Preparing for the Next Public Health Crisis
Lessons from the Pandemic

Overview
The devastating impact of the global COVID-19 pandemic has touched every American in some way and disrupted and rapidly transformed virtually all aspects of American life. The Centers for Disease Control (CDC) recently determined that US has moved to a new phase of the COVID-19 pandemic due to the widespread availability of vaccines and testing, advances in treatments, and the increasing levels of immunity in the population through vaccination or previous infection. As the US emerges from this global, transformative disruption, one of the most important missions before the nation is to begin to assess the lessons learned and solutions that worked that can help identify the critical issues that the nation must begin to address now—ones that will be relevant if a new variant poses serious threats to public health or an equivalent surge in cases of the Omicron variant of the past winter and for planning for future public health emergencies.

One clear overriding lesson learned in this pandemic that has an impact on recommendations for the future course is that it is imperative that government on the federal, state, and local levels consults and collaborates more closely with business leaders to minimize disruptions to the economy, make workplaces as safe as possible during public health emergencies, and respond innovatively and rapidly to mitigate the pandemic's spread, including through the development and distribution of vaccines and other therapeutics.

The private sector employs over 124 million Americans and is the nation’s engine of growth and innovation. As this pandemic has starkly demonstrated, business leaders are in the eye of the storm.
In March 2020, within two days of the World Health Organization (WHO) declaring the COVID-19 outbreak a pandemic, the president declared a national emergency, and the states began to shut down the economy to prevent the spread of the virus. The economic downturn was precipitous, idling about one-sixth of the US economy. Congress needed to respond rapidly to stave off the downturn.

Without a playbook, business leaders had to adapt rapidly to the pandemic, making decisions about investments, workplace safety, and the safety of customers, as the public health response and the science evolved and shifted. The technological and scientific success to develop vaccines and therapeutics could not have been accomplished without the collaboration of the private and public sectors, including the dedicated work of professionals at FDA. The distribution of the vaccine nationally could not have been accomplished without the major delivery companies stepping up to meet the challenges of on-time distribution of the vaccines, which required very cold storage. The effort evoked comparisons to the private-public sector collaboration during WWII that led to the Manhattan Project’s rapid and dramatic scientific breakthroughs.

Studying the pandemic with an eye to planning for future pandemics is a demanding and broad-based task—one that requires not only national but global transformative responses. This Solutions Brief focuses directly on the US, the inextricable linkage between the public and private sector in a public health emergency, and what we can and need to learn most immediately to respond to the current, evolving pandemic, as well as future public health crises.

Following is a brief review of the situation at the beginning of the pandemic, including lingering effects in higher US mortality and morbidity, and the public health responses that worked well. Next, it will address some issues on which further work is necessary: the national stockpile, regulatory reform, supply chains, reform of the Centers for Disease Control, the stretched health care system and health care workforce, and the need for a better coordinated global response. The solutions are building blocks, attempts to build on what works and learn from what did not, steps toward the broader goal of preparing a playbook for the next crisis and building a health system more resilient to pandemics.
Insights for What’s Ahead

One of the main overriding lessons of the COVID-19 pandemic is that preparedness for a public health crisis demands close collaboration and coordination between government and business leaders. Following are priority recommended actions for this necessary public/private sector cooperation based on best practices and lessons learned during COVID-19:

1. **Determine essential businesses** Private sector leaders should coordinate with public sector leaders on the federal, regional, and state levels to use the lessons of the COVID-19 pandemic to determine and prioritize essential businesses that would need to operate in a public health emergency and the requirements that the workforce would need to operate in person and remotely.

2. **Determine business plans for future disruptions** Businesses should update their business plans/playbooks now with lessons learned for future disruptions and coordinate with state and local officials to ensure that essential business infrastructure that requires public sector support to continue operating in a future public health crisis is addressed.

3. **Expand monitoring for future variants**
   - Continue robust levels of testing and build a structure now for rapid scale-up of testing for a future public health emergency. While a specific test can only be produced once a pathogen is genetically sequenced, the infrastructure can be readied to be able to produce such tests rapidly as a part of good stockpiling management.
   - Expand genomic sequencing of positive tests and build a public-private global biosurveillance network using genomic sequencing to track future variants and new pathogens of concern.
   - Expand wastewater screening as an important early warning signal. To work effectively, the system needs strong commitment from public health agencies and privately run utilities.

4. **Rebuild the Strategic National Stockpile**
   - Organize a national task force with public and private representation to determine essential requirements for the National Stockpile and resilient supply chains: what needs to be physically stockpiled with a planned cycle of disposal and restocking involving FEMA and USAID; and what needs standby surge production capacity.
   - Review and address continually potential disruptions in order to promote resiliency in manufacturing supply chains for vaccines and other public health requirements during the crisis, including, most importantly, PPE and IV fluids and medicine delivery equipment so that they are intact for the next crisis, and where applicable, a digitally-enabled stock rotation system should be created.
5 **Reform CDC** by finding better ways to implement scientific guidance in real-world contexts. Government should consult more closely with business through an advisory committee to minimize disruptions to the economy, using the model of DHS for critical infrastructure, to advise the agency on economic impacts of public health regulations both in planning for and during public health emergencies.

6 **Build a national network of precise, uniform accurate data** Build uniform reporting standards and a new HHS requirement that all states in collaboration with the private sector report certain important data, including hospital data, within a set time frame to enable the fastest possible analysis. Bringing uniformity to data reporting systems will transform data public health.

7 **Expand further the use of private sector distribution and dispensing systems** for vaccines and therapeutics to use their robust existing channels of patient contact to increase accessibility and decrease hesitancy.

8 **R&D investment in life science** Continue private/public support for advanced research on vaccines and therapeutics and their required thermal storage box distribution systems, which successfully and rapidly have responded to the COVID-19 pandemic.

9 **Regulatory reform** The federal government should undertake a review, likely through the Office of the Inspector General of the Department of Health and Human Services (HHS), of the use and effectiveness of regulatory waivers and Emergency Use Authorizations. Second, states should review their own plans to ensure they wish to incorporate these or similar waivers during the next public health emergency. The reviews should include consultation with private sector leaders. With these tasks done, both HHS and the states will be able to renew a broad package of waivers quickly in the event of a future public health emergency. Looking forward, FDA should prioritize review of new and upgraded manufacturing facilities being considered for reshoring.

