks Canada Gairdner Global Health Award.

**Janet Napolitano** is a professor of public policy at the Goldman School of Public Policy at the University of California, Berkeley. She served as the twentieth president of the University of California, the nation's largest public research university with ten campuses, five medical centers, three affiliated national laboratories, and a statewide agriculture and natural resources program. Prior to joining the University of California, Napolitano served as secretary of homeland security from 2009 to 2013. She is a former two-term governor of Arizona, a former attorney general of Arizona, and a former U.S. attorney for the District of Arizona. In 2019, Napolitano published *How Safe Are We? Homeland Security Since 9/11*. Napolitano earned her BS in political science from Santa Clara University and her JD from the University of Virginia.

**Stewart M. Patrick** is James H. Binger senior fellow in global governance and director of the International Institutions and Global Governance program at CFR. From 2005 to 2008, he was a research fellow at the Center for Global Development, where he directed research and policymaking at the intersection of security and development. Patrick has also served on the U.S. State Department's policy planning

staff, where he was responsible for U.S. policy toward Afghanistan and a range of global and transnational issues. Prior to government service, he was a research associate at New York University's Center on International Cooperation. He has taught at Johns Hopkins University's School of Advanced International Studies and at New York University. The author of *The Sovereignty Wars: Reconciling America With the World*, Patrick has also written, cowritten, or edited five books, including *Weak Links: Fragile States, Global Threats, and International Security*. He also writes the *Internationalist* blog for CFR. Patrick graduated from Stanford University and received two MAs and a PhD in international relations from Oxford University.

**Amy Pope** is a partner at the law and consulting firm Schillings International LLP in London, where she advises individual and corporate clients in their most sensitive, complex, and high-profile matters wherever across the globe they arise. She is also an associate fellow at Chatham House's U.S. and Americas program, and a senior nonresident fellow at the Atlantic Council's Adrienne Arsht Center for Resilience. Before joining Schillings, Pope served at the White House as U.S. deputy homeland security advisor to President Barack Obama. As part of the National Security Council staff, she was responsible for coordinating the federal response to a range of threats to the country, including Ebola and Zika. She also served in several positions at the U.S. Department of Justice, including as a senior official in the Criminal Division and as a federal prosecutor, in the Senate as counsel to the Senate Judiciary Committee, and later, as counsel in the office of the Senate majority leader. Pope graduated from Duke Law School and Haverford College.

**Kurt L. Schmoke** is the eighth president of University of Baltimore (UB). Schmoke served as the mayor of Baltimore from 1987 to 1999 and was the Baltimore city state's attorney from 1982 to 1987. Prior to joining UB, he was dean of the Howard University School of Law from 2003 to 2012. Following that, he was appointed general counsel for Howard and also served as the institution's interim provost. During his tenure as mayor, Schmoke initiated a number of innovative programs in housing, education, public health, and economic development. Schmoke previously served as assistant U.S. attorney for the District of Maryland and assistant director of the White House domestic policy staff under President Jimmy Carter. After completing three terms as mayor, Schmoke returned to the practice of law as a partner at Wilmer,

Cutler and Pickering. He is involved with the National Bar Association and the American Bar Association, and served as chair of the council on racial and ethnic justice for the latter. At UB, Schmoke has continued the institution's emphasis on a career-minded education and promoted the campus's involvement in strengthening the city. Schmoke is a member of the boards of several organizations, including the Howard Hughes Medical Institute, S&P Global, Inc., Baltimore City Community College, Hippodrome Foundation, and Baltimore Community Foundation. Schmoke earned his undergraduate degree in history from Yale University. He pursued graduate studies at Oxford University and earned his juris doctorate from Harvard Law School.

