

# *Yersinia pestis*

Plague is caused by the bacterium *Yersinia pestis*. Plague symptoms depend on how the patient was exposed. Plague can take different clinical forms, but the most common are bubonic, pneumonic and septicemic.

## Symptoms

- **Bubonic plague:** Patients develop sudden onset of fever, headache, chills and weakness, and one or more swollen, tender and painful lymph nodes (called buboes). The bacteria multiply in the lymph node closest to where the bacteria entered the human body. If the patient is not treated with appropriate antibiotics, the bacteria can spread to other parts of the body.
- **Septicemic plague:** Patients develop fever, chills, extreme weakness, abdominal pain, shock, and possibly bleeding into the skin and other organs. Skin and other tissues may turn black and die, especially on fingers, toes and the nose. Septicemic plague can occur as the first symptom of plague, or may develop from untreated bubonic plague.
- **Pneumonic plague:** Patients develop fever, headache, weakness and a rapidly developing pneumonia with shortness of breath, chest pain, cough, and sometimes bloody or watery mucous. Pneumonic plague may develop from inhaling infectious droplets or may develop from untreated bubonic or septicemic plague after the bacteria spread to the lungs. The pneumonia may cause respiratory failure and shock. Pneumonic plague is the most serious form of the disease and is the only form of plague that can be spread from person-to-person by infectious droplets.

## Risk Assessment

Pneumonic plague is spread by aerosol particles. The bacteria also can be spread through blood if a laboratory worker has a break in skin that comes into contact with blood samples from either humans or other animals.

**Laboratory employees may be exposed to aerosols and infectious droplets if using automated biochemical systems, manual multi-test kits or single biochemical tests for identifications outside of a bio-safety cabinet.**

**If an employee may have been exposed, seek immediate medical attention.**

**References:** <http://www.cdc.gov/plague/>;  
<http://www.cdc.gov/plague/diagnosis/index.html>; <http://www.cdc.gov/plague/symptoms/index.html>;  
<http://www.cdc.gov/plague/healthcare/clinicians.html>

**Referred cultures confirmed by the Illinois Department of Public Health (IDPH) laboratories must be reported to the U.S. Centers for Disease Control and Prevention (CDC) by IDPH and by the submitting laboratory.**

- Each facility will complete APHIS/CDC Form 4, which is to be sent to CDC within seven calendar days of the identification of the select agent.
- If an exposure has occurred, the facility must complete APHIS/CDC Form 3. Form 3 must be sent to CDC within seven calendar days of the identification of the select agent.
- Forms and instructions are available at [www.selectagents.gov](http://www.selectagents.gov).

For questions concerning testing or reporting, contact the Illinois Department of Public Health Division of Laboratories.

IDPH Springfield Laboratory, Clinical Microbiology, 217-782-6562  
IDPH Chicago Laboratory, Clinical Microbiology, 312-793-4760  
IDPH Carbondale Laboratory, Clinical Microbiology, 618-457-5131