Heath Policy
The COVID-19 Pandemic as an Opportunity to Ensure a More Successful Future for Science and Public Health

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With the advent of the 21st century, science and technology were expected to be formidable forces that would hopefully improve population health and well-being.1 Furthermore, these forces would drive a rapidly changing and interconnected world, with communities and nations worldwide sharing common rewards (eg, economic development, health, and welfare) and facing common risks (eg, pandemics, chronic noncommunicable diseases, environmental damage, nuclear weapons, climate change). In this context, effective governance and communications were to be cornerstones for delivering the promise of science and technology for enhancing public health.

Yet the response to the coronavirus disease 2019 (COVID-19) pandemic in the US, one of the world’s scientific and technological powerhouses, has not realized these hopes.2 Furthermore, the pandemic has exposed critical weaknesses in the institutional systems specifically intended to protect and harness science and technology to promote personal and public health. The pandemic is thus a clarion call for a thoughtful examination of ways to bolster and modernize systems that support and guide science, technology, and public health. History suggests that major crises, such as wars, natural disasters, and pandemics can serve as a tipping point for proactive collective action. For example, reflection and lessons in the aftermath of World War II led to the creation of progressive institutions for that time, such as the United Nations, the World Health Organization (WHO), and the National Health Services in the UK. The current moment presents an opportunity to think boldly and to imagine a better world beyond the tragedy of the COVID-19 pandemic.

Despite enormous scientific and technological accomplishments, such as the rapid development and testing of diagnostics, therapeutics, and vaccines, the response to the pandemic has unveiled vulnerabilities in society and in the scientific independence of public health institutions.3-4 There have been escalating attacks on science and expert opinion, an intrusion of partisan politics into public agencies, especially the Centers for Disease Control and Prevention (CDC) and the US Food and Drug Administration (FDA), and absence of national coordination. These venerated and trusted public health institutions have become targets of direct and dangerous partisan political interference, which has often discredited science, in general, and the scientific independence and voice, in particular, of these institutions.

An added problem has been the spread of misinformation in social media, which has also undermined public trust in science and public health communication. It is concerning that large sections of society have displayed vulnerability to this erroneous information. There have been warnings about this possibility, as the US and other countries built a societal order based on science and yet ignore broader science education of the population.5

The US must enhance knowledge and understanding of science and the scientific method to repair public trust in science and relevant institutions. Public trust in and understanding of science along with effective communication from trusted sources are critical to the implementation of evidence-based interventions to promote health and prevent disease. More immediate measures are needed to strengthen nonpartisan political commitment for public health and to protect the scientific independence and voice of public health institutions. With the vision of facilitating serious thought across major disciplines and broad divisions of society, below are a series of questions (and some recommendations) that need thoughtful and careful deliberation. It may not be possible to address each one, so prioritization will be important, as well as acknowledging that effective approaches to these questions may be elusive.

• Science is critical for progress in the 21st century, but it is essential that what is learned from science is understood and respected by the public, recognizing that there is no one-size-fits-all solution; the remarkable cultural diversity in the US will require context- and culture-specific messaging and engagement. How can public communication be enhanced so that interventions supported by science are implemented optimally and effectively? How can education be improved to promote deeper societal understanding and knowledge of science and scientific principles to enhance public trust in science?

• Science is deliberately an iterative process and there can be limitations even in the best of scientific studies. But processes are in place to strengthen science, such as peer reviews of studies and of the recommendations of expert committees for accuracy and appropriate interpretation. Thus, studies not supported by scientific experts who identify content or methodological weaknesses are not used for scientific judgments. Nevertheless, there still can be uncertainty, and it is critical that the public appreciates that knowledge is ever changing and new questions can emerge.