**Sonya Stokes** is an assistant professor at Mount Sinai Icahn School of Medicine in the division of emergency medicine and global health and a fellow at Johns Hopkins Center for Health Security in the division of biosecurity. She specializes in health systems strengthening in low- and middle-income countries, and her research focuses on increasing access to trauma and acute care in resource-limited settings. During the initial COVID-19 outbreak in New York City, Stokes was part of the frontline response treating COVID-19 patients in the emergency department. In addition to her clinical work, she contributed to the COVID-19 mass casualty triage protocol, and she currently serves on the Mount Sinai Best Practices Committee for evaluating and managing COVID-19 patients in the emergency department. Stokes received her medical degree from the University of California Davis School of Medicine, and she completed her fellowship training in international emergency medicine at Columbia University Medical Center, where she also earned a master of public health in the program on forced migration and humanitarian assistance. She continues practicing emergency medicine in New York City.

**Frances Fragos Townsend** is vice chairman, general counsel, and chief administration officer at MacAndrews & Forbes, Inc. She was formerly executive vice president for worldwide government, legal, and business affairs, working across MacAndrews's portfolio companies focusing on international, legal, compliance, and business development issues. From 2004 to 2008, Townsend served as assistant to President George W. Bush for homeland security and counterterrorism and chaired the Homeland Security Council. She also served as deputy national security advisor for combating terrorism from 2003 to 2004. Townsend spent thirteen years at the U.S. Department of Justice under multiple administrations and

received numerous awards for her public service. She is an on-air senior national security analyst for CBS News and, before that, was at CNN for seven years. Townsend serves on the office of the director of national intelligence's senior advisory group and previously served on the CIA external advisory board and the President's Intelligence Advisory Board. She is a director on the boards of four public companies and serves on the boards of three private companies. Townsend is a board member at the Atlantic Council; the Center for Strategic and International Studies; the International Republican Institute; the Intrepid Sea, Air, and Space Museum; the McCain Institute; and the New York City Police Foundation. She also serves on CFR's Board of Directors and the Trilateral Commission's executive committee and is a member of the Aspen Strategy Group.

**Rajeev Venkayya** is president of the global vaccine business at Takeda Pharmaceuticals, which is developing vaccines for dengue, norovirus, and Zika, and supplying pandemic influenza and other vaccines in Japan. He is an independent member of the board of the Coalition for Epidemic Preparedness Innovations (CEPI) and International AIDS Vaccine Initiative (IAVI). Prior to Takeda, Venkayya was director of vaccine delivery at the Bill & Melinda Gates Foundation, where he oversaw its top two priorities of polio eradication and introduction of new vaccines in developing countries through Gavi, the Vaccine Alliance. He also served on the Gavi board. Venkayya was previously special assistant to the president for biodefense at the White House, where he led development of the *National Strategy for Pandemic Influenza* in 2005 and companion *Implementation Plan*. His team conceived the strategy of early, coordinated non-pharmaceutical interventions, now known as "flattening the curve," published as federal guidance in 2007. Venkayya trained and served on the faculty in Pulmonary & Critical Care Medicine at the University of California, San Francisco. He was a resident and chief medical resident in internal medicine at the University of Michigan. He received his MD from the Northeast Ohio Universities College of Medicine.

# TASK FORCE OBSERVERS

Observers participate in Task Force discussions but are not asked to join the consensus. They participate in their individual, not institutional, capacities.

**David P. Fidler** is adjunct senior fellow for cybersecurity and global health at CFR. Fidler has served as an international legal consultant to the World Bank; World Health Organization; U.S. Centers for Disease Control and Prevention; U.S. Department of Defense's Defense Science Board; Center for Arms Control and Non-Proliferation's Scientists Working Group on Biological and Chemical Weapons; U.S. Joint Forces Command; interagency Afghanistan integrated civilian-military pre-deployment training course organized by the Departments of Defense, State, and Agriculture and the U.S. Agency for International Development. Fidler's publications include *The Snowden Reader*; *India and Counterinsurgency: Lessons Learned*; *Responding to National Security Letters: A Practical Guide for Legal Counsel*; *Biosecurity in the Global Age: Biological Weapons, Public Health, and the Rule of Law*; and *SARS, Governance, and the Globalization of Disease*. He holds a BA from the University of Kansas, a BCL and an MPhil from the University of Oxford, and a JD from Harvard Law School.

