Plague (*Yersinia pestis*)

DISEASE IN ANIMALS

Plague is a bacterial disease of rodents in the western U.S. It is not endemic to Ohio. Prairie dogs and other wild rodents, especially those recently captured from the western U.S. could be suspect. Cats from endemic areas are also prone to infection, and may present with abscesses.

Reporting: Wild rodent die-offs should be reported to the county wildlife officer. Plague is not officially reportable in animals, but notification of the local health department (LHD) is warranted because of human health risk and bioterrorism potential.

***Yersinia pestis* is a Select Agent and must be handled under Biosafety Level 3 conditions. Seek appropriate laboratory assistance with suspect animal cases and when handling diagnostic specimens.**

Transmission: Flea bites, ingestion of an infected animal, aerosolization and direct contact with infected body fluids.

Clinical signs: Fever, vomiting, submandibular lymphadenopathy, subcutaneous abscesses, anorexia and cough in coyotes, raccoons, skunks, cats and dogs. There are no known symptoms in horses, cattle, sheep and pigs.

Diagnostics:

- FA: smear of bubo aspirate on air-dried glass slide
- Cytology: gram stain of whole blood (bipolar, gram negative rod)
- Culture: whole blood, lymph node aspirates or swabs from draining lesions or oral/pharyngeal swabs of cats with oral lesions or pneumonia. Diagnostic samples for culture should be taken before antibiotics are administered.
- Serology: require acute and convalescent samples taken two to three weeks apart. Single acute sera are often negative and single convalescent titer may indicate past exposure rather than current illness

Case classification:

- Suspected: a clinically compatible case with history of exposure to endemic area.
- Probable: a clinically suspect case with laboratory evidence from a screening or unvalidated test.
- Confirmed: a case that meets confirmatory testing criteria determined by a state or federal diagnostic laboratory.

DISEASE IN HUMANS

Reporting: Report immediately via telephone any human case or suspected case and/or a positive laboratory result to the LHD where the patient resides. If unknown, report immediately to the LHD within the jurisdiction of the health facility or ODH.

Human illness: the disease is characterized by fever, chills, headache, malaise, prostration, and leukocytosis that manifests in one or more of the following principal clinical forms:

- Regional lymphadenitis (bubonic plague)
- Septicemia without an evident bubo (septicemic plague)
- Plague pneumonia, resulting from hematogenous spread in bubonic or septicemic cases (secondary pneumonic plague) or inhalation of infectious droplets (primary pneumonic plague)
- Pharyngitis and cervical lymphadenitis resulting from exposure to larger infectious droplets or ingestion of infected tissues (pharyngeal plague)

Bubonic plague accounts for 90 percent – 95 percent of cases. Lymphadenopathy and fever with malaise, nausea, vomiting, and diarrhea characterize bubonic plague. Involvement of the lungs results in the very rare but highly contagious pneumonic form. Untreated bubonic plague has a case fatality rate of 50 percent – 60 percent; for untreated pneumonic plague, the rate is nearly 100 percent.

Personal protection: Vector, contact, and aerosol precautions should be employed when handling ill or exposed animals, or during necropsy.

FOR MORE INFORMATION

Disease in Animals

Ohio Animal Disease Diagnostic Laboratory
Iowa State University Center for Food Security and Public Health Animal Disease Factsheets

Disease in Humans

ODH Infectious Disease Control Manual
AVMA Public Health Disease Information
ABCs of bioterrorism for veterinarians, Category A agents, JAVMA pdf
CDC Plague