

## What is plague?

Plague is an infectious disease of animals and humans caused by the bacterium *Yersinia pestis*. *Y. pestis* is found in rodents and their fleas in many areas around the world.

There are three types of plague: bubonic plague, septicemic plague and pneumonic plague.

## Who is at risk for plague?

All ages may be at risk for plague. People usually get plague from being bitten by infected rodent fleas or by handling the tissue of infected animals.

## What are the symptoms of plague?

**Bubonic plague:** Sudden onset of fever, headache, chills, and weakness and one or more swollen and painful lymph nodes (called buboes) typically at the site where the bacteria entered the body. This form usually results from the bite of an infected flea.

**Septicemic plague:** Fever, chills, extreme weakness, abdominal pain, shock, and possibly bleeding into the skin and other organs. Skin and other tissues, especially on fingers, toes, and the nose, may turn black and die. This form usually results from the bites of infected fleas or from handling an infected animal.

**Pneumonic plague:** 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.

## How soon do symptoms appear?

Symptoms of bubonic plague usually occur two to eight days after exposure, while symptoms for pneumonic plague can occur one to six days following exposure.

## How is plague spread?

Bubonic plague usually is transmitted by the bites of infected rodent fleas or by direct contact with tissues and fluids of infected people, rodents or other mammals. Pneumonic plague can be spread by respiratory droplets, which increases the possibility of person-to-person spread.

## When and for how long is a person able to spread the disease?

Person-to-person spread of bubonic plague does not occur unless there is direct contact with pus or fluids from the buboes. Pneumonic plague, if left untreated, a person with pneumonic plague may spread plague to those who have direct or close contact. However, if left untreated, the pneumonia may progress for two to four days, leading to respiratory failure, shock and eventually death.

## How is a person diagnosed?

Diagnosis is made by taking samples from the patient, especially blood or part of a swollen lymph gland, and submitting them for laboratory testing.

## What is the treatment?

Plague responds well to early treatment with antibiotics. Contact your health-care provider if you think you have symptoms of plague. Treatment for plague should begin as soon as possible.

## Does past infection make a person immune?

Immunity will be short term and may not protect against future exposures to plague.

## Should children or others be excluded from child care, school, work or other activities if they have plague?

No for bubonic, yes for pneumonic. Adults and children with bubonic plague should cover their wound site as a general precaution. People with pneumonic plague, should be isolated to prevent airborne spread until 48 hours of appropriate therapy has been completed and there has been a favorable clinical response.

People who have had close contact with someone who had pneumonic plague should be seen by a physician to determine the need for antibiotics and should be on symptom watch for fever and cough.

## What can be done to prevent the spread of Plague?

Additional precaution measures include:

- Do not pick up or touch dead animals.
- If plague has recently been found in your area, report any observations of sick or dead animals to the state/local health department, Game and Fish Department or law enforcement officials.
- Eliminate sources of food and nesting places for rodents around homes, work places, and recreation areas; and remove brush, rock piles, junk, cluttered firewood, and potential food supplies, such as pet and wild animal food. Make your home rodent-proof.
- Apply insect repellents to clothing and skin according to label instructions to prevent flea bites.
- Treat your dogs and cats for fleas regularly and do not allow these animals to roam freely.

## Additional Information:

Additional information is available by calling the North Dakota Department of Health at 800.472.2180.

**This disease is a reportable condition. As mandated by North Dakota law, any incidence of this disease shall be reported to the North Dakota Department of Health.**

Resources:

1. *Red Book: 2015 Report of the Committee on Infectious Diseases*. 30<sup>th</sup> ed. [Children in Out-Of-Home Care]. Kimberlin, DW; Brady, MT; Jackson, MA; Long, SS. American Academy of Pediatrics. 2015: 132-151.
2. *Red Book: 2015 Report of the Committee on Infectious Diseases*. 30<sup>th</sup> ed. [Plague]. Kimberlin, DW; Brady, MT; Jackson, MA; Long, SS. American Academy of Pediatrics. 2015: 624-626.
3. Heymann, D. L. (2015). *Control of Communicable Diseases Manual, 20<sup>th</sup> Edition*. Plague. American Public Health Association. 2015: 456-465.
4. Centers for Disease Control and Prevention. (2013). Plague. [www.cdc.gov/plague/](http://www.cdc.gov/plague/).