



AN ANSWER THAT RAISES QUESTIONS

The “Wuhan Lab Leak” Theory and Implications for Biodefense and Public Health

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TOP LINES

- If there is one lesson to be learned from the reception of the “Wuhan lab leak” theory, it is that asking the right tough questions can make all the difference in national security and public health matters.
- With new evidence surfacing not only about the origins of SARS-CoV-2, the virus that causes the disease COVID-19, but also the links between the virus and the top scientists in the federal government and the kind of research that Americans’ tax dollars fund, the Biden Administration has a duty to get to the bottom of what happened and hold those responsible accountable.

Namely:

- the nature of coronavirus research in the context of gain-of-function research, which is experimentation that aims to increase the virulence and/or transmissibility of pathogens;
 - the circumstances of how a novel viral pathogen could have left the laboratory, including the crucial information surrounding whether any potential release was inadvertent or deliberate; and
 - why the U.S. federal government allowed American taxpayer dollars to potentially fund gain-of-function research overseas, particularly after targeted efforts from 2014-2017 to improve the ecosystem of work with potential pandemic pathogens ([NIH, 2017](#)).
- Potential next steps for addressing both punitive and preemptive measures if SARS-CoV-2 leaked from the Wuhan Institute of Virology can be further deliberated based on how the origins of SARS-CoV-2 are defined and categorized, how SARS-CoV-2 may have left the laboratory, and the actions taken by China and World Health Organization in covering up the truth about the COVID-19 pandemic.

INTRODUCTION

The “Wuhan lab leak” theory—the idea that SARS-CoV-2, the virus that causes the disease COVID-19, might have inadvertently leaked out of a laboratory in Wuhan rather than originating in a naturally occurring animal spillover to humans—was first raised in early 2020 by senior national security officials and Members of Congress. This concern surfaced based on how China responded, building hospitals overnight and quarantining a city of 10 million and geographically more than five times the size of London, and on what was known about the city of Wuhan itself. Indeed, Senator Tom Cotton (R-AR) highlighted at a June 30, 2020, Armed Services Committee hearing that Wuhan has “China’s only bio-safety level four super laboratory that works with the world’s most deadly pathogens to include, yes, coronavirus.” ([Senate Armed Services Committee, 2020](#)).

The “Wuhan lab leak” theory has received renewed attention over the last several weeks due to new information concerning the laboratory in question—the Wuhan Institute of Virology (WIV). In late May of 2021, a *Wall Street Journal* investigation revealed further detailed information about the timing, symptoms, and hospitalization of three WIV scientists mentioned previously in intelligence reporting, which suggest they likely fell ill in November of 2019 when COVID-19 began to spread ([Eban, 2021](#) and [Gordon, Strobel, Hinshaw, 2021](#)). Separately, over the last week, BuzzFeed published thousands of emails from the Director of the National Institute of Allergy and Infectious Diseases (NIAID), Dr. Anthony Fauci, which suggest he and others in National Institutes of Health (NIH) leadership were alerted to the possibility that SARS-CoV-2 originated in a laboratory and actively suppressed that information throughout the pandemic despite indicating no reservations internally about its plausibility ([Chamberlain, Moore, Golding, 2021](#)). Importantly, the scientific evidence is perhaps the strongest ([Quay & Muller, 2021](#)). In an exploration of viral genomics, another recent *Wall Street Journal* article explains why the genetic fingerprint of SARS-CoV-2 suggests the development of the virus in a laboratory ([Quay & Muller, 2021](#)).

The shifting reception of the “Wuhan lab leak” theory deserves its own study as a window into political bias in today’s media landscape and the role of big tech companies. Throughout 2020, as the Intelligence Community (IC) and the State Department began investigations into whether SARS-CoV-2 originated in WIV, major newspapers and media outlets in the United States sought consistently to discredit any link between the two. This media opposition included claims of “debunking” this theory as a “conspiracy” based on interviews with scientists ([Barclay, 2020](#)) and reports alleging that Trump Administration officials pressured government agencies to perpetuate this theory ([Mazzetti, Barnes, Wong, and Goldman, 2020](#)). These dismissals did not appear to acknowledge the element of human error that could have caused an individual to inadvertently allow a sample of the virus to get out of the lab. Over the last week, some news outlets have issued corrections to, and even retroactively edited, their reporting in 2020 that described the theory as a conspiracy ([Wulfsohn, 2021, Geraghty, 2021](#)). Facebook has reversed its earlier policy and now permits content that promotes the “Wuhan lab leak” theory ([Downey, 2021a](#)), while Twitter has not yet confirmed whether it will change its policy ([Jacobs, 2021](#)).

