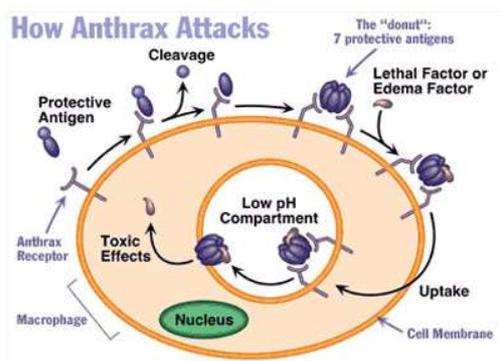


Biological Agents



Biological agents include bacteria, viruses, fungi, other microorganisms and their associated toxins. They have the ability to adversely affect human health in a variety of ways, ranging from relatively mild, allergic reactions to serious medical conditions, even death. These organisms are widespread in the natural environment; they are found in water, soil, plants, and animals. Because many microbes reproduce rapidly and require minimal resources for survival, they are a potential danger in a wide variety of occupational settings.

Anthrax. Anthrax is an acute infectious disease caused by a spore-forming bacterium called *Bacillus anthracis*. It is generally acquired following contact with anthrax-infected animals or anthrax-contaminated animal products.



Avian Flu. Avian influenza is a highly contagious disease of birds which is currently epidemic amongst poultry in Asia. Despite the uncertainties, poultry experts agree that immediate culling of infected and exposed birds is the first line of defense for both the protection of human health and the reduction of further losses in the agricultural sector.

Bloodborne Pathogens and Needlestick Prevention. OSHA estimates that 5.6 million workers in the health care industry and related occupations are at risk of occupational exposure to bloodborne pathogens, including human

immunodeficiency virus (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV), and others.



Botulism. Cases of botulism are usually associated with consumption of preserved foods. However, botulinum toxins are currently among the most common compounds explored by terrorists for use as biological weapons.

Foodborne Disease. Foodborne illnesses are caused by viruses, bacteria, parasites, toxins, metals, and prions (microscopic protein particles). Symptoms range from mild gastroenteritis to life-threatening neurologic, hepatic, and renal syndromes.

Hantavirus. Hantaviruses are transmitted to humans from the dried droppings, urine, or saliva of

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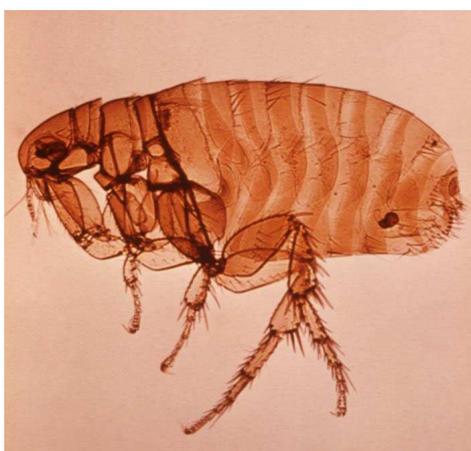


mice and rats. Animal laboratory workers and persons working in infested buildings are at increased risk to this disease.

Legionnaires' Disease. Legionnaires' disease is a bacterial disease commonly associated with water-based aerosols. It is often the result of poorly maintained air conditioning cooling towers and potable water systems.

Mold. Molds produce and release millions of spores small enough to be air-, water-, or insect-borne which may have negative effects on human health including allergic reactions, asthma, and other respiratory problems.

Plague. The World Health Organization reports 1,000 to 3,000 cases of plague every year. A bioterrorist release of plague could result in a rapid spread of the pneumonic form of the disease, which could have devastating consequences.



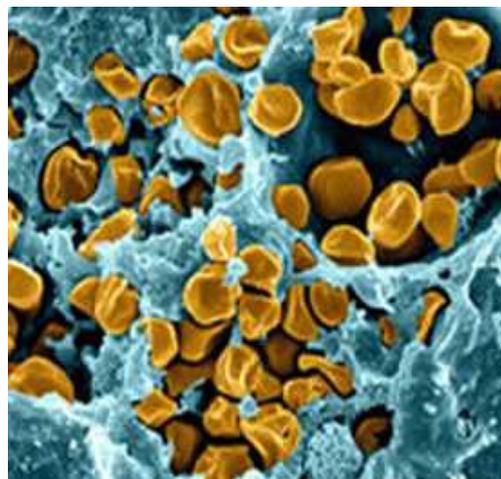
Ricin. Ricin is one of the most toxic and easily produced plant toxins. It has been used in the past as a bioterrorist weapon and remains a serious threat.

Severe Acute Respiratory Syndrome (SARS). Severe acute respiratory syndrome (SARS) is an emerging, sometimes fatal, respiratory illness. According to the Centers for Disease Control and

Prevention (CDC), the most recent human cases of SARS were reported in China in April 2004 and there is currently no known transmission anywhere in the world.

Smallpox. Smallpox is a highly contagious disease unique to humans. It is estimated that no more than 20 percent of the population has any immunity from previous vaccination.

Tularemia. Tularemia is also known as "rabbit fever" or "deer fly fever" and is extremely infectious. Relatively few bacteria are required to cause the disease, which is why it is an attractive weapon for use in bioterrorism.



Viral Hemorrhagic Fevers (VHFs). Along with smallpox, anthrax, plague, botulism, and tularemia, hemorrhagic fever viruses are among the six agents identified by the Centers for Disease Control and Prevention (CDC) as the most likely to be used as biological weapons. Many VHFs can cause severe, life-threatening disease with high fatality rates.

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