

# BIOLOGICAL WEAPONS ACCOUNTABILITY

BY

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## Abstract

Examining the history of the former Soviet Union's Biological Weapons Program and their relationship with private research institutes that developed potential sources for covert biological weapons developments, one may recognize there is a real potential for application of these deadly agents today. Furthermore, applying this information to recent events in China and COVID-19, it is evident that there is a dearth of accountability and oversight from the Biological Weapons Convention member states. National and private entities may be conducting testing and research on pathogens for biological warfare, which highlights the need for the United States to begin practicing the "trust, but verify" method for accountability of member states. Without a succinct way of monitoring and ensuring compliance, we risk continued accidental or purposeful releases with little to no recourse. The lack of accountability within the biological weapons community is a danger to all.

## Soviet Biological Weapons Program Historical Context

Infectious disease contributed to more deaths in Russian military forces during 3 major conflicts between 1904 and 1921 than did traditional weapons; it was at this time the potential to weaponize pathogens was recognized. The Geneva Protocol was established in 1925 which aims at prohibiting the use of, "asphyxiating, poisonous, or other gases, and bacteriological methods for warfare", or more commonly known as chemical and biological weapons. (Leitenberg & Zilinskas, 2012)

In the late 1920's and early 1930's, the Vaccine-Serum laboratory was established by the Worker's and Peasant's Red Army (RKKA). Located approximately 30 kilometers from Moscow, its charge was in the development of vaccines and sera against common infectious diseases. Around the same time, another laboratory named the Special Purpose Bureau was established for the study of highly infectious diseases and was situated on a Monastery in a small town called Suzdal. Later, there were claims that the Special Purpose Bureau had often used human subjects for experiments in aerosolizing bacteria as weapons. In 1933, the two laboratories were combined to establish the RKKA Biotechnical Institute. Through the 1930's and into the 1940's, the laboratory was renamed and moved several times before settling, where it remains to this day, in Kirov and is now known as the Kirov Institute. (Leitenberg & Zilinskas, 2012)

By World War II, there were several biological weapons facilities in Russia that focused on offensive and defensive biological weapons activities. These facilities conducted research and testing on various pathogens including Anthrax, plague, Foot and Mouth Disease, Q-Fever and Glanders, to name a few. In addition to research laboratories, open air test sites were created and used by both German and Russian military units for testing biological weapons and chemical weapons. The laboratories and open air test sites often used prisoners of war as human test subjects for their research and testing. (Leitenberg & Zilinskas, 2012)

In 1972 the Biological Weapon Convention (BWC) was established as a supplement to the Geneva Protocol in order to prohibit the development, production, and stockpiling of biological and toxic weapons. Shortly after, and completely disregarding the BWC, the Soviet Politburo established Biopreparat which organized research, development, testing and production of biological weapons. Supposedly, Biopreparat was a civilian organization consisting of several

institutions that contracted their work to “advance the Soviet Union’s military capabilities.” The KGB played a major role in the security, communications within, and control of the attempted communication outside of the facilities by the civilian scientists. And, they censored all written material developed by Biopreparat staff that was intended for publication. One of the most important Biopreparat operations was called *Ferment*, which aimed at developing genetically modified pathogens. Although they were unsuccessful in this effort, they changed the course for research toward weaponizing *f. Tularensis*, or Tularemia, on a large scale. Thus as the Soviet nuclear weapons programs gained popularity among member states of the North Atlantic Treaty Organization (NATO) during the Cold War, their biological warfare programs were well-underway and somehow avoided the significant attention it deserved. The Soviet Union possessed a dozen different biological weapons with the intention and capability of mass production during the Cold War. Biopreparat continued to operate into the early 1990’s under the false account that they were developing vaccines, pharmaceuticals, and diagnostics to prevent or reduce the spread of infectious diseases. (Leitenberg & Zilinskas, 2012)

Biological Weapons are more commonly associated with bacteria or viruses, such as Anthrax or Viral Hemorrhagic Fever. However, biological weapons can also consist of fungi, parasites, or toxins. In 1979, a Soviet Ministry of Defense research facility in Sverdlovsk, Russia had an accidental anthrax leak which infected and killed dozens in the local civilian population situated down-wind of the facility as well as nearby cattle and other livestock. The facility was growing and drying a highly infectious strain of anthrax in mass amounts to be used by the military. Although US Intelligence had always suspected the Soviet Union was producing biological weapons, the incident in Sverdlovsk had confirmed their suspicions. This unwanted attention

urged the transportation of a large shipment of anthrax out of the facility and into a Biopreparat facility located in northern Kazakhstan. (Hoffman, 2009)

