

5. In contrast to the biological organisms from which they are produced, toxins are not living organisms and are not capable of reproducing themselves. For this reason, the disease or poisoning caused by toxins is not transmissible from man to man. Thus, toxins cannot cause infectious disease, epidemics, or long-term sources of illness. Consequently toxins could create mass casualties among an adversary's population without risk of spreading to infect the nation initiating use of toxins. The characteristic symptoms of many bacterial diseases are caused by the toxins produced within the human body by living bacteria. Examples of diseases that can be produced by toxins are botulism, tetanus, diphtheria and staphylococcal food poisoning.
6. In common with biological agents, toxins generally have delayed poisonous effects. Their delayed action varies with the particular toxin. Because of their high potency, the effective dosage in man is extremely small if he is neither masked nor immunized. Toxins, if used as weapons, could be dispersed in aerosol form at considerable distances from the target and could cover a very large area, resembling the large areas that could be covered by biological agents. Casualties would therefore result after the target population had been subjected to extremely small quantities of the toxin.
7. With regard to the effects of toxins, botulinum toxin produces botulism, an acute and highly fatal disease. There are at present six types of this toxin of which four are known to be toxic for man. The disease, botulism, is characterized by the combination of extreme weakness, vomiting, thirst, fever, dizziness, blurred vision, dilated pupils, facial paralysis and weakness of respiratory muscles. Death is attributable to paralysis, respiratory failure, and associated cardiac arrest. These symptoms do not appear for 12 to 72 hours.
8. All persons are susceptible to the disease, which occurs naturally throughout the world. While almost completely effective immunization is possible, such measures would be effective only if administered well before any exposure. The mortality rate for naturally occurring botulism in the United States is approximately 65 percent. If effectively weaponized and delivered in a highly purified state, botulinum toxin could have a mortality rate approaching 100 percent. The toxin could be delivered either as an aerosol or through contamination of water supplies.
9. Staphylococcal enterotoxin is a stable protein which produces an acute incapacitation known as staphylococcal food poisoning. It is characterized by severe nausea, vomiting, abdominal pain, diarrhea, and prostration. Its effects generally last for 24 hours.