10 **Regional hospital coordination/post-acute care** Hospitals faced exceptional challenges at the start of the pandemic. They were overwhelmed by a surge of patients when infections spread rapidly. The system could have collapsed but did not. Lessons learned include: 1) Regulatory relief helped, as did coordination among and between hospitals and public health and emergency response agencies, including sharing of critical equipment; and 2) Systems should be in place to rapidly organize and deploy these regional efforts in the early stages of future pandemics. Regarding the post-acute care sector, which also faced many very serious challenges at the outset of the pandemic: A panel of post-acute care experts should be convened to determine how best to respond to future public health emergencies in this sector.
11 **Rebuild and revitalize the health care workforce** Work closely with the private sector and educational institutions to address the critical shortages in health care providers. Recruit new and retired health care personnel. Ready the National Guard for emergency health care deployment. Implement accelerated graduation tracks and specialized learning in community colleges that offer new pathways to address health care workforce shortages. Regulatory reform, greater use of interdisciplinary teams, and increased use of telehealth will all help address the health care workforce shortage in rural America. Registered apprenticeships offer a chance for participants to embark on a new career while earning funds to pay for learning that career.

12 **Develop a national clinical trial structure** to speed approval of promising therapies and vaccines.

13 **Restore trust in public health** Review and reform public communications procedures for federal government announcements and dissemination of information in a crisis to make sure guidelines are clear when issued, consistent throughout the federal government, and, if they need to be changed, are explained fully as to why. On a local level, review health education in schools as well as consider expanding the role schools and other trusted institutions can play in disseminating public health information to students and families. Business should embrace its role as a trusted source of information for employees during a public health crisis.

14 **Increase international cooperation on distribution of vaccine and other therapeutics around the world, while protecting intellectual property** Coordinated US leadership from the public and private sector is needed.

15 **Establish an independent commission** including business leaders and public health experts to focus on forward-looking solutions.
I. A Difficult Beginning

Just as natural disasters too often catch nations unprepared, so do pandemics. While the US can, and often does, deliver the finest care in the world, an analysis of the incidence and mortality associated with COVID-19 reveals many sobering facts about the state of Americans’ health, its health care system—and the ability of the American public health structure to respond to a crisis of such magnitude. As the pandemic took hold in early 2020, the initial public health response was marked by shortages of tests, masks, medical equipment, and personal protective equipment (PPE), confusing guidance from government—not least about wearing masks at a time when health workers desperately needed them—and broken or nonexistent supply chains after export bans and other supply chain failures, such as factories closing in lockdowns and a low supply of ventilators. Lockdown emerged as the chosen policy option to mitigate the extreme, rapid spread of the virus, contributing to severe economic hardship for many Americans.1 In short, America was not prepared for this unexpected, major public health emergency.

Economic impact of stay-at-home orders

The principal public health response in the pandemic’s early days was a series of state stay-at-home orders. On January 31, 2020, the Secretary of Health and Human Services declared a public health emergency under Section 319 of the Public Health Act,2 under which HHS required reporting of state health data. On March 13, the president declared a national emergency3 under the National Emergencies Act.4 Governors similarly declared emergencies permitting them to invoke public health powers as the pandemic expanded rapidly. States began issuing stay-at-home orders usually covering all but “essential” workers. A major justification for the orders was a lack of protective equipment to enable people to work safely, as masks and other PPE had to be prioritized for health care workers

These orders had dramatic effects on the economy. During the early stage, employment fell by 14 percent, nearly double the impact of the financial crisis and over half the 23 percent fall during the Great Depression of 1929-1932. This dramatic fall in employment was short-lived, although unemployment remained a little higher in July 2021 (at 5.4 percent) than it was in February 2020 (3.5 percent) just before the lock-down began.5 The COVID-19 economic down-turn was short but deep: GDP fell 19.2 percent but then recovered in absolute terms by the second quarter of 2021.6 Job losses affected workers without a high school education the hardest, including many, such as restaurant workers, who could not work remotely.

The nation spent trillions of dollars to avoid further damage to the economy. Counting the six laws Congress enacted specifically as relief and stimulus response (a total of $5.335 trillion) and the increase in the public debt from changed Congressional Budget Office projections (an extra $1.3 trillion by 2025), the cost of the pandemic is around $6.5 trillion. One solution to addressing this is to separate this debt and manage it separately from the rest of the public debt as very-long term debt.7

Although GDP recovered much more quickly than most analysts expected, the pandemic continues to have far-reaching effects on the US economy, including continuing supply chain disruptions, rising consumer prices, and lower levels of employment compared to prepandemic levels.
Determining essential businesses and their operating needs

Planning for future public health emergencies, based on the lessons learned from the current crisis, is essential to avoid future severe disruptions to the economy and additional trillions of dollars of spending to avoid even sharper damage to the economy. Federal and state governments, in coordination with business leaders, should determine in advance which businesses and workers count as essential/critical and plan accordingly, for instance by being sure to obtain sufficient supplies of PPE to function and work safely. This will involve stockpiling supplies as a routine part of emergency management. It will also involve advance planning for workplace safety requirements.

While advance planning is an imperative for the critical manufacturing/infrastructure sector, businesses in all sectors should have remote work contingency plans in place along with the business plans that provide continuity and workplace safety when social distancing is required for in-person work. Many restaurants that were able to shift quickly to a takeout model survived, albeit through difficulties and perhaps with fewer employees. Many retail businesses shifted to an online and pickup model. Schools should have plans for remote schooling and for adapting quickly. In a major economic shift, 35 percent of employed people teleworked in May 2020. This figure declined by July 2020 to 26 percent, as stay-at-home orders expired, and more employed people returned to in-person work.8
In short, the pandemic has taught lessons, albeit painfully, about how the economy can adapt and how a remote economy can work. Broadband is a critical tool; it will be essential to ensure that the $65 billion in broadband spending in the Infrastructure Investment and Jobs Act will be deployed effectively so that all Americans can have access to work or learn remotely. Automation has also contributed to the continuity of a remote, socially distanced economy.

Finally, the mRNA platform for vaccine development can enable a quicker response to pathogens, making disruptions to the economy shorter. As former CDC Director Julie Gerberding notes, pandemics will happen again; therefore, it is necessary “to think about how to predict where the likely viruses or bacteria will emerge” and to speed the development of treatments once an outbreak occurs.

Health impacts during the pandemic

The pandemic also sharpened focus on COVID-19’s impact on racial and ethnic minorities, as well as, among vulnerable and disadvantaged groups. The Kaiser Family Foundation concluded in its February 22, 2022 analysis that overall, Black, Hispanic, and AIAN (American Indian and Alaska Native) people have experienced higher rates of COVID-19 infection and death compared to White people, particularly when accounting for age differences across racial and ethnic groups. The data also suggest that while these disparities have narrowed at times over the course of the pandemic, people of color are disproportionately impacted by surges caused by new variants, with disparities widening during these periods, particularly for infection rates. However, the pattern for death rates amid part of the Omicron surge has varied from earlier surges with White and Black people having the highest rates of death during this period.

The pandemic’s toll has also fallen heavily on the elderly (65 years old and above), who faced a death rate 8.1 times higher than the rate for those aged 55–64 and those with comorbidities such as diabetes, hypertension, obesity, and smoking. Rural areas have higher rates of mortality from COVID-19, at one point up to twice the rate of urban residents. Both rural and urban citizens can face “pharmacy deserts,” making it difficult to fill prescriptions or get a vaccine. Now that pills can be used to help prevent severe COVID-19 disease, it is even more essential to think about more widespread distribution of therapeutic tools.

