

## What is plague?

Plague is an infectious disease caused by the bacteria *Yersinia pestis*. It is the cause of the infamous Black Death of medieval Europe, which is believed to have killed approximately one-third of the world's population in the 14th century. In the United States, plague occurs mostly in the western United States from the Great Plains to the Pacific Coast. Most reported cases occur in New Mexico, Arizona, and Colorado. Plague is a rare disease in Oklahoma; only one case of human plague has ever been reported. This case occurred in 1991 and was associated with exposure to prairie dogs in the Oklahoma panhandle.

## How is plague spread?

In nature, plague is a disease of wild rodents, but can also infect humans and other mammals. Plague is transmitted by fleabites. Fleas become carriers of the bacteria by feeding on chipmunks, prairie dogs, ground squirrels, and other rodents that are infected with the bacteria. Less often, other mammals may become accidentally infected with plague, but they play no significant role in the disease cycle. Rarely, humans are bitten by plague-carrying fleas from rodents and become infected. In addition, humans may become infected after handling tissue or body fluids of sick or dead animals infected with plague, for example, while hunting. The species of fleas that infest dogs and cats do not transmit plague; however, rodent fleas may attach themselves to domestic pets that are allowed to enter the habitat of wild rodents. When brought into the home, these fleas may then bite humans and cause disease.

## Could the Black Death happen again?

Most experts who have studied the circumstances leading to large epidemics of plague in humans believe that plague epidemics are unlikely to occur in countries with modern sanitation and housing. The urban rats that contributed to epidemics in medieval cities are not thought to live in high enough concentrations in American cities to lead to a modern outbreak. In the United States, plague is a disease of certain wild rodents found in the western part of the country. In Oklahoma, only the panhandle is west of the 100th meridian of longitude, which is a remarkably precise boundary of the rodents involved in the natural plague cycle. Accordingly, in Oklahoma plague is only found in prairie dogs in certain parts of the panhandle. The rat and mouse species found around human dwellings and within towns and cities in the United States are not part of the natural plague cycle, and there have been no cases of human plague acquired in an urban environment in the United States since the 1920's.

## Could you get plague from another person?

A rare form of the disease, pneumonic plague, is spread from person-to-person. (Please see the related fact sheet entitled *Pneumonic Plague*.) The typical form of plague, bubonic plague, is not spread from person-to-person.

## What are the symptoms of plague?

The typical sign of plague is a painful and swollen lymph node, called a bubo. From this comes the term "bubonic plague". Other symptoms include fever, chills, tiredness, muscle aches, nausea, sore throat, and headache. Symptoms appear between one and seven days after being infected, but a person usually becomes ill with plague within two to six days. In some cases, the bacteria can spread to the lungs causing pneumonic plague, a severe respiratory illness. Another rare form of plague is called plague septicemia, in which plague bacteria enter the bloodstream and cause widespread infection in the body.

## Is there a treatment for plague?

Treatment with antibiotics is very effective, especially if started in the early stages of the disease. If left untreated, the bubonic form of the disease has a fatality rate of about 40%.

## **Is there a vaccine against plague?**

No commercial vaccine currently exists in the United States.

## **What can be done to prevent plague?**

The risk of becoming infected with plague in Oklahoma is very low. However, if you live in or visit the Panhandle, or participate in outdoor activities in the western United States (roughly west of the east-west Texas-Oklahoma border) the following tips will reduce your chances of becoming infected:

1. Reduce the risk of fleabites by regularly treating pets (cats and dogs) with recommended flea control products.
2. Avoid direct skin contact with sick or dead animals, especially rodents. Exercise caution to avoid cutting yourself when skinning wild animals.
3. Prairie dogs will die when infected with plague, and their hungry fleas will bite passing people and animals. Therefore, it is advisable for people and pets to avoid prairie dog towns, especially if there appears to be a die-off.
4. Do not allow domestic pets to range into rural or wild areas where they may pick up fleas from rodents or rodent burrows.
5. Use of insect repellants containing DEET will prevent fleabites along with many other diseases spread by insects and ticks.

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Oklahoma State Department of Health  
Phone (405) 271-4060  
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