

## CLOSTRIDIUM PERFRINGENS TOXINS

### Background:

Toxins purified from *Clostridium perfringens* may be used in biochemical warfare. The epsilon toxins are most likely to be delivered as an aerosol, although water-borne disease is conceivable. The epsilon toxins change cell membrane integrity and cause intracellular electrolyte disturbances, which lead to cell dysfunction and death. All suspected or confirmed cases of *clostridium perfringens* must be reported to the local department of public health and the Illinois Department of Public Health (IDPH).

### Incubation Period:

Usually 1 to 6 hours post exposure.

### Signs/Symptoms:

- 1) Pulmonary: May see respiratory irritation, cough, bronchospasm, with severe cases developing ARDS and respiratory failure.
- 2) Cardiac: Tachycardia and/or hypotension may be seen.
- 3) GI: Nausea, vomiting and diarrhea may potentially be seen with food/water-borne contamination (much like *C. perfringens*-induced food poisoning).
- 4) CNS: The *C. perfringens* epsilon toxin is a potent neurotoxin which can cause vacuoles to form in nerve and brain cells resulting in dysfunction and death. Weakness, dizziness, ataxia, and coma leading to death may occur.
- 5) Pancytopenia may be a late complication of severe exposure with resultant bleeding, bruising and immunosuppression.

### Treatment:

No antidote exists for these toxins. Standard supportive care with airway precautions is the mainstay of treatment.