Today’s discussion about the “Wuhan lab leak” theory raises several questions and concerns, including:

- the nature of coronavirus research in the context of gain-of-function (GOF) research, which is experimentation that aims to increase the virulence and/or transmissibility of pathogens;

- the circumstances of how a novel viral pathogen could have left the laboratory, including the crucial information surrounding whether any potential release was inadvertent or deliberate; and
- how the U.S. federal government could have allowed American taxpayer dollars to potentially fund GOF research overseas, particularly after targeted efforts from 2014-2017 to improve the ecosystem of work with potential pandemic pathogens ([NIH, 2017](#)).

Earlier this month, the world was reminded of the urgency of these lessons as the world's first human case of a new strain of bird flu, H10N3, was reported in China ([Gu and Patton, 2021](#)).

In response to the reports about the three scientists who fell ill in November of 2019, President Biden directed the IC to spend the next 90 days investigating the origins of SARS-CoV-2 anew, even though the Biden Administration shut down the aforementioned State Department investigation earlier this year ([Lungariello, 2021](#)). As of this writing, the Biden Administration has not significantly weighed in on the troubling revelations raised by Dr. Fauci's emails or on the circumstances surrounding his and his colleagues' suppression of the lab leak theory. White House Press Secretary Jen Psaki shut questioning down at a press conference on June 3, 2021, saying, "it's obviously not that advantageous for me to re-litigate the substance of emails from 17 months ago." ([White House, 2021](#)).

If there is one lesson to be learned from the reception of the "Wuhan lab leak" theory, it is that asking the right questions can make all the difference in national security and public health matters. With new evidence surfacing not only about the origins of SARS-CoV-2 but also the links between the virus and the top scientists in the federal government and the kind of research that Americans' tax dollars fund, the Biden Administration has a duty to get to the bottom of what happened and hold those responsible accountable.

PROTECTING AGAINST AN "INVISIBLE ENEMY"

The recent re-emergence of the "Wuhan lab leak theory" in the face of new evidence and belated media scrutiny serves as a reminder of the challenging international context in which the previous administration was mounting the early COVID-19 pandemic response despite delayed and misleading information from the World Health Organization (WHO) and China about a novel pathogen.

This included WHO's early denial that COVID-19 was transmissible through human-to-human contact ([Givas, 2020](#)) and advice against changes to travel ([Nebekhay, 2020](#)). Armed with little reliable data, the medical community resorted to heated debates over how to protect against the highly contagious virus and what treatments to administer ([Prasad and Flier, 2020](#) and [Toy and Maremont, 2020](#))

The historic nature of a COVID-19 vaccine arriving in record time—less than a year—under these circumstances cannot be overstated ([Kellogg, Olidort, and Overton, 2021](#)). The scope and speed of responses that the previous administration pursued to protect Americans throughout the pandemic, particularly in the early weeks when little was known about the virus, likely saved countless lives ([Constantino, Helsop and MacIntyre, 2020](#) and [Pei, Kandula,](#)

[and Shaman, 2020](#)). These actions included travel bans on foreign nationals who had recently traveled to China and Europe and efforts to repatriate Americans stranded overseas. The latter resulted in more than 100,000 Americans returned to the United States from 136 countries on 1,140 flights ([State Department, 2021](#)).

With a looming supply shortage across the country and hospital surges, the previous administration launched Project Airbridge, which brought medical supplies from around the world to the United States by air rather than by sea as it would have ordinarily been the case, thereby reducing delivery from weeks to days ([White House, 2020](#)). The Trump Administration also augmented the supply of ventilators, in part through creating new production lines with private companies such as Ford, General Motors, Philips, and General Electric, to ensure that no American in need of one went without one ([White House, 2020](#)).