There are many factors that are contributing to the disparities in COVID-19’s impact, including other medical conditions, types of work, location, access to health care, living conditions, lack of insurance, including loss of insurance that accompanied job loss. But the lessons of this crisis thus far have made clear that the US must work toward a health care system that lays the foundation for better access. It must move toward a US health care system that reimburses providers for maintaining health rather than maneuvering a fee for service and that uses an administrative price list and cost-responsible consumer choice among competing private health care plans to drive the US health care system toward quality, affordable health care for all.

No one knows how the SARS-COV-2 virus will evolve, although there is evidence that it is evolving more quickly, and thus with potential for greater danger than the seasonal influenza virus. The good news, though, is that scientific understanding and innovation to address this challenging virus continues to proceed at a rapid pace. There is much to learn.
II. Public Health Strategies That Worked

There were also very bright spots in America’s response to the pandemic. Effective vaccines using a new mechanism of action (messenger RNA or mRNA) were developed in record time with high rates of efficacy, both through the government’s Operation Warp Speed and the dedicated efforts of the private sector over decades of public-private partnership. Equally important has been the development of therapeutics. Regulatory reform played an important role in responding to the crisis. Vaccine clinical trials were combined, and the vaccines received Emergency Use Authorization (EUA). Greater acceptance of telehealth and remote monitoring of patients permitted many Americans to receive the care they needed or to begin new care even during lockdowns. Genomic sequencing enabled rapid understanding of an evolving virus. Innovations were also approved by EUA that protected health care workers from exposure to the virus, such as the use of infusion pumps with nebulizers to provide controlled delivery of medication to patients.

By analyzing areas that worked during the pandemic and looking closely at some that need reform, it is possible to plan for the future. These pandemic lessons remain relevant, especially given that one characteristic of the recent public health guidance as the nation transitions from pandemic to endemic is how similar it often remains. The principal difference is the availability of “tools”—vaccines and treatments such as antiviral oral therapy—to treat patients. According to former White House coronavirus coordinator Jeffrey Zients, the endemic state means that “COVID-19 isn’t a crisis but something we can protect against and treat [.]”

Regulatory relief

As the pandemic spread rapidly in late March 2020, the federal government adopted an aggressive program of regulatory relief. Waivers issued by the Centers for Medicare and Medicaid Services (CMS) applied to any health care provider receiving Medicare funding. In addition, in an example of public-private partnership, private sector insurance companies agreed to match the waivers that CMS would issue, so there would be greater uniformity throughout the health care system, and so members of private insurance plans could take advantage of the changes CMS was promoting, such as greater telehealth opportunities. By late July, CMS had issued more than 200 waivers.

The waivers were specifically linked to the national emergency declared in response to the pandemic, and in many cases, CMS limited the waivers’ effect to the extent permitted by a state’s own Emergency Preparedness Plan or Pandemic Plan. The package of waivers was exceptionally broad:

- Hospitals received permission to deliver care (“Hospitals Without Walls”) at other locations to address the surge of COVID-19 patients and to separate them from others needing urgent treatment. Additional locations include community-based facilities, such as ambulatory surgery centers, inpatient rehabilitation hospitals, and dormitories, as well as drive-through sites operated by hospital emergency personnel. Similarly, COVID-19 testing could be done outside hospitals, to provide a safer environment for conducting the tests.
• To expand the health care workforce, CMS provided that private clinicians and staff could work in hospitals on a temporary basis and removed barriers to hire physicians, nurses, and other staff both from local communities as well as from those licensed in other states. Physician assistants and nurse practitioners could practice to the fullest extent possible according to a state’s emergency preparedness plan, including ordering tests or services. To help workers covering exceptionally long hours, CMS gave a blanket waiver to allow hospitals to provide meals, childcare for workers, and other services for staff.

• Finally, to help patients, Medicare removed the requirement for special authorization for respiratory-related devices such as ventilators, and some provisions of federal patient privacy law were waived to reduce barriers to important patient interactions with the health care system, such as making vaccination appointments, encouraging former COVID-19 patients to donate plasma, and telehealth.

• Telehealth An important aspect of regulatory relief for all patients was the dramatic expansion of the use of telehealth services during the early stages of the pandemic, including across state lines. CMS permitted reimbursement for more than 80 new services conducted by telehealth to encourage continuation of noncritical care and routine patient monitoring (interrupted by the pandemic as patients stayed home) and to permit emergency departments to conduct COVID-19 screenings. Many private plans encouraged telehealth by covering these services, sometimes without cost-sharing. By August 2020, over 30 million people (including 38 percent of enrollees in the individual market and 52 percent of enrollees in fully insured group plans) participated in private plans that waived cost-sharing at some point during the pandemic; the vast majority of these insured enrollees lived in states that did not mandate waiving cost-sharing.

- A Kaiser Family Foundation study shows telehealth use grew sharply, rising from almost nothing (0.15 percent) in 2019 to 13 percent of total outpatient visits from March to August 2020 and remained strong at 9 percent of all outpatient visits from March to August 2021, even as in-person outpatient visits exceeded 2019 levels. The study also found that telehealth use was similar in rural and urban areas and for men and women.

- Telehealth is becoming even more firmly established as an essential part of the US health care system, which will make adaptation in the health system, in particular the continuation of nonurgent care, easier during public health emergencies. According to the Federation of State Medical Boards, as of March 31, 2022, 17 states have maintained pandemic-related waivers to encourage increased use of telehealth services; 21 states and four territories have adopted long-term or permanent telemedicine regulations. Further expansion of broadband will be essential for telehealth to reach its full potential.

Is this the right regulatory package for a future public health emergency? Clearly it worked in the past: many physicians returned to practice, at least temporarily, and hospitals could adopt flexible treatment standards enabling them to serve more patients quickly. CMS’s structure of the waivers rightly reflected federalism and the states’ role
in regulating the practice of medicine and licensing of medical practitioners. Two efforts should now happen in parallel: first, the federal government should undertake a review, likely through HHS’ Office of the Inspector General, of the use and effectiveness of these waivers and Emergency Use Authorizations; second, states should review their own plans to be sure that they wish to incorporate these or similar waivers during the next public health emergency. The reviews should include consultation with private sector leaders. With these tasks done, both HHS and the states will be able to renew a broad package of waivers quickly in the event of a future public health emergency.

Looking forward, the FDA should also prioritize review of new and upgraded manufacturing facilities being considered for reshoring.

