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## Biological Threat

Biological agents are organisms or toxins that can kill or incapacitate people, livestock, and crops. The three basic groups of biological agents that would likely be used as weapons are bacteria, viruses, and toxins. Most biological agents are difficult to grow and maintain. Many break down quickly when exposed to sunlight and other environmental factors, while others, such as anthrax spores, are very long lived. Biological agents can be dispersed by spraying them into the air, by infecting animals that carry the disease to humans, and by contaminating food and water. Delivery methods include:

- Aerosols—Biological agents are dispersed into the air, forming a fine mist that may drift for miles. Inhaling the agent may cause disease in people or animals
- Animals—Some diseases are spread by insects and animals, such as fleas, mice, flies, mosquitoes, and livestock
- Food and water contamination—Some pathogenic organisms and toxins may persist in food and water supplies. Most microbes can be killed, and toxins deactivated, by cooking food and boiling water. Most microbes are killed by boiling water for one minute, but some require longer. Follow official instructions
- Person-to-person spread of a few infectious agents is also possible—Humans have been the source of infection for smallpox, plague, and the Lassa viruses

Children and older adults are particularly vulnerable to biological agents.

### Before a Biological Attack

Consider installing a high efficiency particulate air (HEPA) filter in your furnace return duct. These filters remove particles in the 0.3 to 10 micron range and will filter out most biological agents that may enter the facility. If you do not have a central heating or cooling system, a stand-alone portable HEPA filter can be used.

### Filtration in Buildings

Determine the type and level of filtration in the facility and the level of protection it provides against biological agents. The National Institute of Occupational Safety and Health (NIOSH) provides technical guidance on this topic in their publication *Guidance for Filtration and Air-Cleaning Systems to Protect Building Environments from Airborne Chemical, Biological, or Radiological Attacks*. To obtain a copy, call 1 (800) 35NIOSH or visit the National Institute for Occupational Safety and Health Web site and request or download NIOSH Publication 2003-136.

### Using HEPA Filters

HEPA filters are useful in biological attacks. If you have a central heating and cooling system with a HEPA filter, leave it on if it is running or turn the fan on if it is not running. Moving the air in the facility through the filter will help remove the agents from the air. If you have a portable HEPA filter, take it with you to the internal room where you are seeking shelter and turn it on.

If you are in a facility that has a modern, central heating and cooling system, the system's filtration should provide a relatively safe level of protection from outside biological contaminants.

HEPA filters will not filter chemical agents.

### After a Biological Attack

In some situations, such as the case of the anthrax letters sent in 2001, people may be alerted to potential exposure. If this is the case, pay close attention to all official warnings and instructions on how to proceed. The delivery of medical services for a biological event may be handled differently to respond to increased demand. The basic public health procedures and medical protocols for handling exposure to biological agents are the same as for any infectious disease. It is important for you to pay attention to official instructions via radio, television, and emergency alert systems.