

FACT SHEET ON PLAGUE

WHAT IS PLAGUE? Plague is a zoonotic disease of rats, mice, and ground squirrels caused by the Gram negative bacterium *Yersinia pestis*. Fleas can become infected by feeding on the rodents and can transmit the disease to humans. Humans would develop the bubonic form of plague, with a swollen, extremely tender lymph node or "bubo". The bubonic form may progress to the bloodstream (septicemic plague) or the lungs (pneumonic plague). An intentional aerosol dissemination of *Yersinia pestis* would produce an outbreak of primary pneumonic plague.

WHAT IS THE INCUBATION PERIOD? The time from exposure to aerosolized plague bacilli until development of the first symptoms is 1-6 days and most often, 2-4 days.

WHAT ARE THE SYMPTOMS OF PNEUMONIC PLAGUE? Acute onset of high fever, chills, headache and malaise, followed within 24 hours by chest pain and a cough with bloody sputum. Gastrointestinal symptoms, including nausea, vomiting, abdominal pain, and diarrhea might be present. Rarely, a cervical bubo might result from inhalational exposure. A chest x-ray would reveal bilateral infiltrates, which may be patchy or consolidated. The pneumonia progresses rapidly, resulting in dyspnea, stridor and cyanosis. Death results from respiratory failure and circulatory collapse.

HOW WOULD YOU DIAGNOSE PNEUMONIC PLAGUE? Suspect plague if large numbers of previously healthy individuals develop fulminant, Gram-negative pneumonia, especially if hemoptysis is present. Presumptive identification can be made by Gram, Wright, Giemsa, or Wayson stain of blood, sputum, CSF, or lymph node aspirates. Definitive diagnosis requires culture of the organism from those sites.

IS SOMEONE WITH PLAGUE ABLE TO GIVE IT TO ANOTHER PERSON? Bubonic and septicemic plague does not spread person to person. Pneumonic plague is transmitted by large respiratory droplets. You can breathe the tiny particles into your lungs if you have close contact with somebody with the disease.

DO YOU NEED TO ISOLATE A PATIENT WITH PLAGUE? Bubonic plague does not require isolation, but suspected cases of pneumonic plague require Droplet Precautions for at least 48 hours of antibiotic therapy, or until sputum cultures are negative in confirmed cases. Patients with pneumonic plague may be cohorted while receiving antibiotic therapy. Healthcare workers and visitors must wear a surgical mask when entering the patient's room. Patients being transported should also wear a surgical mask. Routine cleaning and disinfection of environmental surfaces and equipment should be followed. No special linen management is required. All microbiology specimens should be processed in the biological safety cabinet and special precautions will be necessary for surgeries and autopsies likely to generate aerosols.

WHAT MEDICAL TREATMENT WOULD BE GIVEN TO A PATIENT WITH PLAGUE? Early administration of antibiotics is critical, as pneumonic plague is inevitably fatal if therapy is not begun within 24 hours of the onset of symptoms. Streptomycin, Gentamicin, Doxycycline, or Ciprofloxacin should be given for 10-14 days. Chloramphenicol is the drug of choice for plague meningitis.

IF A PERSON IS EXPOSED TO PLAGUE, WHAT SHOULD THEY DO? Face to face contacts (within 2 meters) of persons with pneumonic plague should be given antibiotic prophylaxis for 7 days. The choice of antibiotic for prophylaxis is Doxycycline. Contacts who develop fever or cough during the 7 days following exposure should seek prompt medical attention and begin antibiotic treatment.