**Early Warning**

**EXPANDING WASTEWATER SAMPLING**

Wastewater sampling to measure levels of viral presence is a technique first used to detect polio and was used early in the pandemic in Milan to detect COVID-19. This technique has been a reliable predictor of future cases. The Centers for Disease Control (CDC) started a National Wastewater Surveillance System in 2020 to coordinate state and local wastewater surveillance. States and localities participating in the system (37 states in August 2021, down from 40 in 2020) submit their data to CDC, which then analyzes it.

At critical times in the pandemic, the system has worked very well. One early study showed that SARS-CoV-2 had a high detection rate in wastewater, as high as >80 percent, when the daily incidence exceeded 13 per 100,000 people—a higher rate of accurate detection than that offered by often-inaccurate tests early in the pandemic. Sampling also notably revealed a major jump in virus prevalence in late February/early March 2022, with some sites showing growth of over 100 and even 1000 percent. But the system is not uniform and does not require sites to test on a set schedule, limiting effectiveness of the data.

To work effectively, the system needs strong commitment from public health agencies and privately-run utilities. Setting up these partnerships at the local level to provide data at a national level is an important component of preparedness. Wastewater data does not show the severity of a particular case, but it warns of the possibility of a surge in cases and thus in hospitalization and other demands on the health system, helping hospitals and public health systems to prepare. Now, in the interim between the emergence of another wave or variant, state and local governments should continue or expand this monitoring, a relatively cheap solution to assist preparedness for future waves of illness.

**GENOMIC SEQUENCING**

Methods exist to analyze and predict the emergence and incidence of future variants. Genomic sequencing is a powerful tool to track the evolution of the virus and enable quicker preparedness. South Africa’s action in rapidly sequencing the Omicron variant and warning the world, though it had significant costs for the country as other countries imposed a travel ban, thankfully helped address the rapid emergence of Omicron more easily. In 2021, about three percent of positive US samples were sequenced; best practice
is between five and ten percent to gather sufficient predictive data. In contrast to the US’ slower start, the UK began sequencing of positive COVID-19 tests in April 2020. High levels of sequencing will be essential to predict the future course of the virus and future pathogens and to take appropriate steps to prepare, particularly if variants such as Omicron begin in areas or among populations that are not currently sequenced. This work will be even more important in helping to make determinations as rapidly as possible as to whether vaccines prevent serious illness and death resulting from new variants—vital with COVID-19, as so many mutations affect the S-gene and thus the relative efficacy of vaccines.

To expand sequencing, a global “Bio-Force” network, led by the private sector in partnership with all levels of government, to track mutations to COVID-19 as well as address threats such as bioterrorism and antimicrobial resistance is an essential component of preparedness for public health emergencies. This is a strong application of heightened and welcomed scientific collaboration among researchers in an increasingly interconnected world.

Moving more quickly in this area will help avoid the “start/stop” nature of restrictions which characterized the early period of the pandemic in the US, and which led to frustration with public health officials and economic consequences that might have been avoided. Funds spent on sequencing (approximately $2 billion from 2021 to 2022) are funds well spent to avoid larger public health expenses in the event of a threatening variant.

Prevention and response measures

TESTING

The world was fortunate that the advances in science permitted the rapid sequencing of the COVID-19 virus, which in turn enabled the rapid development of tests for it. However, in the US, the rollout of testing kits was marred by disputes between different government agencies. While the costs of testing may be large—the US allocated $10 billion for COVID-19 testing for schools alone—the scientific benefits and the benefits to individuals’ health are equally great. The federal government is uniquely qualified to play this coordinating role.

Only accurate testing confirms the presence (or absence) of the virus in an infected person and encourages those infected to self-isolate, while also providing data on the incidence of infection. Getting testing right means building a national structure now for a rapid scaleup of testing should events warrant. A specific test can only be produced once a pathogen is genetically sequenced, but the infrastructure can be readied to produce such tests rapidly as a part of good stockpiling management. For COVID-19, PCR tests, the gold standard of testing, are more accurate in detecting the virus among the asymptomatic. The administration’s decision in early 2022 to make free antigen COVID-19 home tests available to every American household (and similar policies in countries like New Zealand) was wise; it should have been taken earlier, as other countries did, both to encourage greater self-testing, reducing the burden on the public health system and the spread of the virus, while also enabling at least some collections of more data (if the individual self-reported) on caseloads to assist with public health management in the
surge. The UK supplied 1.7 billion home tests by January 2022; in other countries such as Singapore (after an initial free distribution) and India, tests are routine and cheap to purchase—and have been an essential factor in the transition from pandemic to epidemic in daily life.

Private insurance companies have played an essential role in the volume of US testing. The Families First Coronavirus Response Act and the Coronavirus Aid, Relief, and Economic Security Act required private health plans to cover costs of testing for COVID-19 with no cost-sharing. Further changes expanded this coverage to include up to eight at-home COVID-19 diagnostic tests per month.

Overall, the US had performed nearly a billion COVID-19 tests by April 19, 2022, by far the most in the world. After a slow start, the US has built a foundation for rapid scale-up of testing. The absence of cost-sharing undoubtedly encouraged many Americans to step forward and be tested routinely; testing also permitted health care workers to stay on the job and enabled reopening of certain sectors of the economy, such as the hospitality sector. The absence of cost-sharing presumes a federal role in paying for large volumes of testing to reduce the burden on private insurers. The benefits include quicker treatments for patients and greater volumes of data to predict the future course of the pandemic.

**HOSPITAL REGIONAL COORDINATION/POST-ACUTE CARE**

Hospitals faced exceptional challenges at the start of the pandemic. They were overwhelmed by a surge of patients when infections spread rapidly. There was a national shortage of ventilators and PPE. Most of all, hospitals had to ensure their staffs were safe so that they could care for patients. The system could have collapsed but did not. Regulatory relief helped; other factors included increased coordination among and between hospitals and public health and emergency response agencies.

Hospitals also implemented their Incident Command structures (ICS), under which they adopted standard approaches to emergency response, including a unified command structure and integrated communications. As one study described it, the ICS concept has never worked as well "as it did in the early weeks of the pandemic. [The hospital] deftly navigated through uncharted waters by leveraging the spirit and structure of Incident Command."

One strong example of coordination in March and April of 2020 involved five hospitals affiliated with New York University (one of which is a Veterans Affairs hospital), which developed a program of coordination which enabled them to treat over 5,000 COVID-19 patients. The hospitals developed strategies for communication, surge planning, clinical care, and staff wellness.