Agroterrorism, a subset of bioterrorism, is the deliberate introduction of an animal or plant disease for the purpose of generating fear, causing economic losses, or undermining social stability. From the 1960s through the early 1990s, the Soviet Union's anti-agricultural warfare program employed thousands of people and targeted poultry, livestock, and crops. The virus responsible for Foot and Mouth Disease (FMD) infects livestock, primarily cattle, causing blisters in the mouth and feet, leaving them unable to walk, give milk, eat, or drink. It can easily and quickly spread throughout a farm, from animal to animal and beyond as it can live on clothing, straw and other materials for an extended period of time. (Peterson, 2002) Although FMD was eradicated from U.S. in 1929, it is possible to reintroduce the virus into our livestock industry as a biological weapon, which would be devastating to our economy. U.S. Customs and Border Protection, along with other agencies, work toward preventing foreign diseases that threaten both the agricultural and the human population from leaking into United States.

### Characteristics of Biological Weapons

There are several characteristics of an effective biological weapon. Virulence, by definition, is a pathogen's ability to cause damage to a host (the infected); increasing the virulence of a pathogen increases its lethality. For example, Ebola has a very high virulence as its ability to cause damage to the infected person (or primate) is extreme; when left untreated Ebola has up to a 90% mortality rate. (WHO, Ebola Virus Disease, 2020) In contrast, the virulence of seasonal influenza is low with a mortality rate of only 1%. (CDC, 2020) How infectious the pathogen is,

or how easily one can be infected and develop disease when exposed, is critical if the intention is to infect a large population. Using COVID-19 as an example, highly infectious diseases do not necessarily have high virulence; many people have been infected by COVID-19, but the survival rate is approximately 98%. (WHO, 2021)

An efficient *and* effective biological weapon largely depends on its intended target and the susceptibility of that target. Historically, targets may have included military personnel to obstruct war operations, or targets may have been political figures and religious organizations, but sometimes, the intended target may not be evident at the onset. Furthermore, efficient and effective biological weapons might seem like a natural outbreak of an existing pathogen, of a new pathogen, or of a new strain of an existing disease. The disease outbreak could be disguised as an accidental release by a laboratory conducting ‘research’. Consequently, there may be no effective or readily available vaccine, anti-microbial, anti-viral therapy, or other defenses to prevent further spread. Due in part to the real or induced perceptions of terror and uncertainty surrounding this new or re-emerging disease, normal societal function is disrupted. As we have seen in recent events, people may grow wary of others and their behavior, and they may be convinced that conducting business as usual or going out in public could be a threat to their own safety or that of others. Unfortunately this posture could force businesses and schools to close leading to an increased resentment and mistrust of official government entities charged with addressing the outbreak. Thus, the outbreak could compromise the economy and further destabilize society with increasing restrictions while undermining individual independence.

Biological agents can be weaponized through various delivery methods. Toxins or bacteria can be put directly into food or water systems that are consumed by the target. For example, in 1984 in Dalles, Oregon, a sect contaminated several salad bars with Salmonella that was stolen

from a laboratory in Seattle and infected over 750 people; fortunately no one died from this incident. (Rutschman, 2019) To defend the food and water supply on U.S. Air Force installations, the base public health and bioenvironmental engineering offices conduct annual Food and Water Vulnerability Assessments. The assessments are for the sole purpose of discovering weak points in the supply chain where insider or outsider threats could engage the food or water systems through contamination or other means. Another vessel for biological agents are bombs. During the Cold War, the United States devised Operation Steelyard. If President Reagan had approved to execute the operation, Boeing B-29 Superfortress bombers were to drop M115 500-pound “feather” bombs filled with wheat stem rust mixed with feathers in a 60-day campaign to destroy 50 percent of the Soviet Union’s winter wheat. (Mauroni & Norton, 2020) However, a very effective biological weapon might consist of natural disease spread, from person to person. With this method, the outbreak can fly under the radar for weeks or months, disguised as another illness like the common cold or flu, until other symptoms develop that are uncommon where it then gains the attention of medical officials and the media. At this point, there could be hundreds or thousands that are infected and little to no ability to control the outbreak.

Biological weapons were, and still are, the ultimate challenge for spies, soldiers and scientists. From space, satellites could photograph intercontinental ballistic missile silos, and they could be counted. But pathogens were another matter. A satellite might spot an unusual building compound, like the one in Sverdlovsk, but seeing flasks in laboratories is nearly impossible. (Hoffman, 2009)

Trust, but verify

The DoD Cooperative Threat Reduction Program, or the Nunn-Lugar program, was designed for dismantling Weapons of Mass Destruction (WMD), namely large nuclear arsenals, and their infrastructure in the former Soviet Union. This program was signed into place in 1991 and, according to their website “increases transparency and encourages higher standards of conduct in adherence to nuclear agreements and nonproliferation activity.” (Bresolin, 2014) The Defense Threat Reduction Agency’s On-Site Inspection and Building Capacity Directorate claims to “implement arms control verification through on-site inspections, monitoring, and escort missions to counter and deter WMD”. These on-site visits are included in the new START Treaty, the Chemical Weapons Convention, Open Skies Treaty, and the Plutonium Production Reactor Agreement. (DTRA, 2020) According to Soviet scientists, there are seven main objectives in research and development of biological weapons defense:

