In October 2022, the Biden administration released its National Biodefense Strategy that aims to protect the US and the world from a bioterrorism event, an accidental laboratory leak of a dangerous genetically engineered virus, or another devastating pandemic. Most welcome is the recognition that infectious diseases know no borders. Among other steps, the strategy calls for supporting at least 50 countries to build capacity to conduct essential public health activities, support that is essential to detect and stop diseases in their tracks worldwide. What is missing from the strategy, however, is a clear vision of how to strengthen public health agencies in the US.

The enormous toll of COVID-19 in the US has many causes, but a failure to invest in biodefense is not one of them. The US has spent billions of dollars on countermeasure development since the first bioterrorism bill passed in the wake of the September 11, 2001, attacks as well as on Public Health Emergency Preparedness programs at the state and local levels. In many ways, these investments worked as intended—facilitating the rapid development of safe and effective COVID-19 vaccines and supporting staff to create management structures for emergencies.

However, US efforts to prepare for pandemics have assumed that public health agencies are capable of handling core tasks—gathering and analyzing essential data, working with health care systems, and communicating lifesaving information effectively. The pandemic revealed that these capacities in the US are uneven at best. Until the US has a public health system that protects everyone, regardless of where they live, the national biodefense strategy will not achieve its goal of protecting the public in a biological emergency.

**Need for Day-to-Day Monitoring**

The National Biodefense Strategy prioritizes data integration for early warning that brings together disease reports, clinical information, and laboratory results in real time to detect “bioincidents.” But foundational to seeing what is new and dangerous is being able to monitor what is happening every day, and most US public health agencies have little insight into day-to-day changes in many urgent health threats from opioid overdoses to asthma. Even with the current “triple-demic” of COVID-19, influenza, and respiratory syncytial virus, many health departments are struggling with limited surveillance data.

Major investments are needed to modernize public health systems at a cost of $36.7 billion over 10 years, according to an estimate by the Healthcare Information Management Systems Society. These investments could digitize core public health functions, which would allow public health and clinical data systems to communicate more readily and help the public understand health concerns in their communities. In June 2022, the Commonwealth Fund Commission on a National Public Health System called for the US Department of Health and Human Services to oversee these investments, beginning with new efforts by the US Centers for Medicare & Medicaid Services to share data with communities around the country.

**Workforce Needs**

The National Biodefense Strategy notes that local health departments must be “operationally ready to assess, prevent, prepare for, respond to, and recover from nationally or internationally significant
biological incidents.” Recognizing that these tasks cannot be handled by a small preparedness office, the report calls for health agencies to recruit, train, and sustain “a robust, flexible, permanent cadre of essential critical health infrastructure workers, public health laboratory scientists, technicians, and data quality managers.”

These specialized skills are necessary—but not sufficient—for emergency preparedness. To succeed in an emergency, health departments also need epidemiologists, inspectors, outreach workers, communications experts, and coordination with the private sector.

These efforts faltered during the COVID-19 pandemic. Following the 2008 recession, tens of thousands of people left the state and local public health workforce. These losses have eroded core capabilities, and recent estimates have found a workforce gap of more than 80,000 people in public health. Filling this gap requires people with modern-day public health skills, such as managing and analyzing health care data, communicating effectively with the public, working with health care systems, and earning trust through community partnerships.

The COVID-19 pandemic brought a surge of funding to public health agencies. But without regular, sustainable funding—what experts have estimated to be about $4.5 billion each year—it is often impossible to create permanent positions. Instead, many health departments hire temporary employees or consultants, many of whom work remotely and may disappear when temporary funding is exhausted. News reports have indicated that thousands of well-trained public health staff hired for the pandemic are already being let go.

In exchange for sustainable funding, Congress and the public should expect that a public health agency can meet its core functions and responsibilities and has hired the workforce needed to do so. As proposed by the Commonwealth Fund Commission, these benchmarks could be assessed by a streamlined and focused system of accreditation for public health agencies.

Reliable readiness for emergencies should be built on the foundation of excellent day-to-day public health work. Epidemiologists and laboratory scientists can characterize patterns of transmission of HIV, tuberculosis, and other common infectious diseases as well as map major environmental hazards, such as lead paint. Policy experts and outreach workers can focus on overdose prevention, cardiovascular disease prevention, and maternal health. The tools of data gathering, analysis, planning, outreach, coalition building, and action for these and other daily challenges all can be quickly applied to novel threats.

### Communicating and Engaging With the Public

Another area of focus for the National Biodefense Strategy is to “promote evidence-based health communication to the public” that builds vaccine confidence and counters misinformation. The lack of success in these areas cost the US early during the COVID-19 pandemic; even now, more than 60 countries have a higher percentage of the population that is fully vaccinated than in the US.

But the strategy does not acknowledge the roots of this challenge in inequity and political polarization. Many racial and ethnic minority groups were skeptical of vaccination based on historical and present mistreatment and poor access to health care. Others in the US were pushed to oppose vaccination by political leaders and ideologically biased media. Without addressing these underlying causes, the task of providing “clear, consistent, and coordinated information” will remain profoundly difficult and public health efforts in a potentially deadly outbreak, which rely so fundamentally on public trust, will also fail to achieve their goals, creating unnecessary risks for communities. Thus, the Commonwealth Fund Commission called for more fundamental reforms, including enhancing community engagement in public health decision-making, investing in a broad range of community partnerships that tackle fundamental drivers of poor health, and strengthening transparency and integrity in federal activities.

Of course, these changes will take time and resources—perhaps more than what is contemplated by the National Biodefense Strategy. But the scale of needed reforms cannot be the reason to ignore their importance. No investment in complex surveillance systems will reach its
potential without well-trained public health workers to work with these systems every day. No advanced countermeasures will save the lives at greatest risk unless they reach and are accepted by the people who need them most. The National Biodefense Strategy needs a companion strategy focused on core capabilities because successful public health emergency preparedness depends on a strong public health system.

ARTICLE INFORMATION
Published: December 1, 2022. doi:10.1001/jamahealthforum.2022.5206
Open Access: This is an open access article distributed under the terms of the CC-BY License. © 2022 Lurie N et al. JAMA Health Forum.

Corresponding Author: Joshua M. Sharfstein, MD, Bloomberg School of Public Health, Johns Hopkins University, 615 N Wolfe St, Baltimore, MD 21205 (joshua.sharfstein@jhu.edu).

Author Affiliations: School of Medicine, George Washington University, Washington, DC (Lurie); Harvard Medical School, Harvard University, Boston, Massachusetts (Lurie); Bloomberg School of Public Health, Johns Hopkins University, Baltimore, Maryland (Sharfstein).

Conflict of Interest Disclosures: Dr Lurie reported working for the Coalition for Epidemic Preparedness Innovations and serving as the Assistant Secretary for Preparedness and Response from 2009 to 2016. Drs Lurie and Sharfstein served as staff to the Commonwealth Fund Commission on a National Public Health System and received grant support from the Commonwealth Fund.

REFERENCES