The previous administration's actions in the early weeks of 2020 directly saved lives and laid the groundwork for breakthroughs that ultimately helped Americans protect themselves against COVID-19. Recognizing the nearly 600,000 American lives lost and notwithstanding the American lives saved, it is important to appreciate that faster and more reliable information from China and WHO would have allowed the U.S. to take even earlier and more effective action to further save lives.

UNDERSTANDING THE SCIENTIFIC CONTEXT

The general objective of GOF research is to increase public health and pandemic preparedness, albeit with the downside that it carries recognizable biosecurity and biosafety risks ([Selgelid, 2016](#)). It is considered a subset of dual-use research in which the scientific output could be applied with either benevolent or maleficent intent ([Selgelid, 2016](#)). A more specific categorization exists: dual-use research of concern (DURC), described as life sciences research that could be directly misapplied to pose a significant threat ([HHS, n.d.](#))

Researchers and those funding and supervising GOF research efforts should adhere to the highest safety and ethical standards, with leading experts calling for the same bioethical principles that guide human subject research to GOF studies ([Evans, 2015](#)). In October of 2014, the U.S. federal government, citing “recent biosafety incidents at Federal research facilities,” paused any new funding for GOF experiments involving influenza, SARS, and MERS viruses ([The White House, 2014](#)). The Obama Administration also encouraged scientists performing the stated research to voluntarily pause their work as well. The cited biosafety mishaps had involved anthrax, smallpox, and a research controversy over the biological weapons implications of H5N1—a highly pathogenic avian influenza virus strain found to be airborne transmissible between ferrets in government laboratories ([Selgelid, 2016](#)). The funding pause lasted until December of 2017 and encompassed robust participation and recommendations from U.S. scientific leaders in large part through the National Science Advisory Board for Biosecurity (NSABB), a federal advisory committee for the Department of Health and Human Services (HHS) ([NIH, 2017](#), [NSABB, 2016](#)). Among outputs from the 3-year effort were a comprehensive ethical analysis, a risk and benefit analysis, new policy guidance in January of 2017 from the Obama Administration's Office of Science and Technology Policy, and a framework from HHS on how to make funding decisions for proposed research involving enhanced potential pandemic pathogens ([OSTP, 2017](#), [ASPR, 2017](#), [Gryphon Scientific, 2016](#), [Selgelid, 2016](#)).

During the pause for new funding in the U.S., previously-funded research projects coming out of WIV and affiliated partners, including research teams in the U.S., were making significant progress in understanding bat coronaviruses, with a 2015 study gaining particular notoriety ([Menachery, 2015](#)). The researchers found “a potential risk of SARS-CoV re-emergence from viruses currently circulating in the bat populations” ([Menachery, 2015](#)). Menachery et al. also recognized the U.S. funding pause, caveating that their experiments occurred before the funding pause, and made an insightful statement:

Together, these data and restrictions represent a crossroads of GOF research concerns; the potential to prepare for and mitigate future outbreaks must be weighed against the risk of creating more dangerous pathogens ([Menachery, 2015, p.1512](#)).

Adding to the complexity of coronavirus GOF research is the continued federal funding of WIV during the entirety of the funding pause and into 2020 through money distributed to the non-profit EcoHealth Alliance—although direct connections between the funding and GOF research have not been confirmed ([Freeman, 2021](#), [McKay, 2020](#)). As Mr. Freeman reports in the Wall Street Journal, Senators Rand Paul (R-KY) and Ron Johnson (R-WI) have requested information from NIH regarding whether the continued funds flowing from the U.S. federal government to WIV through EcoHealth Alliance adhere to the 2017 HHS framework and how both Dr. Collins of the NIH and Dr. Fauci currently view GOF research ([Freeman, 2021](#)). The Senators are asking the right questions. The U.S. approach to GOF research, biosecurity, and biosafety needs to be re-evaluated in the aftermath of the COVID-19 pandemic and the broader context of DURC.

