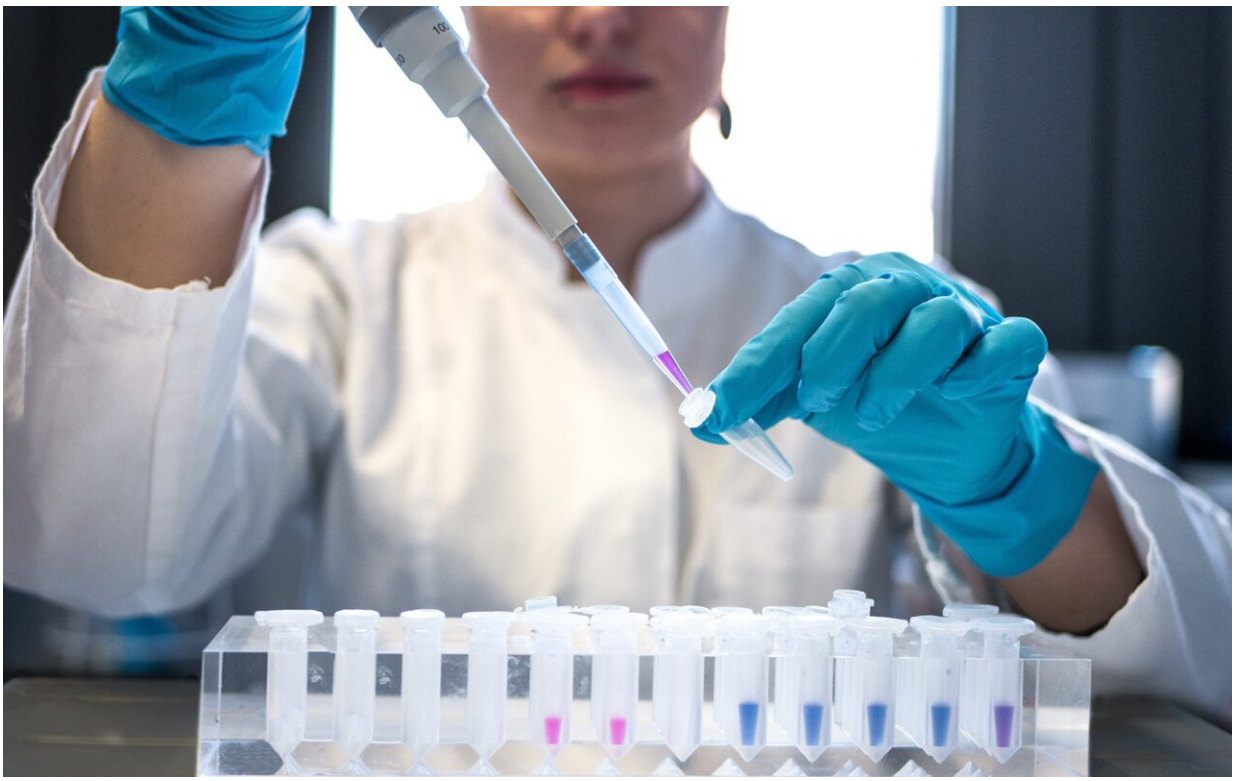
Commentary outlines steps to strengthen US laboratory system and pandemic preparedness

March 6 2023



Credit: Unsplash/CC0 Public Domain

Weaknesses in the United States laboratory system, which were illuminated during the COVID-19 pandemic, underscore a need for policy changes to improve the country's infectious disease response,

according to a new analysis by a Weill Cornell Medicine investigator.

The analysis, published in the March issue of *Health Affairs*, was co-authored by Dr. Jay Varma, professor of population health sciences and medicine at Weill Cornell Medicine, Dr. Jill Taylor of the Association of Public Health Laboratories, and Dr. Joshua Sharfstein, vice dean for public health practice and community engagement at the Johns Hopkins Bloomberg School of Public Health. The authors suggest government and private institutions collaborate to implement systemic changes to improve the monitoring and tracking of highly transmissible diseases.

"The laboratory system in the U.S. is a patchwork of different organizations inside and outside of the government that have to work together in a seamless way to ensure that the American people have the highest quality diagnostic testing and that public health organizations receive data in a clear and quick way to take immediate action," said lead author Dr. Varma, who is also a director of the Cornell Center for Pandemic Prevention and Response.

Laboratory testing helps identify disease in a population, determine how a disease may evolve, detect outbreaks and assess the impact of disease control measures like vaccination. With inefficient test execution and faulty test design during the COVID-19 pandemic, the Centers for Disease Control and Prevention's (CDC) "stepwise" approach to developing tests was too slow and insufficient to match the pace of the highly transmissible virus—setting up the institution to be a "single point of failure" when monitoring disease spread, writes the authors. These problems arose again during the 2022 outbreak of Mpox, with the nation facing medical supply shortages and delayed test results due to the lack of clarity and coordination between many different sources reporting public health data.

To address these limitations, the authors acknowledged the need for

federal financial investment and provided estimated costs of improving staffing, equipment, infrastructure, and creating secure data systems for the U.S. health system over the next ten years. The authors also suggested internal improvements in CDC structure and operations, and having the institution collaborate with public and private labs to create a "national road map" defining roles and responsibilities for all involved at each stage of a disease outbreak as it evolves. Specifically, the CDC can work with the Food and Drug Administration (FDA) to create a regulatory pathway for at-home tests and with the National Institutes of Health (NIH) to coordinate a national database for standardized clinical information.

"The CDC needs to be legally empowered and sufficiently funded to serve as the leading government agency to implement public health strategy," said Dr. Varma. "The people who can really ensure that happens are elected officials."

In establishing public-private partnerships, the U.S. laboratory system can improve the reliability and efficacy of current disease tracking methods. Furthermore, the authors encourage expanding the Strategic National Stockpile and increasing access to testing resources, especially early in an outbreak—key investments to prepare the United States for the next pandemic.

"What is critical here is making sure the government, media and the public have the real-time information about the nature of an infectious disease," explained Dr. Varma. "Making these policy changes will not only improve the quality of testing and reporting and the speed of developing new tests, but also have an impact on rebuilding the confidence in public health."

More information: Jay K. Varma et al, Planning For The Next Pandemic: Lab Systems Need Policy Shift To Speed Emerging

Infectious Disease Warning And Tracking, *Health Affairs* (2023). DOI: 10.1377/hlthaff.2022.01211