**Tom Frieden** is senior fellow for global health at CFR. He is also president and CEO of Resolve to Save Lives, an initiative of Vital Strategies, which aims to prevent both epidemics and cardiovascular disease. Frieden previously served as director of the Centers for Disease Control and Prevention (CDC) and commissioner of the New York City Health Department. As director, Frieden led CDC's work to end the Ebola epidemic and launched an initiative that will prevent five hundred

thousand heart attacks and strokes. He sounded the alarm and accelerated progress addressing the epidemic of opioid use, and increased effective action on the front lines to protect and improve health in the United States and around the world. As health commissioner, he led health transformation in New York City, increasing life expectancy by three years, preventing more than 100,000 deaths from smoking, and spurring national and global action on better epidemiologic understanding and control of public health problems including HIV, tobacco control, and nutrition, as well as the integration of health care and public health. He also reorganized the department to increase financial sustainability and optimize health improvement. As the first director of international health programs for Bloomberg Philanthropies, Frieden designed and launched the Bloomberg Initiative to Reduce Tobacco Use, a program that has prevented more than thirty-five million deaths around the world. Frieden earned his medical and public health degrees from Columbia University and completed an infectious disease fellowship at Yale University.

**Yanzhong Huang** is a senior fellow for global health at CFR and professor and director of global health studies at Seton Hall University's School of Diplomacy and International Relations, where he developed the first academic concentration among U.S. professional schools of international affairs that explicitly addresses the security and foreign policy aspects of health issues. He is the founding editor of *Global Health Governance: The Scholarly Journal for the New Health Security Paradigm*. His writing has appeared in outlets including *Foreign Affairs*, *Foreign Policy*, *New York Times*, and *Washington Post*. In 2006, he coauthored the first scholarly article that systematically examined China's soft power.

He is the author of *Governing Health in Contemporary China* and the forthcoming *Toxic Politics: China's Environmental Health Crisis and Its Challenge to the Chinese State*. Huang was previously a research associate at the National Asia Research Program, a public intellectuals fellow at the National Committee on U.S.-China Relations, an associate fellow at the Asia Society, a visiting senior research fellow at the National University of Singapore, and a visiting fellow at the Center for Strategic and International Studies. He has taught at Barnard College and Columbia University. He obtained his BA and MA from Fudan University and his PhD from the University of Chicago.

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The United States and the world were unprepared for the COVID-19 pandemic, despite decades of warnings highlighting the inevitability of global pandemics and the need for international coordination. The failure to prioritize and adequately fund preparedness and effectively implement response plans has exacted a heavy human and economic price, and the crisis is not yet over. Emerging and reemerging infectious diseases are a threat to global and national security that neither the United States nor the world can afford to ignore. This Task Force proposes a comprehensive strategy that includes institutional reforms and policy innovations to help the United States and the multilateral system perform better in this crisis and when the next one emerges. Without increased U.S. leadership on and adequate investment in pandemic preparedness and response, the United States and the world will remain unnecessarily vulnerable to epidemic threats.

The Council on Foreign Relations sponsors Independent Task Forces to assess issues of current and critical importance to U.S. foreign policy and provide policymakers with concrete judgments and recommendations. Diverse in backgrounds and perspectives, Task Force members aim to reach a meaningful consensus on policy through private deliberations. Once launched, Task Forces are independent of CFR and are solely responsible for the content of their reports. Task Force members are asked to join a consensus signifying that they endorse the general policy thrust and judgments reached by the group, though not necessarily every finding and recommendation. Each Task Force member also has the option of putting forward an additional or a dissenting view.

*Cover photograph: A specialist walks inside a mobile unit at the Hipolito Unanue Hospital, in Lima, Peru, on February 27, 2020.*  
(Ernesto Benavides/AFP/Getty Images)

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