



## Perspective

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Biological hazards, also known as biohazards, refer to biological substances that pose a threat to the health of living organisms, primarily that of humans. This can include medical waste or samples of a microorganism, virus or toxin (from a biological source) that can affect human health. It can also include substances harmful to other animals. Biological warfare (BW) also known as germ warfare is the use of biological toxins or infectious agents such as bacteria, viruses, and fungi with the intent to kill or incapacitate humans, animals or plants as an act of war. Biological weapons (often termed "bio-weapons", "biological threat agents", or "bio-agents") are living organisms or replicating entities (viruses, which are not universally considered "alive") that reproduce or replicate within their host victims. Entomological (insect) warfare is also considered a type of biological weapon. This type of warfare is distinct from nuclear warfare and chemical warfare, which together with biological warfare make up NBC, the military acronym for nuclear, biological, and chemical warfare using weapons of mass destruction (WMDs). None of these are conventional weapons, which are primarily effective due to their explosive, kinetic, or incendiary potential.

A biological attack, or bioterrorism, is the intentional release of viruses, bacteria, or other germs that can sicken or kill people, livestock, or crops. *Bacillus anthracis*, the bacteria that causes anthrax, is one of the most likely agents to be used in a biological attack.

A vaccine is a biological preparation that provides active acquired immunity to a particular disease. A vaccine typically contains an agent that resembles a disease-causing microorganism and is often made from weakened or killed forms of the microbe, its toxins or one of its surface proteins. The agent stimulates the body's immune system to recognize the agent as a threat, destroy it, and keep a record of it, so that the immune system can more easily recognize and destroy any of these microorganisms that it later encounters.