

Animal Surveillance Case Definition Plague (*Yersinia pestis*)

Clinical description

A communicable disease of animals and people caused by a Gram-negative bacteria, *Yersinia pestis*. The infection naturally circulates between wild rodents via infected fleas in states west of the Mississippi River. While virtually any mammal can be infected with *Y. pestis*, some species do not develop clinical signs of illness and are unlikely to pose a risk to humans. Other mammals are more susceptible to the disease (i.e., rodents, ground squirrels, cats, and prairie dogs) and can serve as sources for infection for humans who have contact with them. Infected cats usually develop fever, lethargy, anorexia, and lymphadenopathy (especially the submandibular and cervical lymph nodes). Secondary pneumonia may also develop. The mortality rate in infected cats is approximately 50%. Although dogs have never been demonstrated to be sources of infection for humans, they can become infected with *Y. pestis*. Infected dogs usually develop mild, self-limiting clinical signs, characterized by fever, lethargy and lymphadenopathy. The usual interval between exposure and onset of illness ranges from 1 to 4 days. The disease can be transmitted to domestic animals via the bite of a plague infected flea or the ingestion of plague-infected wild animals. Raptors may assist in the dissemination of plague through the mechanical transport of infected prey and their fleas.

Humans most frequently become infected via the bite of infected fleas. Domestic dogs and cats may carry plague-infected fleas into homes and infected cats may also serve as a source of infection through bites, scratches or respiratory droplets. Another source of human exposure is handling tissues of infected animals (e.g., skinning or performing a necropsy). There are less than 20 human cases of plague reported in the United States annually.

Yersinia pestis is a CDC bioterrorist Class A agent because of the potential for significant public health impact. Pathogens utilized as a bioterrorism agent may have atypical routes of transmission and clinical manifestations. Veterinary practitioners suspecting plague in domestic companion animals should immediately notify their local health department or the NJDHSS at 609-826-4872 during working hours and 609-392-2020 on nights, weekends and holidays.

Case classification

Confirmed

+/- compatible clinical signs **and**

- isolation of *Y. pestis* from a clinical specimen by culture, **or**
- identification of *Y. pestis* antigen by use of immunofluorescence (fluorescent antibody or IFA) in tissues **or**
- four fold or greater change in serologic antibody titer in 2 specimens obtained at least 2 weeks apart and assayed simultaneously at the same laboratory.

Probable

A clinically compatible case **and**

- an elevated serologic titer in one or more specimens obtained after the onset of signs, **or**
- detection of *Y. pestis* nucleic acids in a clinical specimen via amplification of a specific target by polymerase chain reaction (PCR) assay, **or**
- epidemiologically linked to a confirmed case.