“1) to develop and improve vaccines against biological weapons agents that enemies might use; 2) to develop methods and protocols for immunization utilizing vaccines and other protective substances; 3) to develop protocols for the emergency treatment of soldiers exposed to biological weapons agents, including diagnosis; 4) to develop methods, means and regimes for disinfection of persons and equipment contaminated by biological weapons agents; 5) to develop methods for identifying biological weapons agents and clarifying indications of biological attacks; 6) to develop and test field detection systems for biological weapons agents; and,7) to assess the possible damage of various recipes that an enemy might employ against the Soviet Union (Hoffman, 2009).”

These seven objectives are still valid and used in modern-day biological threat reduction and biodefense research around the world. The DoD has a Biological Threat Reduction program that focuses on detection, surveillance, diagnosis and reporting of global outbreaks as they emerge, as



well as development of countermeasures such as research on vaccines. (DHA, 2020) However, there seems to be an important missing piece to these programs.

Considering the global attention fixed on Nuclear and Chemical weapons and supporting infrastructure, there arises a number of questions regarding the status of biological weapons in relation to oversight and accountability. Shouldn't there exist, alongside the nuclear and chemical verification of compliance, a verification process that biological weapons are not being developed around the world? As of August 2019, there are currently 183 member states in the BWC that have agreed to not participate in stockpiling or producing biological agents and toxins, and further requires member states to destroy or divert to peaceful purposes the "agents, toxins, weapons, equipment, and means of delivery" for biological weapons. Countries missing from the list of member states of BWC are Chad, Comoros, Djibouti, Eritrea, Israel, Kiribati, Micronesia, Namibia, South Sudan, and Tuvalu. Surprisingly, Russia and China are members of the BWC. (Kimball, 2020) This brings up the point that we are trusting other member states to "do the right thing", however, we are not *verifying* that they are following through as we have done in the past with other WMDs. It is unknown whether any of the Biopreparat facilities have continued research and development of biological weapons to this day. However, there are likely numerous private laboratories or entities dubbed 'research institutions' globally that are continuing practices with limited oversight and accountability from the BWC or other agencies, much like those conducted through Biopreparat in the past.

An official U.S. government website focused on preparedness, called ready.gov, provides information on bioterrorism and what to do in an event of a biological attack, and the actions listed are all of the same actions that were taken during the recent pandemic. The website states "A biological attack may or may not be immediately obvious. In most cases local health care

workers will report a pattern of unusual illness or there will be a wave of sick people seeking emergency medical attention;” this site was last updated in April 2020 amidst the COVID-19 outbreak. (Ready, 2020) Additionally, blood donation centers have detected COVID-19 antibodies in blood drawn as early as December 2019 from 106 different donors in nine different states. (Crist, 2020) Which begs the question, how long was China suppressing their hospital workers and news outlets from reporting the outbreak? In January 2021, a year after the first case of COVID-19 was announced, a team of investigators from the WHO and other global agencies traveled to Wuhan to look into the events surrounding the pandemic and how the outbreak transpired. The team started by focusing their investigation on hospitals, live animal and seafood markets, and then moved on to a Wuhan virus laboratory that is at the center of speculation of the outbreak origins. “One of China’s top virus research labs, the Wuhan Institute of Virology built an archive of genetic information about bat coronaviruses after the 2003 outbreak of Severe Acute Respiratory Syndrome. That has led to unproven allegations that it may have a link to the original outbreak of COVID-19 in Wuhan in late 2019.” (Fujiyama E. W., 2021) But, why did it take Chinese government officials an entire year to permit the WHO to conduct their investigation? At this point, we do not know what occurred in Wuhan, China leading up to the COVID-19 outbreak, but if there were a verification system in place to ensure that biological weapons are not being produced in the BWC member states, the pandemic may have been prevented. It may never be concluded that the outbreak was deliberate, but instead it may be censored as a ‘natural incident’ or that the outbreak was due to an ‘accidental release of a pathogen being used in biological research’. However it is concluded, it will not explain why China withheld reporting the disease, potentially for months, which resulted in approximately

100 million people having been infected world-wide. Although the mortality rate for COVID-19 is low, the economy and other societal functions have been greatly compromised.

Russia and China remain a real threat to the U.S. and the need for biological weapon accountability cannot continue to be ignored. Aggressive action needs to be taken to prevent another biological incident, and prevention starts with confirming the type of research and testing the BWC member states are conducting in their laboratories and research institutions.

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