Many of the practices they adopted apply to future planning. Hospitals can build rooms that can be quickly transformed to negative pressure rooms with continuous oxygen monitoring and identify space that can be converted to ICU status (more than 25 percent of COVID-19 hospitalizations in this study required ICU care) or for triage care. On staffing, hospitals can make arrangements for surge staffing and form staffing pools to be able to shift staff quickly between institutions. They can also provide short courses for training
and onboarding, particularly training for ICU care standards and on ventilator operation and build teams with different types of experience (teams in one study were designed to include knowledge of specialties and knowledge of the hospital systems, to enable faster response medically and procedurally). The hospitals also formed three-person resident teams who could be moved to locations where the need was greatest based on daily assessments of patient volumes.54

This type of coordination can take place at the state level as well. Maryland set up a critical care coordination center operating around the clock to coordinate the efforts of ICUs, hospital emergency departments, and freestanding medical facilities offering intensive care. At the pandemic’s height, the center’s work led to 578 transfers involving 58 hospitals, finding sites to deliver oxygenation therapy, and locating scarce ICU beds. As one critical care study noted, this concept follows a public safety model for deployment of resources, ensuring that “the right patient received the right care in the right time.” Looking to the future, this experience of maximizing a tiered, regionalized system can serve as a model to ensure the demand for critical care services may be met during a pandemic and beyond.55

States like Washington, Minnesota, and Arizona began similar efforts to help patients get the care they need. This approach can be used more broadly across the nation when regional demand for specialized hospital care surges. Arizona adopted protocols requiring hospitals to participate and insurers to waive out-of-network rates for care.56 Problems of coordination are more pronounced in rural America, as rural hospitals rely on transfer protocols to hospitals offering specialty care, often in larger cities. More than half the 15,000 transfers in the three states came from rural hospitals, despite the smaller population they serve. There were also emergency actions to ship critical equipment, such as ventilators, to COVID-19 hot spots. Ventilators, for example, even came from unlikely sources, including veterinarians.57

Load balancing among hospitals, a recent recommendation from the National Academy of Medicine, can help avoid triage decisions with adverse and inequitable outcomes. One study suggested that up to one-quarter of COVID-19 deaths from March-August 2020 was “potentially attributable to hospitals strained by surging caseload.”58 Medical operations coordination cells59 like these state operations will be essential in responding to future public health emergencies. These centers relieve hospital staff of the burden of having to find transfers, thus helping both patients and hospitals. Systems should be in place to rapidly organize and deploy these regional efforts in the early stages of future pandemics.

The post-acute sector also needs reform to address the critical role it plays in public health. There are nearly 16,000 skilled nursing facilities (SNFs) in the US caring for approximately 1,500,000 people—mostly elderly and other vulnerable populations, as well as many assisted living facilities. Indeed, the virus first came to serious national attention because of an outbreak at a SNF in Washington State. The outbreak exposed many serious patient care issues facing this sector, too often overlooked, and in which the nation has underinvested. Looking forward, it will be a matter of urgency to convene a panel of experts from the post-acute sector to determine how best to respond to future public health emergencies in this sector, what regulatory reform may be needed, alternatives for
home health, and the impact both on care for the elderly and for patients stable enough to be discharged from hospital ICUs.

**Vaccines**

As of May 2, 2022, 219.8 million Americans were considered “fully vaccinated” among 309 million eligible, a rate of 66.2 percent—just under two and a half years since commercially available mRNA vaccines were made available. While the rate is lower than that of other Western countries and efforts continue to vaccinate more Americans, how the US got to this point is a small miracle. It is one built firmly on public-private collaboration and ten years of previous research into a new technology, mRNA vaccines produced synthetically based on the pathogen’s genetic code rather than on a weakened form of the pathogen, as in traditional vaccines.

Each US company involved in the effort benefited from public-private collaboration. Moderna worked for ten years in mRNA technology and participated in NIH clinical trials and research. Public/private partnership were also essential in Johnson & Johnson’s partnership with Merck to produce the J&J vaccine under the provisions of the Defense Production Act. And the US Government’s Operation Warp Speed provided the necessary financial support to accelerate these efforts.

Vaccine development was a signal success of America’s pandemic response. It involved strong public-private partnership and pharmaceutical companies’ willingness to take major financial and operational risks in the face of unprecedented challenges. As early as March 19, 2020, Pfizer, acting on its own, set a goal to make “the impossible possible” and develop a vaccine within a year, spending about $3 billion in the process, working on several candidates in parallel before setting on two for clinical trials in partnership with German mRNA company BioNTech.

Within two months after beginning work, the companies had begun testing. Here, too, regulatory reform played an important role. FDA and German authorities gave the companies permission to run animal tests and Phase 1 introductory human tests simultaneously and to combine the smaller Phase 2 and larger Phase 3 clinical trials, saving months of review time but also exposing the companies to higher risks of potential failure.

Pfizer, BioNTech, and Moderna achieved their goal in fewer than eight months with efficacy rates above 90 percent—far higher than the seasonal flu vaccine and a remarkable achievement for a vaccine using a new method of action. No mRNA vaccine had ever been approved for clinical use.

After such a positive result, the next challenge was production and distribution, including transportation at subzero temperatures for stability of the vaccine, a challenge solved with a specially-designed thermal storage box for shipping. Pfizer and BioNTech produced 74 million doses within a month to be ready when the vaccine received Emergency Use Authorization in the US, UK, EU, and other jurisdictions. Pfizer, which had produced only 200 million doses of all vaccines before the pandemic, produced 3 billion in 2021. Moderna, which had never had a product receive regulatory authorization prior to the pandemic, produced 45 million doses by the end of February 2021.
DISTRIBUTION IN STATES AND RURAL AREAS

Production was only part of the challenge; the last miles of distribution in the states were considerably more problematic. The federal government began shipping vaccines using a formula based on total adult population, along with recommendations to prioritize vulnerable groups, leaving the states to set the actual rules. While respecting federalism and each state’s unique characteristics, including varying definitions of “essential workers” and variations in age distribution/populations of elderly, this led to disparate results and some overestimates of predicted vaccine use. By late May 2021, about 2.5 million doses of vaccine were administered every day in the US. But distribution systems were uneven and mixed in their success. No “one-size-fits-all” solution applied to every state, but some states had quicker and broader success than others.

West Virginia benefited from centralized state management of the system; collaboration with private stakeholders, including independent pharmacies and chain stores; and mobilization of the National Guard to help get people to vaccination sites. New Mexico set up a state website to encourage appointments for both providers and recipients even before vaccines were available.65

Many states turned over their vaccine supplies to private entities to perform the inoculations, including pharmacy chains that were deeply involved in vaccinating nursing home residents. Beyond this, though, the potential of private sector distribution systems to use their robust existing channels of patient contact was not fully utilized; for instance, more doses could have been allocated to large private care networks and providers. (South Dakota used a similar system to great early effect, allocating many doses to the state’s principal private health delivery networks.)

Some states used innovative strategies to bring vaccines to Americans who might not otherwise be able to access clinics. An Idaho health district found a partner with cold storage freezers to help vaccine distribution; Blue Cross North Carolina made grants to vaccine clinics.66 Successful interventions included: bringing vaccines to rural communities to hold clinics at sites such as churches and local businesses, as one hospital in Alabama did; going door-to-door to homes and businesses and holding a drive-through vaccination clinic in a rural part of Virginia; vaccine “SWAT” teams with a Colorado health system to reach the homebound and homeless; and house calls for the homebound organized through the Vermont Department of Public Health working with emergency medical services.

