

PLAGUE: Health Care Information

Plague is an infectious disease that is caused by the bacterium *Yersinia pestis*. Plague may be spread naturally via the bite of a flea. Plague may be used as a bioweapon via the airborne release of bacteria, and this would result in pulmonary symptoms 1 to 6 days after the release.

Signs and Symptoms: Immediately after an airborne release, patients will have no symptoms, but may require antibiotic prophylaxis and decontamination (see below).

There are two main types of symptomatic plague: **1. Pneumonic (or septicemic) Plague:** After a 1 to 6 day incubation period, symptoms include **high fever, chills, headache, hemoptysis, cough and rapidly progressing dyspnea and hypoxemia from bronchopneumonia**. Death may occur from respiratory failure, circulatory collapse and bleeding diathesis. Patients typically have **leukocytosis** as well as an **infiltrate or consolidation on chest radiograph**. **2. Bubonic plague:** After a 2 to 10 day incubation period, symptoms include **malaise, high fever and tender lymph nodes (buboes)**; may progress spontaneously to the septicemic form, with spread to the CNS, lungs, etc.

Diagnosis: In symptomatic patients, obtain trans-tracheal or sputum samples as well as lymph node aspirates and blood samples for Gram stain and culture prior to antibiotic treatment. Local hospital laboratory personnel should be notified of a potential plague sample. Contact your local public health agency. Asymptomatic patients who were exposed to the bacteria may have sputum samples examined, but require no additional testing.

Decontamination: Patients who were recently exposed to airborne plague require removal of their clothing and washing of all exposed skin with soap and water for 2 to 3 minutes. Patients who are symptomatic (i.e., exposed several days ago) do not require decontamination.

Treatment: CHECK WITH YOUR LOCAL PUBLIC HEALTH AGENCY AND THE CDC FOR UPDATES.
Hospitalized, symptomatic patients (one drug therapy):

1. Streptomycin 15 mg/kg (up to 1g) IM BID (not used in pregnant women)
OR Gentamicin 5mg/kg IM or IV once a day (in children, 2.5mg/kg IM or IV TID)
2. Alternate choices:
Doxycycline 100 mg (2.2 mg/kg, up to 100mg in children) IV BID
Ciprofloxacin 400 mg (15 mg/kg, up to 400mg in children) IV BID
Chloramphenicol 25 mg/kg IV QID (not used in pregnant women or children < 2)

After 5 days of acceptable response to IV antibiotics, may switch to an oral antibiotic (see below).

Prophylaxis (for patients exposed to bacteria, but not ill):

- Doxycycline 100 mg (2.2 mg/kg up to 100mg in children) P.O. BID for 7 to 10 days
OR Ciprofloxacin 500 mg (20mg/kg up to 500mg in children) P.O. BID for 7 to 10 days

Isolation and Personal Protection:

1. Bubonic plague can only be spread via contact of infected material with broken skin. Standard body fluid contact precautions for healthcare workers are necessary (e.g., gloves/gown).
2. Pneumonic plague may be spread via respiratory droplets. Symptomatic patients require isolation (negative pressure is not required). Droplet precautions are necessary (e.g., surgical mask and eyeshield, gown, gloves) and should be continued until the patient has been treated with antibiotics for 48 hours. Patients and transporters should wear surgical masks during transport. Heat, disinfectants (2 to 5% hypochlorite) and exposure to sunlight render bacteria harmless.

Resource Links: www.bt.cdc.gov/agent/plague