



PERSPECTIVES

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Where Did COVID-19 Really Come From?

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EXECUTIVE SUMMARY: The questions of the true genomic origin as well as the direct source of the initial SARS-CoV-2 strain that infected Patient Zero in China, an event that ultimately unleashed COVID-19 on the world to devastating effect, are hotly debated and highly consequential. Both science and intelligence will contribute to uncovering the evidence needed to answer these questions conclusively.

Behind the great challenge of how to deal with the global COVID-19 pandemic are the questions of the virus's true genomic origin and direct source. These questions will likely be answered through synergies between science and intelligence, the combined findings of which will ultimately converge into a critical mass of evidence.

SARS-CoV-2 is the strain of coronavirus that causes COVID-19. According to unofficial reports and taking into account the virus's incubation period, Patient Zero was apparently infected in Wuhan, China in October or November of 2019. However, it was not until December 31, 2019 that the Wuhan Municipal Health Commission issued an alert that there was a cluster of cases of "viral pneumonia" in Wuhan. At the time, the initial source of the virus was said to have been an unidentified infected animal from the Wuhan wet market. This claim was later abandoned by China.

An alternative possibility is that the virus—whether natural, man-made, or otherwise modified—leaked from a lab at the Wuhan Institute of Virology (WIV) or another Wuhan-based facility.

In 2015, an article in *Journal of Defence Studies* profiled the Chinese biological warfare program and noted that the WIV, basically a civilian facility, dealt with certain pathogens, including the SARS virus. In 2019, the WIV was involved in the improper dispatch of highly virulent viruses (not coronaviruses) from

Canada to China, which bolstered that case. In January 2020, the WIV was identified as a facility from which SARS-CoV-2 had possibly leaked.

Whether or not the WIV's labs, civilian or otherwise, were holding the COVID-19 virus, it could be an intact natural virus strain. A lab leak might have occurred via an accidentally infected worker, an infected lab animal, or a technical failure.

In February 2020, Maj. Gen. Prof. Wei Chen, a prominent Chinese biological warfare expert affiliated with the military's Beijing Institute of Biotechnology, was appointed head of the WIV wing, which is at biosafety level 4 (the highest level). In Wuhan, she collaborated with the Wuhan Institute of Biological Products and Wuhan-based academic institutions. Her object was to develop vaccines, anti-sera, and other countermeasures to guard against the spreading COVID-19 virus.

In the US, Prof. Francis Boyle claimed on February 2 that the virus had been held at the WIV as a bioweapon and leaked from its lab. Sen. Tom Cotton amplified the lab virus theory on February 17, when he said the virus might have leaked from the WIV. Concrete evidence beyond the circumstantial was not offered, which discredited the theory.

On the intelligence level, however, evidence was being accumulated that gave credence to the possibility of a Chinese lab leak. On April 5, British intelligence indicated that the features of SARS-CoV-2, as well as the extensive studies conducted in Wuhan on similar coronaviruses, rendered the "lab script" a "credible alternative view." US intelligence officials said "there is no evidence the pandemic coronavirus was created in a laboratory as a potential bio-weapon or engineered," but those words do not negate the possibility of a lab leak.

A few days after that statement, nine officials from the current and former US intelligence and national security services who are familiar with the investigations in progress said the possibility that the pandemic was triggered by an accident at a research facility in Wuhan was "certainly real" and was "absolutely under scrutiny at the highest level." Several weeks later, President Trump noted with "a high degree of confidence" that the outbreak emanated from the WIV, though he added that he could not reveal details.

US Secretary of State Mike Pompeo (who was head of the CIA until April 2018) said that in addition to the WIV, "There are multiple labs where the Chinese Communist Party is working on various levels of pathogens." He has also made these statements:

- "We, collectively the world, still have not had access to the Chinese labs."
- "We are still trying to get an actual sample of the virus [from China]" (i.e., the genuine index virus strain).

- “There is a significant amount of evidence that this virus came from that laboratory in Wuhan.”

He has also said, however, that “The intelligence community is still figuring out precisely where this virus began. We are all trying to figure out the right answer” and “There are different levels of certainty expressed at different sources” of information. Pompeo added that he has “no reason to doubt the US intelligence community’s consensus that the virus was not man-made or genetically modified.”

A contemporaneous statement from the office of the acting Director of National Intelligence confirmed this, saying the US intelligence community

...concurs with the wide scientific consensus that the COVID-19 virus was not a man-made or genetically modified virus. ...The Community will continue to rigorously examine emerging information and intelligence to determine whether the outbreak began through contact with infected animals (a natural contagion) or if it was the result of an accident at a laboratory in Wuhan.

