



COVID-19 Pandemic Origins: SARS-Cov-2, Bioweapons, and Viruses Made in China

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China has been described as an authoritarian system wrought with deception.¹ Its economic goods have been used despite the lack of trust – but even those takers are catching on. More concerning, it has been observed censoring research into the origins of the COVID-19 pandemic. Its size and secrecy alone can nurture the imagination of how many labs, and military bases are located within the communist state. Not to mention, it has already been known to cross the line before – gene editing babies.² The source of SARS-CoV-2 related to bioweapon conspiracies or a lab leak from China is worth reviewing. There's already enough risk of panic spreading during a pandemic. It begs for answers, so we may at least reduce one source of anxiety: pandemic origins.

This is what we are up against: U.S. State Department summoned the Chinese ambassador to the U.S. to protest against comments by a Chinese foreign ministry spokesman who had suggested the U.S. military might have brought the coronavirus to Wuhan.³ Senator Tom Cotton, R-Ark., appearing on Fox News, suggested that the virus was the result of a botched bioweapons program out of China. A writer in Palestinian Al-Quds Daily contends Coronavirus was a biological weapon employed by the U.S. and Israel against China and Iran.⁴ Others suggest the virus came from a Wuhan lab, performing legitimate research, where the US state department has already been looking deeply into concerns with safety.⁵

Regarding the bioweapons theory, that's easier to put to rest. For a weaponized form of virus to be developed, this would require many months of complete secrecy, using standard gene editing technology. With advanced CRISPR/Cas systems, this could be shortened to weeks; however, even this is virtually impossible in the current scenario. Why in secret? Because of the Biological Weapons Convention (BWC) of 1972, making bioweapon use a war crime. As of August 2019, 183 states have ratified or acceded to the treaty including China, Russia, Iran, and the United States. Some states had reservations as the BWC allows the stockpiling of biological agents and toxins for “prophylactic, protective or other peaceful purposes” – the reason why smallpox is still stored at the CDC in Atlanta, and the Vector Institute Koltsovo, Novosibirsk Russia.⁶

Of course having a multilateral treaty does not always mean that everyone plays by the same rules. But if we use lessons from history, there are common epidemiological clues that may signal a biological attack, rather than a natural outbreak. These clues include unusual geographic or seasonal distribution, unusual presentation of illness for a certain population or age group. And most importantly, the infection should remain harmless to its own state. Considering this virus is now worldwide, that leaves mostly all without blame, except for possibly a few penguins in Antarctica.

In the past, there have been viral agents researched for weaponization such as Japanese Equine Encephalitis, Variola, Yellow Fever, Marburg, Ebola and others.⁷ My graduate research advisor, Dr. Ken Alibek, the former First Deputy Director of Biopreparat (USSR biological weapons program), defected from the Soviet Union in 1992. His memoirs provide insight to what may have been the most highly developed bioweapons program in history. He described the production of Marburg virus especially as fully advanced. His colleague, Dr. Nikolai Ustinov, died from Marburg virus after accidentally infecting himself while injecting guinea pigs. An isolated strain of Marburg was taken from his corpse, which was especially deadly in airborne form. The strain was named Variant U in Dr. Ustinov's honor.

According to Dr. Alibek, the Soviets were ready to manufacture Marburg Variant U in large amounts to be placed into MIRVs (Multiple Independent Re-entry Vehicles) with 10 separate targeted warheads.⁸

But no virus has shown as much potential, or use, as bacterial and toxin-sourced weapons. One in particular, Anthrax, has seen considerable use from the beginning of the 20th century up to 2001. The height of its notoriety came during “Amerithrax”, a case of a domestic bioterrorism infecting 22 and killing 5 along the East Coast; later alleged to be perpetrated by Bruce Ivins, a top biodefense researcher at the United States Army Medical Research Institute of Infectious Diseases.^{9, 10}

While the US, Russia, UK, Japan, and Iraq have had bioweapon programs, China and Iran have never had a (known) fully developed program.¹¹ This is to say what has been revealed may not be the truth. As far as we know, China and Iran have no bioweapons program of any significant proportion. The larger programs that have been successful have developed highly virulent pathogens. And sadly, in many cases they were successful – almost too successful. To compare bioweapons to COVID19, there are many similarities. In fact, the only difference not present thus far is population targeting. That would show even if China and Iran did have a bioweapons program, such an attack – if that's what this was supposed to be – was an utter failure.

