

Bioterrorism: Definition, History, Present State, Organization and Coordination of Counter-Terrorism

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INTRODUCTION:

Bioterrorism might be an arranged and conscious utilization of pathogenic strains of microorganisms like microscopic organisms, infections, or their poisons to spread hazardous maladies on a mass scale in order to crush the number of inhabitants in an area. People have described subsequent hundred years because the “century of biology.” Incredibly rapid and profound changes in genetic modifications in bio-molecular engineering and enhanced bio-production technologies, however, may make it easier for terrorists to beat the barriers that inhibited acquisition of biological weapons within the past. Historically, biological weapons are a threat to humans for several centuries. At those times, very crude methods like faecal matter, animal carcasses, etc. were wont to contaminate water sources, but now the concentrated sorts of biological agents like dried spores and genetically modified organisms are available, which are fatal even in minute quantity. The threat of BW has been engaging the eye of Indian defense and doctors for an extended time. There are a couple of episodes that have raised suspicion within the past. During the Indo-Pakistan war of 1965, a tsutsugamushi disease outbreak in north-eastern India came under suspicion. India's defense and intelligence outfits were aware of the outbreak of plague – documented in BW – in Surat and plague in Beed in 1994, which caused several deaths and sizeable economic loss. In 2001, the anthrax scare reached Mantralaya and, whilst India tries to stop terrorist attacks like the one in Mumbai in November 2008, security experts say that despite not facing a biological warfare thus far, the country must not ignore that threat.

WHAT IS BIOTERRORISM?

A bioterrorism attack is that the deliberate release of viruses, bacteria, or other germs (agents) wont to cause illness or death in people, animals, or plants. These agents are typically found in nature, but it's possible that they might be changed to extend their ability to cause disease, make them immune to current medicines, or to extend their ability to be spread into the environment.

Bioterrorism agents are classified as categories A, B, and C

Classification A: High-need specialists incorporate living beings that represent a hazard to national security since they will be effortlessly scattered or transmitted from individual to individual, end in high death rates, and have the potential for significant general wellbeing sway. They could cause public panic and social disruption, and need special action for public health preparedness. Agents/diseases include anthrax (*Bacillus anthracis*), botulism (Clostridium botulinum poison), plague (Yersinia pestis), smallpox (Variola major), tularemia (*Francisella tularensis*), and viral hemorrhagic fevers [filoviruses (for example Ebola, Marburg) and arenaviruses (for example Lassa, Machupo)].

Classification B: The second most noteworthy need operators incorporate individuals who are reasonably simple to disperse, end in moderate dreariness rates and low death rates, and need explicit upgrades of CDC's indicative limit and improved infection observation. Operators/illnesses incorporate brucellosis (*Brucella* species), eubacteria epsilon poison of Clostridium perfringens, sanitation dangers (e.g., *Salmonella*

species, *Escherichia coli* O157:H7, *Shigella*), glanders (*Burkholderia mallei*), melioidosis (*Burkholderia pseudomallei*), psittacosis (*Chlamydia psittaci*), Q fever (*Coxiella burnetii*), ricin from castor-oil plant (castor beans), enterotoxin B, typhus (*Rickettsia prowazekii*), viral encephalitis [alphaviruses (e.g. Venezuelan equine encephalomyelitis, eastern equine encephalomyelitis, western equine encephalitis)], and water safety threats (e.g. *Vibrio cholerae*, *Cryptosporidium parvum*).

Category C: The third highest priority agents include emerging pathogens that would be engineered for mass dissemination within the future due to availability, simple production and dissemination, and potential for top morbidity and mortality rates and major health impact.

Agents include emerging infectious diseases like Nipah virus and Hanta virus, and tubercle bacillus (multidrug-resistant strains). Newer trends are products of microbes which will kill or incapacitate targeted hosts, e.g. hormones, neuropeptides, cytokines called as “designer substances” to focus on a specific organ or sort of enemy. Others are “ethnic bombs” and parasite biological weapons under trial to affect cash crops.

Terrorism is one of the ugliest forms of human hatred and confrontation.

A huge wave of terroristic threats for the last few years spreads over all continents, and it is obligatorily to discuss the topic and take precaution measures. Terrorist acts can vary from attacks in public places by using bombs or other explosive materials to individual or massive use of biological and agricultural agents.

Biological weapons, used for bioterrorism, are: microorganisms, bacteria, viruses, fungi or toxins.

Their application must inflict harm on the opponent. The UN Convention on the Prohibition of Development, Production and Stockpiling of Biological and Toxin Weapons from 1972 banned the use of such agents. However, there are still many official and hidden laboratories world-wide where scientists develop either methods to defend the population against bioterrorism (the peace-makers) or new ways to affect human health (war-dreamers).

A number of viral and bacterial agents, such as small pox, Ebola, HIV, West-Nile, SARS, Marburg, hepatitis, influenza, plague, glanders, B.anthraxis, Y.pestis, F.tularensis, Brucella species, V.cholerae, TBC, etc. are recognized as the etiologic reason for terrifying infections.

The author makes a review of the current threats world-wide with possible attacks using bioagents. The history, present state and future possibilities are discussed, giving examples for the most often etiologic microorganisms applied for bioterrorism. Special attention is paid to the organization, coordination, management and collaboration between civil, military and special units before, during and after the terroristic act with NATO standards. The author is a referent and the first director of NATO ARW in Bulgaria on the topic, organizing annual meetings and round tables on medical aspects and counter terrorism in his motherland and many other countries.