



PANDEMIC, BIOTERRORISM AND BIODEFENSE

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In 2017, Bill Gates warned that bioterrorism could kill 30 million people in a year. Bill Gates, the co-founder of Microsoft who has spent billions in a philanthropic work said: “The next epidemic could originate on the computer screen of a terrorist intent on using genetic engineering to create a synthetic version of the smallpox virus ... or a super contagious and deadly strain of the flu.”

Bioterrorism

Bioterrorism is, by definition, the use of infectious agents or other harmful biological or biochemical substances as weapons of terrorism. The threat is as real as the possibility of new pandemic emerging. Individual terrorists, terrorist groups, militant groups, cults and even criminals have the ability to use biological agents to cause harm to society, or their specific targets. The rapid advancement of modern synthetic biology has led to the possibility that this capability can be misused to create dangerous biological weapons.

In today’s interconnected world, biological incidents can cost millions of lives, cause significant anxiety, and disrupt travel, trade and economy. Failure to take the necessary step and coordination to prevent bioincidents is not an option.

Bill Gates warned that “it would be relatively easy to engineer a new flu strain” by combining a version that spreads quickly with one that kills quickly. However, unlike a nuclear war, such a disease would not stop killing once released. All states must collectively develop comprehensive biodefense and biosecurity framework to cater to this serious danger.

The term biodefense is used widely here to include the strategies, means and methods of identifying, preventing or managing an attack involving biological weapons. These include strategic planning, biosurveillance, threat detection, threat monitoring and awareness, biological arms control and nonproliferation, counterterrorism, increased

biosafety and biosecurity, the development of effective medical countermeasures (MCMs), medical planning and preparedness, and proper response and recovery activities. Biodefense is more than a military or emergency response term.

Proper allocation, and effective use of budget is necessary. For example, since the 2001 terrorist attacks, the United States government has allocated around \$80-\$100 billion to address the threat of biological weapons. In July 2004, President George W. Bush signed "Project Bioshield", and the modern biodefense industry was born. U.S. funding for bioweapons-related activities focuses primarily on research for and acquisition of medicines, stockpiling protective equipment, increased surveillance and detection of biological agents, and improving state and hospital preparedness.

The existence of a comprehensive National Biodefense Strategy is needed. A National Biodefense Strategy is essential to combat biothreats whether from natural outbreaks of disease, accidents involving high consequence pathogens, or the actions of terrorists or state actors. To protect against biological threats, government agencies and other key stakeholders should commit to a strategic, unified approach. By coordinating programs, actions and budgets, governments can better plan, anticipate, prevent, prepare for, respond to, and even recover from biological attacks or incidents.

The National Biodefense Strategy

1) Clear Structure and Legal Framework

The National Biodefense Strategy must outline a clear structure for interagency cooperation so that all efforts are integrated and efficient. The objectives, job scopes, duties and responsibilities of each agency, ministry, department and institution must be well-defined to prevent overlapping responsibilities and to save costs. Thus, the necessary legal framework must be in place. Currently, there is an absence of an effective overall international "mechanism" or lead agency mandated to coordinate response in the event of a possible terrorist attack involving chemical or biological weapons.

2) Prevention

Preventing terrorist and militant groups from obtaining access to high level biological labs or sensitive data is of utmost importance. In its resolution (A/Res/70/291) completing the Fifth Review of the United Nations Global Counter-Terrorism Strategy

(A/Res/60/288), the General Assembly called upon all Member States to “prevent terrorists from acquiring weapons of mass destruction and their means of delivery... and (encouraged) cooperation among and between Member States and relevant regional and international organizations for strengthening national capacities in this regard.”

3) Preparedness, Planning and Response

This involves the development of biological identification systems. Such advanced detection systems can assist in providing early warning, identify contaminated areas and populations at risk, and to facilitate prompt treatment. At the very least, methods to detect hazards associated with a biological attack need to be established in major cities. Early detection and rapid response to bioterrorism requires close cooperation between agencies including public health authorities and law enforcement. National detection assets and vaccine stockpiles are not so useful if local and state officials do not have adequate and timely access to them.

4) Robust Surveillance System

A robust surveillance network and system involving clinicians and veterinarians may identify a bioweapon attack early in the course of an epidemic, permitting the treatment in the vast majority of people (and animal) exposed but not yet ill. For example, in the case of anthrax, it is likely that by 24–36 hours after an attack, some small percentage of individuals (those with compromised immune system or who had received a large dose of the organism due to proximity to the release point) will become ill with classical symptoms and signs (including a virtually unique chest X-ray finding that can be recognized by public health officials). If these data were available to local public health officials in real time, most models of anthrax epidemics indicate that more than 80% of an exposed population can receive antibiotic treatment before becoming symptomatic, and thus avoid a significant number of deaths.

5) Vaccine and Other Preparations

There is a need to have necessary products and platforms, including vaccines, therapeutics and diagnostics as preparation for man-made and natural emergencies. This includes the need to develop medical countermeasure technologies. Whenever possible, there should be collaboration between companies working on defense-specific technologies with the government. These include technologies that can be used

for conventional health care, pandemics and biological defense, such as antivirals, antibiotics, and diagnostic tools.

6) Logistics Monitoring

Food safety, especially in terms of large food supply chains, like airline caterings, institutionalized kitchens etc must be monitored. Food can be used as a possible mean of delivery of various agents (biological and chemical) for bioterrorism attacks. Steps on how to identify specific critical points in a food supply chain, along with proposed corrective activities must be clear.

Conclusion

There is a need to systematically address the biological threats of military biological warfare, bioterrorism, and naturally occurring infectious diseases. However, it must be noted that the strategy and approach in dealing with these diverse threats are significantly different and any strategy must take this into consideration.

Up-to-date bioterrorism law, policy and framework are necessary to manage the risk of bioterrorism and to avoid bureaucracy. It is essential to put in place up-to-date policies related to disease containment, proper analysis on modes of transmission, early identification of new outbreaks of novel or rare diseases, coordination of resources and personnel, analysis of implementation of action plans, and to improve bioterrorism preparedness. Efficient coordination and communication between states are also fundamental. Intelligence collection on biothreats must always be coordinated and improved. In the end, the way to eliminate this threat is by working unremittingly together.