At about the same time, a preliminary US government analysis compiled from open information said there is no smoking gun to blame the virus on either the Wuhan Institute of Virology or the Wuhan CDC branch, but “there is circumstantial evidence to suggest such may be the case... while all other possible places... have been proven to be highly unlikely.”

One US intelligence viewpoint is that there is growing evidence that the virus likely came into being in a Wuhan laboratory, not as a bioweapon but as part of China’s effort to demonstrate that its ability to identify and combat viruses is equal to or greater than that of the US. Further, a majority of the 17 agencies that provide and analyze intelligence for the US government concurred in May that they believe the pandemic started after the virus leaked from a Wuhan lab, a claim based mostly on circumstantial evidence.

Sen. Tom Cotton, meanwhile, who is a member of the US Senate Select Committee on Intelligence, bolstered his lab leak argument with details based on unclassified general information:

All the evidence at this point points to two labs in Wuhan, while no evidence at all points to the wet market in Wuhan. The fact that they research coronaviruses, that they used bats, that they have a history of bad safety practices, that Patient Zero had no contact with the wet market, all of that is circumstantial evidence to be sure. But in intelligence questions, we rarely get direct or conclusive evidence. So I agree that all of the evidence, albeit circumstantial, points directly at

those labs. And if the Chinese Communist Party has evidence to the contrary, they need to bring it forward to the world.

Cotton added, “Whether the virus was genetically modified or engineered is a highly technical, scientific question. And the weight of scientific opinion right now [May 5, 2020] says that, no, this was a naturally occurring virus. But a naturally occurring virus can, of course, be present in a laboratory where it’s being studied.”

Statements made afterward by US Assistant to the President Peter Navarro were sharper:

I think personally the virus was spawned in a P4 weapons lab (WIV)... The Ground Zero patient in Wuhan was within yards of that P4 lab... I think it’s incumbent on China to prove that it wasn’t that lab... The Chinese spawned the virus, not created it. That virus was a product of the Chinese Communist Party, and until we get some information about what happened in those labs or what happened in that wet market, we know that the virus was spawned in China. Whether it was purposefully spawned in the Chinese lab is still an open question.

Navarro apparently meant that in a classified military lab of WIV (nominally, and largely in reality, an institute affiliated with the Chinese Academy of Sciences), the Chinese enabled the virus to emerge, whether or not they intended to give rise to the virus that actually came into being. The roles of that lab and the wet market in propelling the initial outbreak remain to be explained. One possibility is that infected animals from the lab were illegally sold in the market. This would fit Navarro’s description of Patient Zero, who came down with the virus before the market became associated with the contagion.

At any rate, Navarro—like Cotton—said it is China’s responsibility to provide evidence of a natural contagion of SARS-CoV-2. As long as China fails to do this, the contagion is to be regarded as unnatural.

In late June, an unclassified report by the US State Department referred to China’s biological warfare program at large, stating:

The United States does not have sufficient information to determine whether China eliminated its assessed biological warfare program, as required under Article II of the Convention... [China’s submissions to the convention] have neither documented that offensive program, nor documented that China has eliminated the program or any remaining biological weapons [as required under the accord].

British military and intelligence expert Col. (ret.) Richard Kemp said he had been told by an unnamed insider that there was a “very high probability” that SARS-CoV-2 was released unintentionally from a Wuhan lab and was a “man-made variation.” He said he was tipped off about a warfare facility near Wuhan by a senior foreign intelligence source who said analysts “strongly suspected” China’s WIV.

Kemp added,

It is very likely to be the case. I was also led to believe governments were very unlikely to come out and say it outright, but that China had been made aware that intelligence agencies had significant evidence. The virus came from an animal that had been involved in testing in the WIV, and had ended up in the wet market. It was believed then and now that an unscrupulous member of staff sold it for personal profit without considering it may be infected. That is how it got out... a postulation known to be true but [that] cannot be backed up by absolute evidence.

While this report was highly informative, it has not been verified or refuted.

Australian PM Scott Morrison declined on April 30 to buy into the lab theory, stating that he had “not seen anything that suggests that conclusively, while virus emergence from [the] Wuhan wet market appears more likely.” Other voices in the Australian government held that it would be “unwise to rule out the possibility” of the lab scenario. Australian Chair of the Parliamentary Joint Committee on Intelligence and Security Andrew Hastie was diplomatic on the question: “I think there are a lot of contentions, and all of them deserve to have a serious consideration. We have to be open-minded about all possibilities.”