RELEVANT QUESTIONS

Suppose it can be established that SARS-CoV-2 emanated from the WIV. In that case, the following questions could be asked about punitive measures toward China and WHO (depending on the circumstances of the leak) and preemptive measures that the United States and other nations can take to strengthen biodefense and global health planning.

Even though some of these questions may be harder to answer than others in the near term regarding this particular pandemic, they are all broadly relevant given the risks involved with GOF research and should guide current and future planning for strengthening America’s biodefense and public health capabilities:

- Was SARS-CoV-2 the result of a naturally occurring spillover from animals to human beings, a form of scientific competition through GOF research, or a biological weapon?
- If SARS-CoV-2 leaked from WIV, was the leak inadvertent or deliberate?
- Going forward, what should be the appropriate penalties imposed on any nation that permits an inadvertent leak from a lab, and what should penalties be in response to a deliberate leak?
- Regardless of virus origins, what penalties should be imposed on any nation that lies about the release of a virus and withholds disclosure of its spread to WHO, particularly in light of the high value that early-stage information provides for implementing strategies to save lives?

- Should America's engagement continue with WHO?
- If, in fact, SARS-CoV-2 leaked from a lab as the result of a bioweapons development program, how should the United States and other nations begin addressing the Chemical, Biological, Radiological, Nuclear threat that GOF research could pose?
- What programmatic and budgetary changes should be introduced to our federal grant-making and global health infrastructure to ensure American taxpayer dollars are only used to advance Americans' health, interest, and security and are not being used by adversarial nations to develop weapons used to harm Americans?
- What is the position of the United States and other nations on the value of GOF research, considering its significant risk and the COVID-19 experience?

THE COVID-19 CASE STUDY: *Potential Next Steps in the Event that SARS-CoV-2 Leaked from WIV*

Based on the above questions, potential next steps for addressing both punitive and preemptive measures in the event that SARS-CoV-2 leaked from WIV can be further deliberated based on how the origins of SARS-CoV-2 are defined and categorized, how SARS-CoV-2 may have left the laboratory, and the actions taken by China and WHO in covering up the truth about the COVID-19 pandemic. A number of these steps involve participation from the medical and scientific communities, both in the United States and worldwide, which could help restore any credibility with the public that was impacted over the last year. Indeed, the scientific community has previously recognized public trust as a key factor in ensuring science maintains a role in evidence-based policy formation ([Frank, G. M., Adalja, A., Barbour, A., Casadevall, A., Dormitzer, P. R., Duchin, J., Hayden, F. G., Hirsh, M. S., Hynes, N. A., Lipsitch, M., Pavia, A. T., and Relman, D. A., 2016](#)).

Rethinking GOF Research in the Aftermath of COVID-19

The origins of SARS-CoV-2 and the global devastation caused by COVID-19 raise a fundamental question for the national security and legal communities about how to view the potential damage of GOF research, irrespective of whether the "Wuhan lab leak" theory is accepted. Namely, given the experience of COVID-19, it might be appropriate to consider some forms of GOF research as being in the category of biological weapons and apply a DURC label. It may also be sensible to create a new distinction between scientific research that has the potential to be weaponized versus scientific research which has weaponization as its aim. COVID-19 is just the latest reminder that the risk of biological warfare remains high and has in recent years been heightened by the prospects of bio-terrorism through the proliferation of such weapons by non-state actors and rogue regimes. Given existing vulnerabilities in international efforts to curb biological weapons production and proliferation, an analysis of COVID-19 could provide an opportunity for a U.S.-led international effort for the world's national security, legal, and life sciences communities to collectively study this virus's course and determine the threshold for classifying pathogens and specific types of research methods like GOF and DURC within the category of biological weapons. Indeed, commentators have rightly suggested that COVID-19 could provide an opportunity to revisit decades-old agreements like the 1972 Biological Weapons Convention and the Responsibility of States for Internationally Wrongful Acts of 2001 ([Biological Weapons](#)

[Convention, 1972](#)), with greater enforcement mechanisms and potential penalties for new categories of scientific research when GOF research is pursued in support of a country's military program ([Johnson and Kraska, 2020](#) and [Gerstein, 2021](#)).

