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Bioterrorism and Biowarfare: Next Generation Bioweapons

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Introduction

Humans always want to dominate or defeat another person or group, but only the stronger group can genuinely succeed in doing so. Here come the potent genetically modified bacteria, which are easily weaponized and can kill or cause various biological malfunctions to the local wildlife. It may qualify as biowarfare if these germs are created and used against another nation. Although the definition of bioterrorism differs from one source to another and on sometimes, it is when it is used by an anti-national (sub-national) group. Although the Geneva Protocol and the Biological Weapons Convention were signed in 1925 and 1972, respectively, to forbid the use or development of biological weapons, neither one was able to stop the use of bioweapons. We are all aware by this point that the primary component of biological attacks, microorganisms are invisible to the human sight, making it very challenging to identify their attack. Since their attack could only be discovered after significant destruction, an incubation time of around 3 to 5 days allows us to escape enemy territory without being discovered. Due of its more affordable production and simplicity of handling, terrorists and other antinational organizations find it intriguing. Consequently, bioweapons are said to as the atomic bomb's underdog. Black biology is the study of employing genetically modified microorganisms as weapons. The biological agents should have certain properties in order to be used as a bioweapon:

- They must easily disperse as little particles in the air so that they can be swallowed.
- Additionally, they might be released from the explosions.
- They might contaminate food and water.
- May be administered subcutaneously.

Bio attacks are typically only discovered much later, but in some cases, if they are, protective measures like the use of HEPA filter masks and protective glass shields, etc., should be taken first. Next, as a preventive measure, antibiotics and vaccines should be developed to stop the disease from spreading.

History

The first recorded use of biological weapons occurred between 1500 and 1200 BC, when tularaemia victims were transported into hostile territory, sparking an outbreak. Since then, biological weapons have been widely employed in battle; they first appeared in the sixteenth century A.D. Most frequently, these weapons take the form of poisoned arrows, or they are used to poison the enemy's army or water supply. The usage of germs is now harmful because of genetic engineering.

Anthrax: It is categorized as a biowarfare agent in Category A. It gained notice during the US assaults of 2001 soon before 9/11 when it was mailed to US government and media personnel, resulting in 5 deaths from anthrax infection.

Botulism: It poses a serious hazard because it is so powerful and deadly. It is simple to move around. Patients with infections require long-term, comprehensive hospital care.

Category of microbes used as bioweapons

The bacteria that could be used as bioweapons have been categorized into three groups based on the severity of the disease:

Category A: These agents are of the highest priority and potentially present the greatest threat to both national and international security.

Category B: These pathogens fall into a lower priority category and present a relatively minimal risk to both public safety and national security.

Category C: Agents and microorganisms that could constitute a threat or that are about to be created for widespread dissemination fall under this category, which has the third highest priority.

Category A	Anthrax (*Bacillus anthracis*
	Botulism (*Clostridium botulinum*)
	Plague (*Yersinia pestis*)
	Smallpox (Variola major)
	Tularemia (*Francisella tularensis*)
Category B	Brucellosis
	Epsilon toxin of *Clostridium perfringens*
	Q-Fever
	Ricin Toxin

	Typhus Fever
Category C	Nipah Virus
	Hanta Virus

Solution

No nation has publicly deployed biological weapons since the 1972 convention, but some claim that both industrialized and developing nations possess biological weapons that could be used in a war with a no-first-use policy. People should be aware of reacting calmly and sensibly in the event of a rapid outbreak of the sickness in order to successfully combat it. The first step in creating a world free from biowarfare is to establish a norm that effectively regulates the production of bioweapons. We require a verification system to control the labs and the personnel working with the labs to prevent such activities of employing microorganisms in bioterrorism in order to lessen and ultimately eradicate the threat of biowarfare and bioterrorism.

Conclusion

The emergence of biological weapons is likewise penning a chapter that could be disastrous for the continued existence of Western civilization. Microorganisms make the creation of bioweapons far easier and less expensive than the creation of conventional weapons. The article included a method to stop bioterrorism as well as three groups of bacteria used in bioweapons.

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