In 2021, to address the information gap in knowing how vaccines were being used, the federal government began direct delivery to pharmacies, long-term care facilities, and other institutions. With better, centralized data coordination, in the next crisis, the government should have a clearer picture of vaccine allocation and can move swiftly to address any gaps and involve private health networks more deeply in distribution. Central coordination will be an essential step in better data management67 and will help target services better to underserved or hesitant populations and avoid wastage of doses. The nation still does not have a complete picture of what worked best either in vaccine distribution or successful appeals to the hesitant; understanding the full data is essential and urgent.
BOOSTERS

Similarly with boosters, the US did not do an effective job on the booster rollout, leading to confusion over who was eligible and when. Scientific studies have shown that protection from hospitalization and death increase with boosters, even though they may not provide complete protection from symptomatic infection from variants such as Omicron. This may be contributing to the fact that only about 30 percent of eligible Americans (99.5 million by April 19) have received a booster shot, a rate much lower than in other Western countries. Some potential recipients may have been dissuaded by reports of vaccinated people getting the Omicron variant even though boosters offer greater protection against hospitalization or death—a death rate six times lower than for the unboosted, with the death rate of the unvaccinated being nearly 13 times as large.

What’s next: National clinical trial structure

With the successful introduction of the COVID-19 vaccines and boosters, the challenge now is to keep up the nation’s progress and find ways to build on and replicate the success of rapid vaccine development, including funding for the use of mRNA technology to address other diseases. One idea to speed approval of novel therapies is a national clinical trial infrastructure for times of public health crisis to address challenges of rapid

United States: COVID-19 weekly death rate by vaccination status, all ages

Death rates are calculated as the number of deaths in each group, divided by the total number of people in this group. This is given per 100,000 people.

Source: CDC COVID-19 Response, Epidemiology Task Force

Note: Unvaccinated people have not received any dose. Partially vaccinated people are excluded. Fully vaccinated people have received all doses prescribed by the initial vaccination protocol. The mortality rate for the ‘all ages’ group is age-standardized to account for the different vaccination rates of older and younger people.
testing, review, and approval for both sound scientific review and health equity. This approach, outlined by Scott Gottlieb, MD, would follow a British model, in which the FDA and the National Institutes of Health would guide patients into trials “more likely to yield actionable evidence that can inform clinical practice and improve outcomes” while “accelerat[ing] enrollment of studies to evaluate these high-priority medicines.” There is much to favor this recommendation. Under it, the US would be able to conduct broad and effective clinical trials more quickly, perhaps also including sufficient numbers of groups such as pregnant women and the elderly to assist FDA in making approval decisions (favorable or unfavorable) more quickly. By broadening the scope of the trial, it is also more likely to achieve health equity by drawing on a larger pool of potential candidates for participation in a clinical trial.

**Stockpiling and Supply Chains: A Preparedness Challenge**

Some aspects of preparedness require constant attention. One is stockpiling of essential goods and supplies, along with careful consideration of both active and potential supply chains. Planning therefore includes most basically a determination to maintain a national stockpile of essential goods (in essence, an expanded and continually refreshed Strategic National Stockpile), with clear lines of demarcation as to federal and state responsibilities, ownership, and rights to access the stockpile in times of need.

The requirements of a successful and flexible stockpile are large. For instance, 3.5 billion masks would be needed to meet demand at the outset of a pandemic. Building a stockpile is not cheap and poses significant management challenges: antibiotics, vaccines, IV fluids, and other drugs expire; personal protective equipment can wear out; and there are storage costs. The variety of goods directly related to pandemic response is also large (for instance, specialized pharmaceutical-quality glassware needed to hold millions of vaccine doses securely and low dead space syringes). But the upfront costs of this level of preparedness are small when compared with the reality the nation confronted in early 2020—a public health system in which supplies of essential goods were short, with few opportunities to ramp up production and distribution quickly to reach where supplies were most needed.

The costs can be mitigated by establishing a digitally-enabled system and refining a cycle of regular stockpile use and replenishment involving FEMA (for use in responding to domestic disasters) and USAID (for use in foreign disasters and public health emergencies), to encourage full use of stockpiled goods and reduce waste. Decisions on what needs to be stockpiled and what can be provided through surge capacity once a crisis hits will need to be made carefully and deliberately. These decisions should be coordinated with agencies currently engaged in determining what products are needed and when, including the Public Health Emergency Medical Countermeasures Enterprise (PHEMCE) and the Office of the Assistant Secretary for Preparedness and Response (ASPR), with input from businesses that supply the products. Although the tasks are significant, greater stockpiling would also support the reliability of the US medical product supply chain, not only for vaccines but for treatments such as monoclonal antibodies and antiviral pills, as well as IV fluids and infusion-related equipment needed for basic care and the delivery of essential medicines.
During the pandemic, many nations resorted to export bans on essential supplies to support domestic populations first, particularly after lockdowns reduced supplies of essential goods. This is one reason why restocking is so essential when supplies are available and likely cheaper. The US also needs backup plans to quickly mend any breaks in the chain. While market forces should be key drivers of these efforts, targeted government intervention, including judicious use of the Defense Production Act (where markets alone will not meet expected preparedness requirements) may be necessary to ensure supply chain resilience during a global crisis.\(^77\) Because supply chain breaks are more likely to occur in global emergencies, the US should build and maintain supply chains of its own that are reliable and resilient, along with production capacity available on a standby basis for national and global emergencies, using procurement mechanisms such as contingent contracts.

We also encourage the formation of a national task force with public and private representation to address disruptions in the health care supply chain, including upstream supply of critical components and raw materials needed during a pandemic.

### III. What More Needs to Be Done

#### Reforming the CDC

For the CDC, the pandemic has been a time of great challenges. The scientific understanding of COVID-19 has evolved and changed with frequency during the pandemic—unsurprising for a “novel” coronavirus. The CDC is tasked with following the science—a daunting challenge and major undertaking. It issued more than 7,000 guidance documents during the pandemic.\(^78\) Despite the challenges, the CDC’s changing signals led to public confusion and, over time, growing skepticism. The substance of the CDC’s recommendations changed frequently as well (faulty tests, changing guidance on masks just before the Delta variant surge, confusion over the length of time patients should isolate during the Omicron wave\(^79\)).

Here, business leaders can help. To balance public health needs while avoiding unnecessary economic disruptions, business leaders should be more closely involved in the policy-making process. One way to do this would be for the CDC to form an advisory committee to advise the agency on economic impacts of public health regulations both in planning before and during public health emergencies.

