

FACTS

PLAGUE

What is it?

Plague is an infectious disease of animals and of humans caused by the bacterium *Yersinia pestis*. People usually get the plague from being bitten by a rodent flea that is carrying the plague bacterium or by handling an infected animal. Fleas become infected when they feed on infected rodents, such as rats, mice and rabbits. The fleas transmit the plague to human and other mammals during the feeding process. The plague bacteria are maintained in the blood systems of rodents. There is only one cause of the plague but there are three different types of illness that the infection can cause: bubonic, pneumonic and septicemic plague.

There have been many plague outbreaks in human history, which have killed more than 200 million people around the world. The most widely known plague pandemic occurred in the 14th century and was known as the "Black Death". Flea-infested rats inhabited human homes and places of work. The World Health Organization reports 1000 to 3000 cases of plague every year; however, outbreaks of human illness are rare. Outbreaks in people usually occur in areas where housing and sanitation conditions are poor and are associated with infected rats and rat fleas that live in the home. Plague continues to exist in wild rodent populations over large rural areas of the Americas, Africa and Asia with occasional outbreaks occurring in villages and small towns. Plague is one of very few diseases that can create widespread panic following the discovery of even a small number of cases. This was apparent in Surat, India in 1994 when an estimated 500,000 people fled the city in fear of a plague epidemic. Advances in living conditions, public health and antibiotic therapy make naturally occurring outbreaks rare, but plague outbreaks following an attack with a biological weapon do pose a threat.

What are the symptoms?

In all forms of plague, a person usually becomes ill within 1-10 days after being infected.

- **Bubonic plague** is the most common form of the disease. The infection appears in the lymph nodes, causing them to swell and become painful. 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. If left untreated, the plague bacteria invade the bloodstream.

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- **Pneumonic plague** is the most deadly form of plague but also the least common. Infection of the lungs with the plague bacterium causes the respiratory form of the disease. The infected person may experience high fever, chills, cough, and breathing difficulty. The disease is spread through airborne droplets released through a cough or sneeze or through contact with infected body fluids. It can also be spread through contact with clothing or bed linens that have been contaminated with infected body fluids, such as blood and sputum.
- **Septicemic plague** can occur with either bubonic or pneumonic plague. The bacteria invade the bloodstream and spread rapidly throughout the body. Left untreated it can cause septic shock and death.

How is it diagnosed, treated and prevented?

A patient diagnosed with suspected plague should be hospitalized and medically isolated. Diagnosis is confirmed through the isolation of *Y. pestis* in blood cultures and microscopic examination of lymph glands, blood and sputum samples. Plague can be treated effectively with antibiotics. There is a vaccine to protect people who are at high risk of exposure to the disease, such as military personnel or animal handlers in plague endemic areas. The vaccine requires multiple doses and frequent booster shots. It is currently not available for general public use.

People who travel to plague-infected areas should use insect repellents on skin and clothing. Travellers should be advised to avoid sick or dead animals and rodent nests and burrows. Whenever possible, travellers should avoid visiting areas that have experienced recent plague epidemics. Travellers are unlikely to be at risk for plague in endemic areas if they stay in modern accommodations.

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