The specific evidence obtained by the US intelligence community has not been revealed in detail. More concrete intelligence information is generally given a higher classification as it is inadvisable to disclose classified intelligence that could give the opponent room for maneuver. This means there is a sort of Catch-22 between the persuasiveness of evidence and the intelligence community’s freedom to publicize it. This would certainly apply to evidence proving the unnatural origin and source of COVID-19. In any event, it is hoped that a critical mass of convincing information will soon be reached and brought out in detail.

Possible intelligence footholds could ultimately prove to be a key to answering the big questions. A variety of firms and scientific institutions, mainly in the US, Canada, France, Australia, and Singapore, have been collaborating with the WIV (as well as other bio-labs engaged with

coronaviruses in Wuhan). The British intelligence community also likely still maintains significant ties in Hong Kong. With that said, it is by no means assured that all those potential intelligence footholds are willing to fully cooperate with intelligence collectors and forward information, either documented or undocumented.

There is a similar challenge regarding the full sharing of intelligence within NATO's Joint Intelligence, Surveillance and Reconnaissance system, as well as within the "Five Eyes" intelligence community (the US, Britain, Canada, Australia, and New Zealand). Taiwan, India, South Korea, and Japan might also collect valuable information due to their proximity to and interfaces with China.

Former US presidential adviser Steve Bannon revealed on July 13 that "They don't speak with the press yet, but there are people from Wuhan's laboratory and from other laboratories who have come to the West and are wrapping up evidence in favor of the Chinese Communist Party. I think people will be shocked." According to him, lab staff have been leaving China and Hong Kong since mid-February and "certain defectors are working" with the FBI to figure out what happened at Wuhan's laboratory. US intelligence, in conjunction with British counterintelligence, is preparing a lawsuit.

If this broad international intelligence process takes shape optimally, an informational critical mass will likely be reached eventually that either clears or identifies the WIV (or a similar lab) as the origin and source of the pandemic. How much of that information will be made public is another issue, considering both its classification and sensitivity and China's immense global geostrategic position.

Intelligence is generally proof-free, in scientific and/or juridical terms. Proofs obtained by intelligence systems are certainly desirable and do occur, but substantively, intelligence analysis relies on the tracing and deductive recognition of pertinent evidence, even if circumstantial. At times, this essential characteristic of intelligence analysis can be a great disadvantage, but it is rarely insurmountable.

A proper intelligence estimate will always say "There are indicative or indirect data pointing to X" rather than "There is no proof or hard evidence of X." Broadly speaking, any analytical context that is not merely technical but relies on deduction might ultimately reach the point that evidence, even if circumstantial, allows a solid pragmatic conclusion to be drawn. These assessments are considered valid due to their plausibility, even those that are inferential.

In the case of the origin of the COVID-19 pandemic, because of geopolitical

considerations and constraints, this approach will probably not suffice to reach a clear-cut conclusion one way or the other.

Intelligence communities can produce (if not autonomously) scientific judgments as well. The scientific dimension related to SARS-CoV-2 is no less complex, in its way, than the intelligence one. Within the scientific dimension polarity prevails, at least for now.

On one side is the concept that both the origin and the source of SARS-CoV-2 are completely natural, and on the other is the idea that its origin was an engineered virus (whether designed as a bioweapon or for other purposes). Between those two polar concepts lies a wide range of variations and combinations, since viral affinities toward humans (which are exceptional in the case of SARS-CoV-2) can be attained or enhanced in different ways. One hypothesis is that the origin of COVID-19 was a manipulated virus, which, if true, is probably technically unprovable.

Be that as it may, synthetic virology and genetic engineering are not the only ways humans can manipulate the evolutionary course of viruses. It could be that a wild-type virus underwent a spontaneous genetic drift after being administered to or seeded in experimental animals or tissue cultures. This would constitute human intervention or manipulation even though it is neither synthesis nor engineering.

A “man-made” virus literally means it is wholly synthetic, but there are variations on the term “man-made” like partly synthesized, hybrid, recombinant, mutant, and so on, all of which are artificial and preplanned. Often, too, evolutionary processes leading to similar viruses take place spontaneously in viruses due to “man-induced” courses in a lab. Chinese biotechnology has mastered both modes of virus handling.

Two recent scientific observations might be highly significant. One is that humans are not yet clever enough to create a virus as sophisticated as SARS-CoV-2, which means it evolved endogenously within an animal or a tissue culture. The other is that certain components of the virus suggest an interaction with a host immune system, which means it could not have formed solely within a tissue culture. If this is true, the implication is that the virus came into being in an animal, either in nature or in a lab.