There is precedent for such a committee. The Cybersecurity and Infrastructure Security Agency of the Department of Homeland Security has a Critical Infrastructure Partnership Advisory Council\(^80\) offering advice to the agency from 16 different critical infrastructure sectors. The CDC has many advisory committees to assist its work\(^81\) but none involve the private sector in this way. The CDC would benefit from the counsel of business leaders in such sectors as food and agriculture, transportation, aviation, manufacturing, hospitality, and essential elements of the supply chain such as trucking and ports. Equally, business leaders from these sectors should participate in planning exercises on public health emergencies that the CDC conducts along with other federal agencies. Business experience is essential in determining real-world outcomes that affect the economy.

For its part, the CDC recognizes the imperative for reform. Director Rochelle Walensky has launched a review, headed by a federal official outside the agency, to evaluate the
“CDC’s structure, systems, and processes” and “strategically position CDC to support the future of public health.”82 While the review will take a broad focus on “core capabilities” of the agency, Walensky also noted that “[n]ever . . . has CDC had to make decisions so quickly, based on often limited, real-time, and evolving science[,]” Happily, the CDC is already taking a broader approach to fixing public health. As Director Walensky said, “The CDC alone can’t fix this. Businesses have to help, the government has to help, school systems have to help. This is too big for CDC alone.”83

Getting the data right

The CDC cannot do its job alone: it needs accurate data from state and local health officials in collaboration with the private sector. As the pandemic recedes, data becomes more important, not less, because accurate data serves as an early-warning signal and helps a well-functioning health system redistribute assets and goods when they are most needed. That, in turn, can reduce hospitalizations and severe outcomes, avoiding the need for more intrusive solutions such as lockdowns that cause disruption to people and to the economy.

Several former CDC Directors agree that reform is needed: “Early in the pandemic, key local data such as hospital capacity was inaccessible to the CDC. [CDC] had to rely on uncoordinated data agreements because the agency lacks the legal authority to systematically ensure public health reporting before a health threat strikes.”84 When data is restricted, incomplete, or incompatible, there are deleterious consequences for the whole system and the whole country.

Precise, accurate data is essential—from all states. The CDC’s outdated methods of collecting and transmitting data and lack of interoperability among key surveillance systems are inhibiting its ability to collect accurate and timely data and conduct surveillance across the US. The CDC has been provided funding in both the CARES Act and ARPA to support modernizing the nation’s public health surveillance infrastructure that provides the data on which CDC makes decisions. But this in turn means all states must participate fully and equally in the system. Viruses do not stop at state borders, and nor can data collection. More uniform reporting standards are required and should include a new HHS requirement that states report certain important data, including hospital data, within an agreed timeframe, to enable the fastest possible analysis at the CDC.85

The billions of dollars Congress appropriated in the CARES Act, the American Rescue Plan, and the 2022 Continuing Resolution should be used to bring uniformity to data reporting systems, ending “data siloes,” and, perhaps most importantly, setting a plan to form one coherent whole and transform data structures in public health. This would involve solutions such as buying ready-made programs rather than building from scratch, leveraging common platforms and interoperable systems, and creating public-private partnerships for data collection and analysis.86 Similarly, commercial laboratories need to improve data interoperability. Grants to state and local health departments should be made contingent on data exchange standards and interoperability protocols that match the rest of the health care ecosystem.87 Public and private stakeholders need to work collaboratively in this effort to ensure sustainability, and where appropriate, the sharing of data and resources.88
The CDC needs data to determine when it is appropriate (for instance, on the basis of hospitalization rates) to remove public health requirements such as masking and social distancing. States should retain their authorities, but the CDC needs the broader picture to serve all Americans, thus reinforcing the need for all states to provide uniform data to achieve better results and quicker determinations that will reduce the impact of public health regulations on private business.

In addition, it will be essential to fix problems with the reporting of nursing home data, given the lessons learned from this pandemic’s toll, which fell heavily on the elderly.

Rebuilding the health care workforce

As noted above, one important regulatory reform was to remove barriers to expanding the health care workforce. States like Illinois and New York waived licensing fees and extended licenses; in New York City alone, 1,000 retired health care workers applied to help the first day the city asked.89

Yet the nation’s health care workforce, stretched to breaking point by the pandemic, is in crisis—at all levels. One study revealed that one in five physicians intends to leave practice from heightened stress, with higher levels among primary care physicians, and that 44 percent of facilities had open positions for clinicians.90 The overall health care workforce has declined from its 2019 level.91 Despite shortages of workers in many areas, the health care and social assistance industry had the highest job openings rate at the end of 2021. Hospital employment had not recovered to prepandemic levels by February 2022.92 Turnover was high in many health care jobs, from physicians to health aides.93 The global shortage of nurses could reach 13 million by 2030.94

This is not surprising given the daily pressures health care workers have faced with little relief over the past two years. As one scholar concludes, “If burnout becomes too great and sufficient numbers of personal care aides, nurses, and physicians leave practice, the result could be an implosion of the health care system.”95

More needs to be done to foster training of health care workers in the populations they serve. This problem is particularly acute in health care settings that treat typically underserved populations. For both the public and private sectors, registered apprenticeships offer a chance to embark on a career in health care while earning funds to pay for learning that career.

Northwell Health is an example of a company seeking to reduce disparities in the health care workforce in the communities it serves. The company’s “From the Community, For the Community” program seeks to train Community Health Workers and connect them with entry-level positions in health care and social services.96 Programs like this from the private sector are an essential complement to public sector efforts such as the new Public Health AmeriCorps.97 They represent a significant opportunity to expand the health care workforce, particularly in places that are underserved.

Other solutions can include accelerated graduation tracks and specialized programs in community colleges and broad access institutions. Health care employers can work collaboratively with community colleges to ensure that their curriculum prepares future workers not merely to pass a licensing exam but to excel in today’s health care system.
Rural health care will always rely on both local and remote providers because of the greater numbers of specialists in urban areas. To get more health workers into rural areas and lessen disparities, solutions that should be considered include using interprofessional teams and removing barriers to professional practice, expanding existing rules of the scope of practice, expanding telehealth, encouraging more careers in health care for rural youth through apprenticeships at health care facilities, supporting nursing education at rural community colleges, encouraging rural rotations for medical students, and making greater use of technology in medical education, including distance learning.98

Restoring trust in public health: Addressing hesitancy

What works in promoting vaccination? One clear answer from research is the strong advice of trusted health care professionals.99 Reluctant patients may be more willing to listen to the case for vaccination in a doctor’s office rather than from competing, impersonal voices in the outside world.100 Pharmacies can play a similar role: many Americans trust their local pharmacist, and easy availability of vaccines in pharmacies helps encourage a positive decision. Pharmacies also proved highly effective in vaccinating targeted groups such as teachers, as Virginia did. Scholars term these insights a “multisectoral approach.”101 As the CDC notes, it seeks to reach people where they live, work, learn, pray, play, and gather.102

Business has an important role as well. Employers can, in some cases, give time off to employees to receive vaccinations; vaccines can also be offered in the workplace. Similar approaches in Norway and France have had some success, but the challenges of addressing vaccine hesitancy remain daunting, reinforcing the need for greater health education to encourage greater acceptance of successful public health strategies.103

Beyond this, there is some evidence that FDA formal approval of the vaccines (in contrast to its earlier Emergency Use Authorization) had an effect on intentions regarding vaccination among Black and Hispanic communities.104 It is vital to address reports about side effects directly and forthrightly, in the knowledge that any vaccine will produce some reactions. In addition, a greater focus on population health will help with faster distribution of vaccines and other therapeutics as well as better management of future health threats and chronic disease. The keys to reducing vaccine hesitancy are trust and education.

