

## An Overview of Plague: Symptoms, Treatment and Outlook on Prevention

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### Introduction

Plague is caused by the bacteria *Yersinia pestis*. Rodents, such as rats, carry the disease. It is spread by their fleas. People can get plague when they are bitten by a flea that carries the plague bacteria from an infected rodent [1]. In rare cases, people get the disease when handling an infected animal. Plague lung infection is called pneumonic plague. It can be spread from person to person. When someone with pneumonic plague coughs, tiny droplets carrying the bacteria move through the air. Anyone who breathes in these particles may catch the disease. An epidemic can be started this way. In the Middle Ages in Europe, massive plague epidemics killed millions of people. Plague has not been eliminated. It can still be found in Africa, Asia, and South America. Today, plague is rare in the United States. The three most common forms of plague are: Bubonic plague, an infection of the lymph nodes, Pneumonic plague, an infection of the lungs and Septicemic plague, an infection of the blood. The time between being infected and developing symptoms is typically 2 to 8 days. But the time can be as short as 1 day for pneumonic plague. Risk factors for plague include a recent flea bite and exposure to rodents, especially rabbits, squirrels, or prairie dogs, or scratches or bites from infected domestic cats. Bubonic plague symptoms appear suddenly, usually 2 to 5 days after exposure to the bacteria [2]. Symptoms include: Fever and chills, General ill feeling, Headache, Muscle pain, Seizures. Smooth, painful lymph gland swelling called a bubo that is commonly found in the groin, but may occur in the armpits or neck, most often at the site of the infection (bite or scratch); pain may start before the swelling appears. Pneumonic plague symptoms appear suddenly, typically 1 to 4 days after exposure. They include: Severe cough, Difficulty breathing and pain in the chest when breathing deeply, Fever and chills, Headache, Frothy and bloody sputum.

### Discussion

Septicemic plague may cause death even before severe symptoms occur. Symptoms can include: Abdominal pain, Bleeding due to blood clotting problems, Diarrhoea, Fever, Nausea, vomiting. The health

care provider will perform a physical examination and ask about your symptoms [3]. Tests that may be done include: Blood culture, Culture of lymph node aspirate, Sputum culture and Chest X-ray. People with the plague need to be treated right away. If treatment is not received within 24 hours of when the first symptoms occur, the risk for death increases [4]. Antibiotics such as streptomycin, gentamicin, doxycycline, or ciprofloxacin are used to treat plague. Oxygen, intravenous fluids, and respiratory support are usually also needed. People with pneumonic plague must be kept away from caregivers and other patients. People who have had contact with anyone infected by pneumonic plague should be watched carefully and given antibiotics as a preventive measure [5]. Without treatment, about 50% of people with bubonic plague die. Almost everyone with septicemic or pneumonic plague dies if not treated right away.

### Conclusion

Treatment reduces the death rate to 50%. Rat control and watching for the disease in the wild rodent population are the main measures used to control the risk for epidemics. The plague vaccine is no longer used in the United States.

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