

Biological Agents

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Biological agents, including bacteria, viruses, fungi, other microorganisms and associated toxins, have the potential to cause illness and death in humans. The agents can be natural, man-made, or modified by humans. Exposure may be intentional or unintentional. A bioterrorism attack is an intentional release of harmful biological agents. Unintentional exposure includes mishandling of medical waste and other work-related exposures. This could be contact with infected blood or other bodily fluids, or just touching an infected person. The result of exposure to biological agents can range from a mild allergic reaction to serious medical conditions including death. Worldwide, it is estimated that around 320,000 workers die each year from communicable diseases caused by work-related exposures to biological hazards (Driscoll et al. 2005; OSHA 2007) (www.comcare.gov.au). Helping clients understand the risks of, and proper risk management procedures to deal with, exposure to biological agents is another value-added service of the professional insurance agent (www.osha.gov).

Victims of biological exposure, such as bioterrorism, may go to a doctor's office, emergency room or similar clinic. During a bioterrorist event, the goal for local medical facilities is to maximize their ability to keep the offices running smoothly in order to provide prompt and appropriate care, as well as minimize potential exposure to others.

Procedures to deal with the threat should be in place at the medical facility, and communicated to all staff. Examples include protocols for decontamination and isolation of potential victims, and proper use of masks and other protective clothing by office personnel. Some biological agents are infectious, so extra care must be made to separate affected individuals from others. Having decontamination facilities outside the



building is preferable.

Children are of special concern when dealing with exposure to biological agents due to increased respiration rate, greater skin permeability, increased ratio of skin surface area to body mass, and reduced fluid reserves as compared to adults. They also may be unable to describe their symptoms, which makes accurate and prompt diagnosis difficult. Symptoms may not appear for several days after the exposure, and the adults on whom the children depend for care may have become ill or been quarantined due to exposure (www.aap.org).

Transmission of pathogens can be either direct or indirect. With direct contact, the pathogen is transmitted from an infected host to a susceptible host, often through blood (Ebola) or other bodily fluids (HIV/AIDS). Indirect transmission means an agent, such as a flea, mosquito or contact with a toy, bedding or clothing, is required to transfer the pathogen from an infected host to a susceptible host (www.encyclopedia.com). Depending on the type of pathogen, they can be disseminated through the air, water, food, or contact with animals or other humans. The Centers for

Disease Control (CDC) offers tips on protecting against biological agents (<http://emergency.cdc.gov/bioterrorism>). The Division of Homeland Security also offers a factsheet on biological agents (www.dhs.gov).

There have been governmental attempts to control exposure to biological hazards. The US Congress' 1988 Medical Waste Tracking Act led to the requirement that all medical waste must now be collected by a company with a specific license for handling hazardous products. (blog.medwastemngmt.com) The World Health Organization (WHO) works with member countries to increase awareness and preparedness for the threat of natural and intentional epidemics (www.who.int).

Occupations that run the highest risk of exposure to biological agents include those working in food production, agriculture, farming, hospitals and laboratories, municipalities (refuse and sewage workers) and office buildings from wallpapers, carpets, damp buildings and ventilation systems (www.ocsa.co.za). Nail salon workers can be exposed to blood borne pathogens, such as hepatitis B, hepatitis C, and human immunodeficiency virus (HIV), if they come into contact with infected blood from a co-worker or client. Workers can also be exposed to fungal infections of the nails and feet by touching infected client skin or by using equipment, that has not been cleaned (www.osha.gov).

Biological hazards represent a serious threat and must be addressed. Helping clients develop and implement an appropriate risk management program is another sign of the true insurance professional.

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