The problem of health misinformation

A more informed public will better understand the medical advice it receives, and better health education will help improve communication from public health officials. This starts in America’s schools. Forty-six states require health education at all grade levels,105 but the standards and content of that education vary widely. The National Health Education Standards, first promulgated in 1995 with the assistance of national public health groups “to establish, promote, and support health-enhancing behaviors for [K-12] students” and designed as a reference point for assessing health education curricula, should be reviewed for lessons learned during the pandemic, with an emphasis on subjects such as what viruses are, how diseases spread widely, how vaccines are developed and work, the effects of infection on the body, and how practices such as good nutrition help resist infection. States and local school districts could, if they wished, use funds from the American Rescue Plan for revamping their health curricula.106 In this effort, government and schools have a strong ally: business.
The trusted voice of business

The annual Edelman Trust Barometer, an important study across 28 countries measuring popular trust in institutions such as business, government, and the media, concluded that business emerged as the most trusted institution, with 61 percent trusting business. Thus, business leadership can contribute to social stability as people increasingly trust those closest to them, which often includes coworkers and workplace or business leadership. The report found that 65 percent of employees trust information in employee media—a high figure in an age of distrust.

Business has a strong interest in helping to eliminate the noise confusing the facts and to strengthen trust in the public health system and confidence in physicians, scientists, and those who convey truthful health information. Encouragingly, the report also found that scientists are trusted figures (75 percent globally). Government should find new ways to partner with business to take advantage of its comparative advantage in promoting trustworthy information.

Improving the global response

As late as February 24, 2020, the WHO stated that COVID-19 was a series of epidemics rather than a pandemic, based on the data it had received (including declining cases in China). Once cases rose sharply, the WHO declared a pandemic on March 11. Without accurate or sufficient data or a global early warning system not dependent solely on reporting from governments, the global response was slow to develop, which influenced the entire course of the pandemic, not least in the United States.

The most important reform to strengthen the global response to future public health emergencies is to build better public-private partnerships, on a global basis to serve as an early warning and response system, given that WHO will always be to some extent limited by its reliance on data from governments. The Global Coalition for Epidemic Preparedness Innovations, involving government and major private foundations, is promoting research on categories of infectious diseases and known pathological threats that could give rise to a pandemic and on tools, including vaccines and therapeutics, that could be quickly modified once an actual pathogen is identified. A critical step will be the global “Bio-Force” using tools like genomic sequencing to identify new pathogens and begin to develop therapeutic tools to attack them. The WHO will also need additional tools with which both to develop a response and to question governments on the data they have provided WHO.

The global vaccination effort suffered from a lack of early coordination. Now, the US and other countries have stepped up, contributing over one billion doses, with the US alone contributing over 525,000,000 doses by late April 2022. The global COVAX mechanism designed to ensure that vaccines are distributed to lower- and middle-income countries needs to be made permanent within WHO, with support from GAVI, the global vaccine alliance, with both clear allocation rules agreed in advance and clear rules on protection of intellectual property. COVAX and GAVI should also develop solutions for distribution challenges, in particular by maintaining secure cold storage chains for vaccines that need them and finding ways of including therapeutics such as antiviral pills in the system.
Independent commission

Congress is already investigating many aspects of the pandemic, both through a special House committee and its regular oversight responsibilities. Some lawmakers have proposed an independent commission on the pattern of the Kean-Hamilton commission set up after the September 11 attacks. If an independent commission is set up, two factors would enhance its prospects for success and make its recommendations more likely to be adopted:

First, while the Commission should—as the Kean-Hamilton commission did—have subpoena power to compel truthful testimony, its focus should be forward-looking, not merely backward to the origins of the virus and earlier errors.

Second, any commission should include representatives of a broad variety of groups: business leaders, state public health experts, retired federal public health officials, and members of the public who can offer the perspective of patients and physicians.

IV. Conclusion

As any emergency recedes, preparedness is too easily forgotten. But many solutions presented here—such as maintaining robust surveillance and testing capabilities, requiring all states to participate in common data collection, clearer guidance from government agencies, and strategies to get therapies to health systems and patients quickly and equitably—would also be essential now, if another variant with high transmissibility and morbidity were to arise this fall or winter.

More broadly, as the nation emerges from the pandemic, it is clear that the US has chronically underinvested in several dimensions of public health; the vulnerability of underserved communities during the pandemic brought this to light. The experiences of the pandemic should focus renewed attention on issues of overall health, which has driven so much of COVID-19 comorbidity. This includes a fresh look at issues of health equity, which moving towards a more diverse health care workforce will reinforce. Existing private health care provider networks offer a real opportunity to improve Americans’ overall health.

The nation must work toward a health care system that lays the foundation for better access by moving toward a system that reimburses providers for maintaining health rather than maneuvering a fee-for-service, administrative price list. Such a system would allow broader societal determinants of public health to be addressed and would increase competition by using cost-responsible consumer choice among competing private health care plans to drive the US health care system toward quality, affordable health care for all.

It is premature to say that this pandemic is over. But with these and other solutions, the “new normal” can be more normal, and less disruptive of American life—and less lethal.
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SUSTAINING CAPITALISM
Achieving prosperity for all Americans could not be more urgent. Although the United States remains the most prosperous nation on earth, millions of our citizens are losing faith in the American dream of upward mobility, and in American-style capitalism itself. This crisis of confidence has widened the divide afflicting American politics and cries out for reasoned solutions in the nation’s interest to provide prosperity for all Americans and make capitalism sustainable for generations to come. In 1942, the founders of the Committee for Economic Development (CED), our nation’s leading CEOs, took on the immense challenge of creating a rules-based postwar economic order. Their leadership and selfless efforts helped give the United States and the world the Marshall Plan, the Bretton Woods Agreement, and the Employment Act of 1946. The challenges to our economic principles and democratic institutions now are equally important. So, in the spirit of its founding, CED, the public policy center of The Conference Board, will release a series of 2021 Solutions Briefs. These briefs will address today’s critical issues, including health care, the future of work, education, technology and innovation, regulation, China and trade, infrastructure, inequality, and taxation.