

Investigating the Origins of COVID-19
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Testimony
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Dr. Auwaerter is testifying as an individual and on behalf of the Infectious Diseases Society of America. His views do not necessarily represent the views and positions of Johns Hopkins University and Medicine.

Chairman Wenstrup, Ranking Member Ruiz and distinguished members of the U.S. House of Representatives Committee on Oversight and Accountability, Select Subcommittee on the Coronavirus Pandemic, thank you for the opportunity to testify at today's hearing, "Investigating the Origins of COVID-19." I want to start by acknowledging the severe impact SARS-CoV-2 infection has had globally and in the United States. As of today, more than 1.1 million Americans have died from COVID-19. That is not just a number. These human lives lost have led to tremendous suffering among countless families. As an infectious diseases physician who cares for patients with COVID-19, it is essential that we deepen our understanding of the origins of the SARS-CoV-2 virus. Just as critical, we must apply our experience from this pandemic to improve our preparedness, prevent disease and save lives. My colleagues and I have experienced firsthand the grief and frustration of losing patients to this deadly pandemic. We are committed to gaining the knowledge and the tools that will allow us to do better in future public health emergencies.

COVID-19 Origins

Investigations into the origins of COVID-19 should be objective and driven by appropriate scientific and intelligence experts who present unbiased findings that are not politicized. The more we learn, the more accurate information we can uncover, and the better informed we will be for future preparedness. Achieving these ends depends on an environment that fosters trust and fairness that will facilitate these goals.

Investigations are ongoing, and there is currently no consensus among scientists and intelligence experts about the origins of COVID-19. As you know, the Department of Energy determined, with low confidence, that the virus escaped from a laboratory in China. That conclusion is based on classified information unavailable to the public. The "low confidence" qualification means that the information used in the analysis is scant, questionable or fragmented, or that solid analytical conclusions cannot be inferred from the information. The FBI reached that conclusion with moderate confidence.

On the other hand, many virologists believe compelling evidence points to an animal origin. Specifically, they conclude that the coronavirus most likely jumped from a caged wild animal into people at the

Huanan Seafood Wholesale Market, where a vast COVID-19 outbreak began in December 2019. Data supporting this theory were published in a peer-reviewed [paper](#) in *Science* in July 2022.

We may never know conclusively where the COVID-19 pandemic originated — making claims that cannot be supported sufficiently by available data fuels confusion and mistrust. But we can still learn valuable information from these investigations. And ultimately, we should use that information to prevent outbreaks and pandemics with environmental or human-based origins to avoid loss of life and severe societal disruption.

Pandemic Preparedness

Surveillance and Data Collection

Regardless of the source of a pandemic or outbreak, a robust public health infrastructure and biomedical research enterprise are critical for our preparedness and response. Global coordination is essential to inform the robust surveillance necessary to identify, track and contain potential threats. We must collaborate with the World Health Organization (WHO) and other nations to foster an atmosphere where global information sharing about science and infectious diseases is transparent, complete, seamless and rapid across countries, states and scientific institutions. The 2003 SARS outbreak provides an instructive example of what can be achieved through scientific collaboration. Within six months, collective efforts were successful in stanching the virus, and it has not reappeared. During the 2003 SARS outbreak, 8,098 people worldwide became sick with SARS. Of these, 774 died. In the United States, only eight people had laboratory evidence of SARS infection. Although that virus did differ from SARS-CoV-2 in that most people infected became ill, the lessons of international scientific and public health collaboration are still applicable. The rapid containment of the 2003 outbreak only occurred because of multi-country cooperation of scientists and public health officials.

The U.S. has made important investments in surveillance and data collection domestically and globally, but much work remains. Trust, transparency, training and testing are critical in preventing another pandemic.

Global Trust

Pandemic preparedness is as much about global diplomacy as it is about science. There must be trust among nations to facilitate early identification and collaboration when there is an emerging infectious diseases threat. If we have learned anything from pandemics, it is that what emerges in one country rarely stays there because pathogens travel quickly, and borders are nonexistent to them.

Public Transparency

Scientific information should be made available to researchers, public health officials and the general public. Greater transparency about science, how currently accessible data inform scientific decisions and public health guidance, and how expert opinions evolve as more data become available will help improve health literacy and rebuild public trust in science and public health. From here, individuals will be better equipped to understand science and decide how to best protect themselves and their loved ones.

Workforce

As we consider our preparedness infrastructure, the U.S. should invest in technologies and the expert workforce necessary to leverage those technologies to benefit all communities. This means investing in recruiting and training public health professionals, laboratory scientists, researchers and health care providers — including infectious diseases physicians. These experts are critical to caring for patients; supporting community-level prevention, preparedness and response activities; leading research to deepen our understanding of infectious diseases; and developing novel diagnostics, vaccines and therapeutics to respond to emerging threats. Significant gaps persist in the recruitment and retention of these experts, and federal investments are urgently needed to fill these gaps.

