

underestimated because an outbreak could be even more devastating than 20 years ago due to reduced immunity in the population.

"It's a new type of terrorism, when you're in a state of anxiety every day. It's not spectacular, there is no explosion but every day for weeks you hear about people who died," said leading biosecurity expert, Ken Alibek, who once headed the former Soviet Union's secret bio-weapons programme and defected to the US in 1992. "This creates widespread panic, people stop going out and the whole society and economy collapses."

Since 11 September, the United States has stepped up its biodefence programme, aiming to vaccinate half a million military personnel and 38 000 civilian health workers against smallpox. Other governments, in countries such as Britain, Belgium, France and Germany, have carried out more limited "ring" or selective vaccinations of key personnel for smallpox.

Washington has established emergency networks for rapid response to such an attack and is promoting research in the quest for safe vaccine with fewer side effects as well as new vaccines that can be used for people with weakened immune systems. Meanwhile, it has boosted vaccine stockpiles and is promoting modern therapeutic treatment for smallpox, a disease which was last reported in Somalia in 1977.

Speakers said, if used as a biological weapon by terrorists, smallpox had the greatest potential to cause widespread damage, followed by plague, anthrax and finally botulism. The four bioagents were ranked according to their infectiousness, potential to kill and ability to survive storage in aerosol or other containers for long periods of time.

"The attack on the World Trade Centre took a huge toll with thousands of deaths, but the economic damage as a result of anthrax could be as much or greater and it only involved 3, 4 or 5 grams of anthrax," Alibek said, adding: "That's the reality and we have to understand this because the terrorist groups understand this perfectly well."

Scientists told the conference however that it would be wrong to rely solely on vaccines to protect populations today because sophisticated terrorists could commission scientists to genetically engineer new, even more virulent, virus strains capable of shutting down the whole immune system. Such new strains would render vaccines useless.

### Conference warns of danger of re-emergence of smallpox as weapon of bioterror

Epidemiologists and biological warfare defence experts joined forces at a Geneva conference in October to warn governments that smallpox, a killer disease that was eradicated globally two decades ago, could re-surface as a weapon of terrorism.

When smallpox was eradicated worldwide in 1979 it was hailed as the greatest public health achievement of the 20th century. But since the 11 September attacks, there have been growing fears that rogue states or terrorists may have procured illegal smallpox stocks to launch a major bioterror attack.

Experts told the conference that the chances of such an attack were very small, but warned that it should not be

Mark Buller, Professor of Microbiology and Immunology from St Louis University in the United States, described experiments in which scientists had genetically altered the mousepox virus, ectromelia, to express a protein IL4. When infected with this new mousepox strain, mice vaccinated for the original mousepox virus had no protection.

“There are cook books on the internet on how to do this, the equipment is in most labs and expertise is minimal, a PhD scientist with knowledge of pox viruses could do it,” Professor Buller told the conference entitled: Smallpox Bio-Security: Thinking the Unthinkable which was held in Geneva on 21 and 22 October. ■

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