This classification exercise could have the ancillary effect of aligning the national security and life sciences communities, both in the United States and in partnership with other nations, and building a consensus around penalties on China for the proliferation of pathogens. Additionally, the COVID-19 experience could serve as an opportunity to re-examine the structure and work of existing oversight bodies whose vulnerabilities have been noted in the context of previous pandemic outbreaks, like NSABB. Studies of NSABB and other such structures could consider their integration into the priorities and planning of the Department of Defense, and, with a greater national security voice, leading global standards for biological research—a priority that studies have previously highlighted as requiring greater attention ([Shea, 2007](#) and [Kaiser, 2020](#)).

Federal government research investments are most frequently executed through grants to awardees for research proposals with deliverables on a specified timeframe. The previously discussed case of WIV's continued funding from the U.S. federal government through the non-profit EcoHealth Alliance indicates reform for potential pandemic pathogens beyond the 2017 HHS framework is needed, regardless of the origin of SARS-CoV-2. While the 2017 HHS framework requires greater scrutiny of federal funds, it maintains a singular agency focus. With Operation Warp Speed as a model, the organizational structure for reviewing proposals involving potential pandemic pathogens, GOF research, and DURC could include interagency and private-sector partners who could provide a broader perspective. Additionally, any research in these categories that may occur internationally could automatically be reviewed by the interagency and private-sector partners. The review intends not to add more bureaucratic steps to the grant-making process but to account for perspectives involving biosafety and biosecurity that a single agency review process may overlook. Further, with appropriate confidentiality clauses, private sector involvement could provide a more granular ability to assess the accuracy of claims that specific research must be performed outside the country.

Circumstances of a Lab Leak

If SARS-CoV-2 leaked from WIV, the inadvertent or deliberate nature of that leak, and China's response from the moment it left the lab, will be the most defining, albeit challenging, parts of further inquiry into its origins. U.S. lawmakers have considered imposing a range of penalties on China for the American lives lost due to COVID-19. Indeed, over the last week, leading national security experts have also provided policy recommendations for how to hold China accountable ([Asher et al., 2021](#)). These have included an accelerated repayment of \$1.6 trillion in Chinese sovereign debt issued before the communist revolution that is currently in default because China refused to take responsibility for these financial obligations ([Garber, 2020](#)) and a legal mechanism for families of COVID-19 victims to sue the People's Republic of China ([Shawn, 2020](#)). The latter could follow the model of the Justice Against Sponsors of Terrorism Act (JASTA), legislation that enables families of victims of the 9/11 attacks to sue the Kingdom of Saudi Arabia, where 15 out of the 19 terrorist hijackers originated ([Carney, 2016](#)). These measures could include the additional tariffs former President Trump called for in the spring of 2020 and reiterated over the last several days to hold China accountable ([Downey, 2021b, Stein et al., 2020](#)).

The “Wuhan lab leak” theory provides opportunities to build a new, U.S.-led multilateral framework to respond to China's lack of transparency and cooperation with the international

community. On the military and diplomatic fronts, a determination of a purposeful leak would raise the possibility of invoking Article 5 of the North Atlantic Treaty Organization (NATO) Charter, as some have suggested ([Kempe, 2020](#)). Just as Article 5 proved to be an asset in building a global coalition to counter-terrorism in the wake of the 9/11 attacks, so too can it serve as a mechanism to build out a similar global coalition to counter China's use and development of biological weapons, while building a new U.S.-led global effort to align biodefense and other national security priorities with research being conducted in the world's life sciences community. Moreover, such a coalition could have the ancillary effect of aligning NATO member states with the United States on China policy more broadly—a challenge that remains pressing, particularly in light of China's cooptation of multilateral institutions—and in particular on the national security threats posed by the range of China's research and recruitment programs for science and technology ([Senate Permanent Subcommittee on Investigations, 2019](#)).

If, on the other hand, the virus leaked from the lab inadvertently, the international scientific community could address lab safety concerns from China in general and from WIV in particular. According to a 2017 report, international scientific experts had concerns with WIV's ability to maintain bio-safety level four protocols from the outset in part due to previous accidental SARS releases from other Chinese labs with lower safety profiles ([Cyranoski, 2017](#)). Last year, the *Washington Post* reported that U.S. diplomats in China expressed concerns about safety procedures at WIV in 2018 ([Rogin, 2020](#)). This information, along with the possibility of an inadvertent lab leak, indicates a need to evaluate international lab safety standards that are monitored and enforced by individual countries.