• Science, per se, has no innate moral compass, and yet, many contemporary challenges require the culture and mindset to meld the sciences and humanities with a sense of larger purpose and a moral compass. What is needed for public policy and society to embrace this scientific temperament, and for science and humanities to constructively embrace one another?
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• Public health is critical for society’s well-being and needs protection from the vagaries of partisan politics. Even though many aspects of the public health enterprise are inevitably political, it depends on broad nonpartisan support and commitment for its success. What model of funding streams and governance structure can help to insulate public health institutions from near-term political concerns and position them to generate and disseminate data and science to best serve the public, including anticipating and responding to public health emergencies?

• Protection of the quality and integrity of science and public health will require appropriate independent national institutions and governance models to meet contemporary challenges. Could a model such as the Federal Reserve be appropriate for the CDC and the FDA? This would permit the directors of science agencies to serve on a term-limited basis that falls outside the presidential election cycle of 4 years. Such a model also could enable an oversight body, such as an independent advisory board, composed of science and public health experts, business leaders, academic leaders, civic body representatives, and community members. Might a bipartisan independent commission be required to review recent experience and consider options for an effective model?

• Could a revised governance structure in which the legislative branch, in a bipartisan joint effort with the executive branch, offering more oversight of public health agencies such as the CDC and FDA, be more effective than the current system that consists primarily of executive branch oversight? Regardless, successful public health will require strong political will, mechanisms for consensus, and advocacy for appropriate levels of resources.

• Scientific agencies need to be free and unfettered to reveal full science and public health information to the public. For example, the director of the agency (e.g., CDC), and the senior scientists, should be expected to share uncensored scientific information and data with the public, and be able to discuss facts with the media without constraints. Publications such as the CDC’s Morbidity and Mortality Weekly Report (MMWR) should retain their scientific independence, perhaps have their own editorial boards, and not be subject to political scrutiny. What mechanisms can protect these functions? Can emboldened fail-safe mechanisms such as strong whistleblower protections ensure that public health agencies such as the CDC and the FDA serve the people by providing up-to-date evidence-based recommendations and thwarting the disrupting influence of politics?

• A public health system oriented toward prevention and proactive measures will be best equipped to encounter a pandemic and respond to other ongoing health challenges. The public health apparatus of the US, especially, the CDC and FDA, which until recently has been recognized as a world leader, has been undermined by lack of preparation, miscommunication, political interventions, inconsistent and contradictory messaging, and insufficient resources to meet the demands of health policy in the pandemic or in usual times.

• Greater international engagement is paramount to ensure multilateral public health cooperation. There is increasing interconnectedness between science and public health with international economics, politics, and policy. A nationalist perspective harms the ability of the US and the other nations to efficiently coordinate their response to pandemics, and to promote health. Helping other countries prevent and control contagious diseases and to promote health not only benefits those nations but also contributes to US domestic health security, well-being, and global leadership. Can programs such as the Global Health and Security Initiative offer collaborative potential to define a new ecosystem for global collaborations in science and in public health? How can transnational nonpolitical bridges be strengthened to foster greater global collaboration in science and in public health? As examples, how may countries strengthen the WHO, InterAcademy Partnerships, international engagement of the American Association for the Advancement of Science, International Association of National Public Health Institutes, and interagency collaborations within the US and globally?

Conclusions
The missteps and miscommunications that have stymied a more effective US and global response to the COVID-19 pandemic bring into sharp focus the deficiencies in governance systems of the US public health and scientific institutions. The CDC and FDA were created 75 and 115 years ago, respectively, each in response to a local health threat. As been said many times, however, the world is a far smaller place today than 100 years ago, with climate change and pandemics as world problems of the globe. This calls for rethinking the structure and capacities of these preeminent federal institutions to optimally protect public health in the 21st century. This will require significant changes to the governance structures of the public health institutions and rebuilding of public trust in science and public health.

ARTICLE INFORMATION
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Additional Information: Dr Foege was director of CDC from 1973-1983 and Dr Curran was Head of Task Force and Director, Division of HIV/AIDS at CDC from 1981-1991.

REFERENCES

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