Research

Basic, translational and clinical research are all crucial to our pandemic preparedness. Research helps us better understand how microbes emerge, evolve and move through populations — knowledge that can help us contain the spread of infections and prevent localized outbreaks from becoming global pandemics. Strengthening our research infrastructure now will allow us to deliver the diagnostics, vaccines and treatments patients need during future emergencies. Research should also be aimed at developing platforms for rapid deployment of diagnostic tests when facing a new pathogen so that we can more rapidly scale up testing capacity when a new threat emerges. Testing is critical to inform individual care and broader responses. Investments should also focus on developing novel therapeutic options that would have activity against anticipated pathogens such as coronaviruses, influenza and bacteria, multidrug-resistant ones. U.S. efforts to scale up bioterror preparedness following the attacks of Sept. 11, 2001, and cases of anthrax bioterrorism on Capitol Hill can provide useful blueprints for pandemic preparedness.

The possibility that the COVID-19 pandemic may have originated in a laboratory has helped drive increased attention to laboratory safety. Regardless of the origins of SARS-CoV-2, investments in our infectious diseases research capacity and improvements to biosafety are essential. Access to BSL-4 facilities for research purposes can facilitate biosecurity research efforts. Despite the need for BSL-4 labs demonstrated by recent outbreaks, the number of laboratories in the U.S. is limited and unequally distributed across the country. The current facilities are located in Atlanta, GA; Fort Detrick in Frederick, MD; and San Antonio and Galveston, TX. Adding new facilities with BSL-4 capabilities would increase research capacity and strengthen outbreak and pandemic preparedness in the U.S. New labs should be positioned strategically throughout the country based on safety assessments and geographic equity to prepare for and respond to novel agents quickly and safely. Biosafety practice considerations should be at the forefront of existing laboratories and for creating new labs.

Additionally, the federal government should support empirical research on biosafety efforts. Important research topics include why laboratory accidents happen, the frequency, and other data needed to create and update evidence-based mitigation measures.

Enhanced Potential Pandemic Pathogens (ePPP) Research

Enhanced potential pandemic pathogens (ePPP) research, a type of gain of function (GOF) research, has received particularly renewed attention due to the COVID-19 pandemic. EPPP research is important because it can help us understand potential human-pathogen interactions, assess their likelihood of emerging in a pandemic and inform preparedness efforts, including surveillance and developing medical countermeasures. While such research is inherently risky and requires strict oversight, there is also risk

of not undertaking this type of research leaving us unprepared for the next pandemic. Unbiased bodies with appropriate scientific expertise should perform the oversight of this research.

In February 2022, the U.S. government charged the National Science Advisory Board for Biosecurity (NSABB) — which is comprised of members with significant expertise in science, research methodology, biosecurity and bioethics — with reviewing policies governing ePPP research and dual-use research of concern (DURC). They are to examine and recommend a forward-thinking approach to the funding review process for such studies.

In January 2023, the NSABB released its [*Proposed Biosecurity Oversight Framework for the Future of Science*](#), which includes a comprehensive set of thoughtful recommendations designed to increase the safety of ePPP research and DURC while allowing vital research to continue. The recommendations include:

- Develop an integrated approach to oversight of ePPP research and DURC with clear federal, institutional and investigator responsibilities.
- Clarify that federal department-level review is required for research that can be reasonably anticipated to enhance any pathogen's transmissibility and/or virulence (which would likely be broader than our current definition of ePPP).
- Remove blanket exclusions for research associated with surveillance and vaccine development while implementing processes for urgent, rapid review of research critical for public health or national security.
- Develop guidelines to ensure that there is no feasible alternative method to gain the benefits of the research with less risk and eliminate unnecessary risks.
- Increase transparency in the review process for ePPP research.
- Ensure that ePPP research conducted at institutions outside the U.S. is subject to review, evaluation, and ongoing oversight procedures equivalent to domestic U.S. policies and procedures.

This type of thorough, balanced review conducted by experts benefits all of us by facilitating the advancement of science with improved and appropriate guardrails. I would encourage Congress to continue working with the scientific community to determine what policies or investments may be useful to help implement recommendations like these.

Conclusion

Once again, I want to express my gratitude to Chairman Wenstrup, Ranking Member Ruiz and all members of the Subcommittee for your tireless attention to these important issues and for inviting me to participate in today's hearing. The Infectious Diseases Society of America and infectious diseases physicians throughout the country are grateful for your leadership and stand ready to partner with you to learn as much as we can from the COVID-19 pandemic and to improve our readiness for the next outbreak or pandemic.