As COVID-19 claimed lives around the world, there is merit following any determination that the virus leaked from a Chinese lab to broadening restitution efforts on behalf of all victims of COVID-19, not only Americans. This would not only acknowledge the global damage China would have caused but could also more effectively integrate the reparations system into a broader policy platform that would clearly define China's role in the nearly 4 million deaths (and counting) around the world due to COVID-19. One such model is the New York-based Conference on Jewish Material Claims Against Germany, otherwise known as the Claims Conference, which works with Germany to compensate the world's Jewish victims of Nazism. The pertinence of this model owes to its effective method of restitution rather than to the nature of the underlying losses or reason for compensation. In particular, since its founding in 1952, the Claims Conference has paid over \$80 billion to victims for the losses they experienced during the Holocaust, and, according to its website, in 2021 alone, "will distribute direct compensation to over 260,000 survivors in 83 countries and will provide grants to over 300 social service agencies worldwide that provide vital services for Holocaust survivors, such as home care, food and medicine" ([Claims Conference, 2021](#)). A similar U.S.-led mechanism can be developed for negotiating with China on behalf of those around the world whose lives have been affected by COVID-19, including those who have survived but who have lingering symptoms of the illness and those who have lost their livelihoods because of the economic consequences of the pandemic, particularly those involving the disruption to business in high-contact industries. Much as with the NATO-like structure, a parallel U.S.-led COVID-19 Claims Conference model could enhance efforts to align other nations with the United States on China policy and counter-act the economic influence China wields around the world.

As described earlier, the actions China and WHO took after the possible leak occurred, in particular the weeks of delay, and either incomplete or misleading information both provided, had a direct impact on the ability of the U.S. and other nations to calibrate

mitigation efforts and accelerate further the development of tests and a vaccine ([Associated Press, 2020](#)). If the virus originated naturally in an animal-to-human spillover, China and WHO have culpability in handling and disseminating information about SARS-CoV-2 and COVID-19. Restitution measures for victims of COVID-19 should consider how to quantify the time lost in the early weeks of the response and the cost of misleading information provided by China and WHO. Specifically, these analyses should factor in WHO's mischaracterization of the virus's transmission and the advice against mitigation measures, such as travel and trade, that WHO disseminated during the early months of the virus's spread.

It is worth pointing out the increasing influence China has had on WHO, with China raising its contributions by over 50 percent since 2014 to nearly \$86 million. Further, in 2020 China announced \$50 million in further contributions to WHO and a separate \$2 billion to other countries in the name of helping respond to the pandemic ([Mazumdar, 2020](#) and [Lubold and Hinshaw, 2020](#)). China's apparent cooptation of WHO throughout the pandemic should invite a broader reassessment, led by the United States in partnership with other nations, into China's membership in multilateral institutions to substantially downgrade its presence and influence.

CONCLUSION

America has rounded the corner in its response to COVID-19 with the historic development of a vaccine in record time. In that sense, the first stage of the COVID-19 response is complete. Rather than closing the book on this chapter in the Nation's history, the Biden Administration now has the responsibility to carry out the next stage in the COVID-19 response by:

- determining the precise circumstances for how SARS-CoV-2 left the lab if, in fact, that is where the evidence continues to lead,
- developing options for holding China accountable while making the needed changes to America's public health and scientific infrastructure to rein in GOF research,
- strengthening biodefense capabilities,
- rethinking engagement with WHO, and
- eliminating the kind of life-threatening government waste, fraud, and abuse represented by the American taxpayer dollars given to WIV through federal grant-making reform.

The depth of the biodefense and public health lessons from COVID-19—both domestically and internationally—will continue to affect public policy for years to come. Therefore, America must be willing to address pressing questions when they arise. The “Wuhan lab leak” theory is the first of many calls to action to ensure the lessons learned are not in vain.

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