

## Appendix K - Biological Agents

### Objectives:

- Early recognition and appropriate intervention of patients poisoned with biological agents.
- Protect responders from secondary exposure to biological agents during patient care

### General Information:

#### ▪ **Signs and Symptoms of Exposure**

- Anthrax** - A nonspecific prodrome (i.e., fever, dyspnea, cough, and chest discomfort) follows inhalation of infectious spores. Approximately 2--4 days after initial symptoms, sometimes after a brief period of improvement, respiratory failure and hemodynamic collapse ensue
- Plague** - Clinical features of pneumonic plague include fever, cough with purulent sputum, hemoptysis, and chest pain
- Botulism** - Clinical features include symmetric cranial neuropathies (i.e., drooping eyelids, weakened jaw clench, and difficulty swallowing or speaking), blurred vision or diplopia, symmetric descending weakness in a proximal to distal pattern, and respiratory dysfunction from respiratory muscle paralysis or upper airway obstruction **without sensory deficits**. Inhalational botulism would have a similar clinical presentation as foodborne botulism; however, the gastrointestinal symptoms that accompany foodborne botulism may be absent
- Smallpox (variola)**. The acute clinical symptoms of smallpox resemble other acute viral illnesses, such as influenza, beginning with a 2--4 day nonspecific prodrome of fever and myalgias before rash onset. Several clinical features can help clinicians differentiate varicella (chickenpox) from smallpox. The rash of varicella is most prominent on the trunk and develops in successive groups of lesions over several days, resulting in lesions in various stages of development and resolution. In comparison, the vesicular/pustular rash of smallpox is typically most prominent on the face and extremities, and lesions develop at the same time
- Hemorrhagic fever** (such as would be caused by Ebola or Marburg viruses). After an incubation period of usually 5--10 days (range: 2--19 days), illness is characterized by abrupt onset of fever, myalgia, and headache. Other signs and symptoms include nausea and vomiting, abdominal pain, diarrhea, chest pain, cough, and pharyngitis. A maculopapular rash, prominent on the trunk, develops in most patients approximately 5 days after onset of illness. Bleeding manifestations, such as petechiae, ecchymoses, and hemorrhages, occur as the disease progresses
- Ricin** – Symptoms are specific to individual route of exposure. Severe exposure may lead to multi-organ failure and death within 3 days



### Warnings/Alerts:

- Responders should wear a minimum of N 95 respirators when responding to non-specific flu-like symptoms to reduce the chance of infection. Surgical masks may be placed on infected patients (under a Partial Non-Rebreather oxygen mask, if necessary)
- Contact Local Health Department to determine if antibiotic prophylaxis is required for first responders and/or families

### OMD Notes:

- 

### References:

- MMWR, Center for Disease Control and Prevention, Department of Health and Human Services, Recognition of Illness Associated with the Intentional Release of a Biologic Agent, October 19, 2001,
- MMWR, Center for Disease Control and Prevention, Department of Health and Human Services, Investigation of a Ricin-Containing Envelope at a Postal Facility --- South Carolina, November 21, 2003

### Performance Indicators:

Signs and Symptoms indicating exposure                      Vital Signs                      Treatment Response to Treatment

## CBRNE - Biological