One possibility, then, is that a wild-type virus was first propagated repeatedly in human tissue cultures, and the resulting spontaneously upgraded virus was subsequently used to experimentally infect monkeys or ferrets—one of which then accidentally infected a person in the lab. (The WIV has long been routinely supplied with rhesus monkeys from the Macaque Breeding Base in Suizhou City.)

It is also possible that a wild-type virus became highly human-adapted through a fully natural genetic process that has not yet been pinpointed, and that it infected a person (either through natural contagion or in a lab where it was held). The probability of such a specific adaptational genetic shift taking place completely in nature has been questioned, though various scientific analyses do rely on it.

There is also always the chance that a wild-type strain that would unequivocally demonstrate natural evolution has not yet been isolated from an animal, or has been isolated but not yet sequenced, or has been sequenced but not published. The point is whether or not the existing genomic data relating to coronaviruses at large are sufficiently representative to be relied on for comparative phylogenetic analyses of the pandemic virus in order to determine whether the genomic difference between the pandemic virus and other coronaviruses is an outcome of a natural evolutionary process or of a non-natural, human-induced technical process.

There have also been observations that the extent (rather than the content) of the genetic shift undergone by the pandemic virus prior to its emergence is discordant with the regular spontaneous course of the natural evolutionary clock.

The timing of Patient Zero's infection and subsequent presentation with the disease is a medical matter, but intelligence can play a role here. For example, information could emerge that verifies that on a certain date a technical mishap occurred in a lab while scientists or technicians were handling monkeys that were infected by a virulent, SARS-like coronavirus. Information could also be gathered that on a certain date a lab technician got ill and was later diagnosed as Patient Zero. Such information may, indeed, have already been obtained and corroborated.

Alternatively, it is conceivable that Patient Zero contracted the virus (or a closely related precursor virus) in a bat cave in Yunnan province and then returned, asymptomatic, to Wuhan. If that is the case, an intermediate animal host species between bat and man is not evolutionarily essential. Still, the fact that nothing of the kind has been reported by China appears to imply that it did not take place.

One hypothesis that might be significant is that the progenitor strain of SARS-CoV-2 was a virus that infected six miners in Mojiang, Yunnan Province in 2012. The mine in which they contracted their illness is known to be a breeding ground of bats infected abundantly with assorted coronaviruses. The virus killed three of the six infected miners.

The virus was isolated at the WIV from specimens taken from the infected miners, as discovered recently by Dr. Jonathan Latham and Dr. Allison Wilson. The details are contained in an unremarkable Chinese master's thesis called "Analysis of Six Patients with Severe Pneumonia Caused by Unknown Viruses" from Kunming Medical University.

According to the hypothesis of Latham and Wilson, the crucial genetic human-adapted shift the virus underwent (or a major part of it) took place during the infection of one or more of the miners. This shift could have continued while the isolated virus was being investigated at the WIV, prior to the initial COVID-19 outbreak and/or during the infection of Patient Zero in Wuhan. This scenario is consistent with the lab leak theory, whether the virus partially evolved in the WIV or not.

The origin and source of the SARS-CoV-2 virus are still a puzzle, and they need to be explained. The World Health Organization said on July 7:

WHO experts will travel to China to work together with their Chinese counterparts to prepare scientific plans for identifying the zoonotic source of the SARS-CoV-2 virus. The experts will develop the scope and TOR for a WHO-led international mission. Identifying the origin of emerging viral disease has proven complex in past epidemics in different countries. A well planned series of scientific researches will advance the understanding of animal reservoirs and the route of transmission to humans. The process is an evolving endeavor which may lead to further international scientific research and collaboration globally.

"Zoonotic" refers to an infected animal source, including lab animals.

The WHO system responsible for gathering information about emerging and spreading pathogens worldwide is called "Epidemic Intelligence from Open Sources." It remains to be seen how far the WHO investigative mission to China will go (if at all) beyond obtaining open information. It is to be hoped that the mission will conduct a comprehensive, vigorous, and objective investigation and will ignore whatever pressures it might face.

Two WHO experts have gone to China as a first step. Executive director of the WHO Health Emergencies Program Mike Ryan underlined that figuring out the true source of the virus requires detective work that will entail an integrated approach and a lot of hard work.

There are important common denominators between intelligence and science, two paramount spheres that are fundamentally different in both essence and substance. A merging of these spheres would be immensely complicated.

They are better used to complement one another. The lines between them are often subtle, with a degree of overlap. It is very much to be hoped that they will be able to work together constructively to reach a critical mass of information on the origin and source of COVID-19.

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