

# Fact Sheet

## Plague



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### What is Plague?



Plague is a disease that affects humans and other mammals. It is caused by the bacterium, *Yersinia pestis*. Humans usually get plague after being bitten by a rodent flea that is carrying the plague bacterium or by handling an animal infected with plague.

Plague is infamous for killing millions of people in Europe during the Middle Ages. Today, modern antibiotics are effective in treating plague. Without prompt treatment, the disease can cause serious illness or death. Presently, human plague infections continue to occur in the western United States, but significantly more cases occur in parts of Africa and Asia.

### How is it Spread?

The plague bacteria, *Yersinia pestis*, is transmitted to humans when they are bitten by fleas that have previously fed on infected animals, such as:

- Rats
- Squirrels
- Rabbits
- Prairie dogs
- Chipmunks

The bacteria can also enter your body if you have a break in your skin that comes into contact with an infected animal's blood. Domestic cats can become infected with plague from flea bites or from eating infected rodents.

Pneumonic plague, which affects the lungs, is spread by inhaling infectious droplets coughed into the air by a sick animal or person.

### Signs and Symptoms

Plague is divided into three main types: bubonic, septicemic, and pneumonic, depending on which part of your body is involved. Signs and symptoms vary depending on the type of plague.

**Bubonic plague:** Patients develop sudden onset of fever, headache, chills, and weakness and one or more swollen, tender and painful lymph nodes (called buboes). This form usually results from the bite of an infected flea. The bacteria multiply in the lymph node closest to where the bacteria entered the human body. If the patient is not treated with the appropriate antibiotics, the bacteria can spread to other parts of the body.

**Septicemic plague:** Patients develop fever, chills, extreme weakness, abdominal pain, shock, and possibly bleeding into the skin and other organs. Skin and other tissues may turn black and die, especially on fingers, toes, and the nose. Septicemic plague can occur as the first symptom of plague, or may develop from untreated bubonic plague. This form results from bites of infected fleas or from handling an infected animal.

**Pneumonic plague:** Patients develop 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. The pneumonia may cause respiratory failure and shock. Pneumonic plague

is the most serious form of the disease and is the only form of plague that can be spread from person to person (by infectious droplets).

## Diagnosis

If your doctor suspects plague, he or she may look for the *Yersinia pestis* bacteria in samples taken from your:

- **Buboes.** If you have the swollen lymph nodes (buboes) characteristic of bubonic plague, a fluid sample can be taken from them with a needle.
- **Blood.** *Yersinia pestis* bacteria generally are present in your bloodstream only if you have septicemic plague.
- **Lungs.** To check for pneumonic plague, your doctor will take sputum or fluid from your airways using endoscopy, a thin, flexible tube inserted through your nose or mouth and down your throat.

## Treatment

Plague is a very serious illness, but is treatable with commonly available antibiotics. The earlier a patient seeks medical care and receives treatment that is appropriate for plague, the better their chances are of a full recovery.

People in close contact with very sick pneumonic plague patients may be evaluated and possibly placed under observation. Preventive antibiotic therapy may also be given, depending on the type and timing of personal contact.

## Complications

Complications of plague may include:

- **Death.** Most people who receive prompt antibiotic treatment survive bubonic plague. Untreated plague has a high fatality rate.
- **Gangrene.** Blood clots in the tiny blood vessels of your fingers and toes can disrupt the flow of blood and cause that tissue to die. The portions of your fingers and toes that have died may need to be amputated.
- **Meningitis.** Rarely, plague may cause an inflammation of the membranes surrounding your brain and spinal cord (meningitis).

## Prevention

Although no effective vaccine is available, scientists are working to develop one. Antibiotics can help prevent infection if you're at risk of or have been exposed to plague. Take the following precautions if you live or spend time in regions where plague outbreaks occur:

- **Rodent-proof your home.** Remove potential nesting areas, such as piles of brush, rock, firewood and junk. Don't leave pet food in areas that rodents can easily access.
- **Keep your pets free of fleas.** Ask your veterinarian which flea-control products will work best.
- **Use insect repellent.** Closely supervise your children and pets when spending time outside in areas with large rodent populations. Use insect repellent.



***For more sources of information on this topic visit:***

ST. CLAIR COUNTY HEALTH DEPARTMENT [www.scchealth.co](http://www.scchealth.co)

MICHIGAN DEPARTMENT OF COMMUNITY HEALTH [www.michigan.gov/mdch](http://www.michigan.gov/mdch)

CENTERS FOR DISEASE CONTROL AND PREVENTION [www.cdc.gov](http://www.cdc.gov)

THE MAYO CLINIC [www.mayoclinic.org](http://www.mayoclinic.org)