Consider China continues to be less than transparent; there is conceivably a concern for an accidental release. This has happened before. In 1979, anthrax spores were accidentally released from a Soviet bioweapons research facility near Sverdlovsk, Russia.¹² H1N1 virus escaped out of a lab in 1977.^{13, 14} There have been others; for example during the first SARS outbreak there was reported an accidental release from a Beijing lab, twice.¹⁵ Lyme disease has also been questioned to be an accidental release, but that's a conspiracy for another day. Preempting theories that SARS-CoV-2 was an accidental release, suffice it to say there is already an observed natural reservoir in bats from which this mutated virus evolved. This has been published in Nature Medicine; the authors report: if genetic manipulation had been performed, one of the several reverse-genetic systems available for betacoronaviruses would probably have been used. However, the genetic data irrefutably show that SARS-CoV-2 is not derived from any previously used virus backbone. Instead, they propose two scenarios that can plausibly explain the origin of SARS-CoV-2: (i) natural selection in an animal host before zoonotic transfer; and (ii) natural selection in humans following zoonotic transfer.¹⁶ Still that doesn't settle some, and for good reason. We have encountered a completely new disease. And China is an elusive state. As hard as they tried, they could not avoid reporting the first signs leading up to this pandemic, the likes of which the world has not seen in generations.

Having covered differences, it's important to note there are significant similarities between biowarfare and viral pandemics. They both can both create panic by way of morbidity, mortality, unpredictability, and rendering a population completely unprepared for the outfall. These effects circle back on themselves – further panic from the climbing mortality rate that strains the healthcare system. This highlights unpreparedness, frustration, and despair, leading to more psychological casualties. A continuous cycle ensues until there is either complete annihilation, or immunity developed through innate and adaptive immune responses. Interestingly, another similarity between bioweapons and viral pandemics is showing unusual trends in

viral origins is to highlight the differences between bioweapons and viral pandemics. Foremost, bioweapons affect targeted groups. They also have a genetic signature of artificial engineering. And they exhibit rare forms of transmission, causing an abundance of cases of unexplained deaths in a short period.

One of the greatest dangers of a bioweapon as a non-conventional non-kinetic weapon of mass destruction (beyond the lethality) is the disruption to the function and security of its target. Nature in this way can create the same havoc. Panic is one of the greatest threats by way of biological warfare and pandemics. When an infected group realizes the casualties are of an unknown source, alarm set in, rumors fly and tension mounts. Family members push their conspiracy theories to the closest ones listening. And it doesn't take long for talk to walk out the door. Because of this disruption, we are witnessing – and just at the beginning – of an economic crisis not equaled for decades. Fear drives a further burden to the already encumbered medical community. This behooves us to have a controlled, strategic effort to survive.

#Cautionwithoutpanic, and #flatteningthecurve are two popular trending hashtags, and appropriately so. The first instructs the use of caution, while avoiding the perils of panic. The second is more scientific, and describes the epidemiologic effect of measures to mitigate infection spread, such as social distancing, hand hygiene, and quarantine. In effect, this lowers the number of cases, thus “flattening” the graph of cases over time. This is what needs to happen. Nobody yet knows the exact risks of COVID19, but we can see the damage it causes. Psychologist Steven Taylor at the University of British Columbia, author of *Psychology of Pandemics*, describes well the contagiousness of panic. “When people are told something dangerous is coming, but all you need to do is wash your hands, the action doesn't seem proportionate to the threat,” he said. “Special danger needs special precautions.”¹⁹ People try to take control, hoarding goods, grocery stores are cleaned out, and ER lines grow by demands of testing. People are social creatures; they look to each other for behaviors. They feel the pressing urge to “do something.” So now more than ever it is the role of physicians, health care workers, and leaders to take the firm resolve to be a beacon of calm. We know what we need to do. Let science be our guide in a manner that maintains hope, and reach the shortest path back to normalcy.

Both bioweapons and natural pandemics may or may not have a vaccine available. The effectiveness is determined only by the host immune response, which is different for every type of infection. Just like the common flu, coronaviruses can have multiple strains with increasing or decreasing virulence changing over the months. A vaccine will take at best months longer to develop. At worst, it will never pass beyond Phase I trials - as is the case with the SARS vaccine, now 18yrs later.²⁰ Fortunately, we had a head start. Ironically, it was from the same suspect Chinese labs studying coronaviruses. By their research the genome was readily sequenced, cutting months off vaccine development.²¹ China may continue their cover up, but we must continue our own investigation. And who knows, the same country where the pandemic started, could be the same place it ends, if vaccine development in China progresses as it has. Their research gave the vaccine a lead, and might be the source of answers.²² This disease could ultimately come full circle. While maybe it didn't start in a lab, we can remain hopeful that a lab will bring the end.

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