



PRESS RELEASE

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Testimony of Dr. Kenneth Alibek at the LHHS hearing on bioterrorism funding

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Subcommittee on Labor, Health and Human Services, and Education

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Thank you, Senator Harkin and members of the Committee, for inviting me to testify for you today on the topic of bioterrorism. I am in a rather unique position to discuss these issues, since I developed biological weapons for the Soviet Union for nearly twenty years, until my defection in 1992. When I left the Russian biological warfare program, I had been serving as First Deputy Director of Biopreparat, the civilian arm of the biological weapons program, for four years. At that time, I was responsible for approximately 32,000 employees and 40 facilities, comprising over half of the entire Russian program's personnel and facilities. Since arriving to the United States, my personal and professional goal has been to make the greatest contribution I can to the elimination of the danger of biological weapons.

Biological Weapons Threat of Proliferation and Terrorism

Following the breakup of the Soviet Union and the end of the Cold War, the threat of proliferation of mass casualty weapons has grown dramatically. In some ways, the danger posed by the proliferation of biological weapons and biotechnology is greater than that of nuclear proliferation. For example, the acquisition, manufacture, deployment, and movement of nuclear components or weapons is much more expensive and difficult to achieve than that of biological agents. A freeze-dried vial of anthrax can easily be obtained and concealed, and the knowledge of how to turn that vial of anthrax into a biological weapon is in the possession of hundreds of scientists and technicians. The recent incidents of anthrax dissemination through the Postal Service have only served to demonstrate the reality of this threat.

The growing frustrations among scientists within the former Soviet bioweapons community add to the

risks of proliferation. Despite initiatives directed by the United States government to employ some of these scientists and to shift the focus of their research to peaceful projects, more needs to be done. Many of these scientists are highly trained in biotechnology and their talents could be directed toward finding new methods of preventing or treating the diseases caused by these pathogens. Several former bioweapons scientists have emigrated to the West and are currently under-employed. We fear that in order to feed their families, others may offer their technical skills on the open market, which could provide our enemies with technical expertise or ready-made, engineered organisms. Some Russian microbiologists are reportedly teaching students from rogue states that are interested in this expertise. Other prominent scientists have simply dropped out of sight.

In a report to the Senate Permanent Subcommittee on Investigations in 1995, the U.S. Office of Technological Assessment identified 17 nations believed to possess biological weapons. It is estimated that at least 20 countries either have active research programs or were formerly involved in biological weapons research and production. In many cases, these are nations that are also engaged in chemical and nuclear programs, since they feel the necessity to protect themselves from hostile neighbors by any means necessary.

Biological Defense and Treatment Options

In the U.S. and other countries, growing fears of a biological attack by a hostile country or a terrorist group have prompted intensive efforts in the areas of consequence management, response planning, intelligence gathering, and nonproliferation of expertise. However, little effort has focused on new methods for treatment or prophylaxis of biological threat agents.

Unfortunately, the diseases caused by many biological threat agents, such as smallpox, Ebola, and Marburg are currently untreatable. For so-called treatable diseases, such as anthrax, plague and tularemia, current methods of treatment or medical prophylaxis are often ineffective. Antibiotic resistance is on the rise, and in many cases biological threat agents have been genetically engineered to increase their resistance to drugs.

Similarly, vaccines do not exist for the majority of biological threat agents. This situation is unlikely to change when we consider that it takes 3-4 years to engineer a new drug resistant or more virulent bioweapons, but it takes 10-12 years to develop and get Food and Drug Administration approval for a new vaccine. Even the few available vaccines are often ineffective against biological weapons for three reasons:

* Vaccines often require weeks to months to take effect; * Vaccination of large portions of the population against numerous threat agents in advance of a biological incident is not feasible *
Biological threat agents can be engineered to circumvent the action of vaccines

New Paradigm

We need to develop a broader appreciation of the scope of the threat posed by the major biological threat agents and possible medical and public health responses to them. This can only be achieved through extensive biomedical research aimed at developing new prophylaxis and treatment strategies.

New approaches are needed to both prevent and treat these pathogens, and our country needs to be at the forefront of medical research aimed at studying and developing novel approaches to combat disease. Recent advances in our understanding of the immune system are making it possible to create

new tools to defeat invading organisms by boosting the immune response. These new means and approaches would supplement or replace drugs used to attack the invader. Tools to boost the immune system are not limited to infectious diseases, but can also be applied to the treatment of cancer, cardiovascular, autoimmune, and age-related diseases.

Research in this area should include investigations of the etiology and pathogenesis of infections caused by biological weapons, specific and nonspecific immunomodulation as a means of eliminating pathogens, and new antiviral and antibacterial drugs. Many of the treatments that could be developed based on this research could be useful not only for the purpose of medical defense, but also for the greater purpose of improving the general health of mankind.

International Collaboration to Catalyze the Development of Effective Responses to Bioterrorism

Countering bioterrorism will require efforts on an international scale. We should establish and maintain international collaborations of experts on bioterrorism and biodefense. The following research areas would greatly benefit from international collaboration:

- * The potential of various biological threat agents
- * Possible production and deployment methods used by terrorists
- * Technical countermeasures to biological aerosols
- * Analysis of possible genetic engineering of biological threat agents
- * Epidemiology of infections caused by biological weapons
- * Disinfection of large contaminated areas and buildings
- * Medical microbiological, molecular biological, and immunological methods for the development of protection against biological weapons
- * Research and development of novel therapeutic and prophylactic regimens for infections caused by biological weapons
- * Signatures of possible production facilities

Addressing these issues will greatly enhance the international community's preparedness for a biological attack.