

No small threat

The World Health Organization declared smallpox eradicated in 1980, yet modern lab techniques mean it could still return and wreak havoc as a biological weapon. Retired US Colonel Randall J Larsen, founding director of **The WMD Center** at the Institute for Homeland Security, warns that we all need to face up to the threat of bioterrorism.

Larsen believes that the non-proliferation battle has already been lost; nations now need to make sure that are ready to respond to a bioterror incident.



What is the most dangerous biological weapon?

Colonel Randall J Larsen: Of all the pathogens weaponised by the USSR, the UK and the US, none was more feared than the variola virus, the causative agent of smallpox. The disease is contagious, killing 30-40% of those infected. Those that survive have to live with disfiguring scars and, in many cases, are left blind.

What precautions should be taken?

The US has stockpiled more than 300 million doses of smallpox vaccine. However, since the generation I/II vaccine causes several side effects – in some cases death – the decision was made to begin vaccination only after an attack. The US has also acquired small quantities of a generation III vaccine that appears to have none of the side effects of earlier generations.

Are military organisations and politicians aware of biotreats?

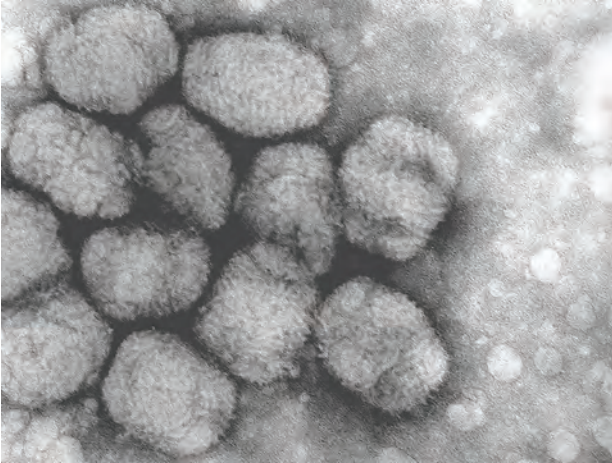
In the past few years, I have briefed more than 3,500 senior military officers about the threat of bioterrorism in the 21st

century. It is surprising to read the responses on their critiques: most were not aware of the former offensive programmes of the US, the UK and the USSR. Nor were they aware of the incredible changes in biotechnology that now allow non-state actors to develop sophisticated bioweapons.

Unfortunately, many senior leaders in civilian agencies and departments are also unaware of this rapidly emerging threat. A recent Congressional Commission drew a lot of attention when it concluded that, more likely than not, a weapon of mass destruction would be used somewhere in the world before the end of 2013, and that it would most likely be a bioweapon.

Who should take the first step to securing the world against biotreats?

Frankly, there is little that can be done to prevent bioterrorism. We lost the non-proliferation battle. The availability of deadly pathogens, combined with the commercial off-the-shelf capability to weaponise them using everyday techniques from the pharmaceutical industry,



Global smallpox immunity is at a low ebb, with most nations calling time on their vaccination programmes in the 1970s.

means that we have to focus on response capabilities. The only two pathogens of concern to the biodefence community not readily present in the natural world are the ones that cause smallpox and the 1918-1919 strain of flu. Unfortunately, both can be synthesised in high-tech laboratories.

In light of this, what would you say is the highest priority for the biodefence community?

In November 2009, US President Barack Obama signed a National Security Council document acknowledging that the effective dissemination of a lethal biological agent within an unprotected population could place hundreds of thousands of lives at risk. It stated: "The unmitigated consequences of such an event could overwhelm our public health capabilities, potentially causing an untold number of deaths. The economic cost could exceed \$1 trillion for each such incident. In addition, there could be significant societal and political consequences that would derive from the incident's direct impact on our way of life and the public's trust in government."

The proper strategy for this threat is what we call 'moving the decimal point to the left'. If properly prepared, we wouldn't count casualties in hundreds of thousands, tens of thousands, or even thousands. Rapid detection and diagnosis coupled with the rapid dispensation of medical countermeasures – vaccines and therapeutics – would remove bioterrorism from the category of weapons of mass destruction.

In 2001, the US had just 14 million doses of the smallpox vaccine stockpiled. At that time, the virus would have been classed as a weapon of mass destruction. Today, with 300 million doses of vaccine in storage, we have effectively removed smallpox from this category.

Do you believe that governments are paying sufficient attention to potential biotreats?

No. This is a serious national security concern. Many of the actions required to protect populations from bioterrorism would also be highly effective in protecting against naturally occurring diseases, which will likely pose a greater threat as the world gets hotter.

Opinions about the threat of smallpox differ between risk assessments. Can you explain why?

Smallpox is a low-probability, high-consequence event. A successful attack would change the course of history. One area of serious concern is the fact that rapid advances in the field of genetic engineering means that this disease, eradicated in 1980, could re-emerge from a lab one day. Because almost all nations stopped vaccinating against smallpox in the late 1970s, there is virtually no natural immunity.

Do the countries that have had a bioweapons programme take biotreats more seriously than those that never conducted such research?

I have spent many years studying the US's former programme, which was unilaterally shut down in 1969. The feats achieved using 1960s biotechnology were frightening, but back then only powerful nations were capable of producing such weapons. The biotechnical revolution has changed that, giving the same power to small nations and even non-state actors. Many do not understand what was accomplished in the old US, USSR and UK bioweapon programmes. If they did, they would have a far better understanding of what is available today with commercial off-the-shelf technologies.

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The threat from class A agents such as smallpox is considered to be grave. Are some of these agents more dangerous than others?

The most threatening combination is deadly and contagious, and as such, plague and smallpox are the most dangerous threats. Anthrax is also considered a serious problem because it is very difficult to clean up.

The world is facing a financial crisis – is it the right time to spend money on insurance for a potential biotreat?

That is a decision for politicians. The threat of bioterrorism is real, but so are many other threats. Without question, improvements in rapid diagnosis of disease; safer, more effective and less expensive vaccines and therapeutics; and improved surge capacity in our healthcare system will benefit all of humanity, whether the bioterrorist is man or pathogen. ■

Further information

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