

# PLAGUE Fact Sheet



## The Disease

Plague is a disease caused by *Yersinia pestis* (*Y. pestis*), a bacterium found in rodents and their fleas in many areas around the world. Bacteria are germs that can make you sick. Outbreaks in people occur in areas where housing and sanitation conditions are poor. These outbreaks can occur in rural communities or in cities. They are usually associated with infected rats and rat fleas that live in the home. Human plague in the United States has occurred as mostly scattered cases in rural areas (an average of 10 to 20 people each year).

Globally, the World Health Organization reports 1,000 to 3,000 cases of plague every year. About 14% (1 in 7) of all plague cases in the United States are fatal. Most cases in the U.S. receive some antibiotic treatment during their course of illness and deaths typically result from delays in seeking treatment or misdiagnosis. Reportedly, about 50-60% of bubonic plague patients who do not receive any antibiotic treatment die. Untreated septicemic or pneumonic plague is almost always fatal.

### ***Why We Are Concerned About Plague As A Biological Weapon:***

*Y. pestis used in an aerosol attack could cause cases of the pneumonic form of plague. One to six days after becoming infected with the bacteria, people would develop pneumonic plague. Once people have the disease, the bacteria can spread to others who have close contact with them. Because of the delay between being exposed to the bacteria and becoming sick, people could travel over a large area before becoming contagious and possibly infecting others. Controlling the disease would then be more difficult. A bioweapon carrying *Y. pestis* is possible because the bacterium occurs in nature and could be isolated and grown in quantity in a laboratory. Even so, manufacturing an effective weapon using *Y. pestis* would require advanced knowledge and technology.*

## Pneumonic Plague vs. Bubonic Plague

Both forms of plague are caused by *Yersinia pestis*, but they are transmitted differently and their symptoms differ. Pneumonic plague can be transmitted from person to person; bubonic plague cannot. Pneumonic plague affects the lungs and is transmitted when a person breathes in *Y. pestis* particles in the air. Bubonic plague is transmitted through the bite of an infected flea or exposure to infected material through a break in the skin. Symptoms include swollen, tender lymph glands called buboes. Buboes are not present in pneumonic plague. If bubonic plague is not treated, however, the bacteria can spread through the bloodstream and infect the lungs, causing a secondary case of pneumonic plague.

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## Transmission

People become infected with bubonic plague when they are bitten by infected fleas. Fleas become infected by feeding on rodents, such as the chipmunks, prairie dogs, ground squirrels, mice, and other mammals that are infected with the bacteria *Yersinia pestis*.

Pneumonic plague can be spread when a person who has plague pneumonia coughs and droplets containing the plague bacteria are released into air that is breathed by somebody who is not infected.

## Symptoms

The typical sign of the most common form of human plague is a swollen and very tender lymph gland, accompanied by pain. The swollen gland is called a "bubo" (hence the term "bubonic plague"). Bubonic plague should be suspected when a person develops a swollen gland, fever, chills, headache, and extreme exhaustion, and has a history of possible exposure to infected rodents, rabbits, or fleas. A person usually becomes ill with bubonic plague 2 to 6 days after being infected. When bubonic plague is left untreated, plague bacteria invade the bloodstream. When plague bacteria multiply in the bloodstream, they spread rapidly throughout the body and cause a severe and often fatal condition.

Infection of the lungs with the plague bacterium causes the pneumonic form of plague, a severe respiratory illness. The infected person may experience high fever, chills, cough, and breathing difficulty, and expel bloody sputum. If plague patients are not given specific antibiotic therapy, the disease can progress rapidly to death.

## Treatment

To prevent a high risk of death, antibiotics should be given within 24 hours of the first symptoms. Several types of antibiotics are effective for curing the disease and for preventing it. Early in the response to a bioterrorism attack, these drugs would be tested to determine which is most effective against the particular weapon that was used.

## Prevention

People who have had close contact with an infected person can greatly reduce the chance of becoming sick if they begin treatment within 7 days of their exposure. Treatment consists of taking antibiotics for at least 7 days.