

Fact Sheet

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Plague

What causes plague?

- Plague is an infection by *Yersinia Pestis*.
- Plague, a bacterial disease infamous for killing millions of people in Europe during the Middle Ages, is now treatable with modern antibiotics. However, the disease can cause serious illness or death without prompt treatment.

What are the types of plague, risks and symptoms?

- We have different descriptions based on the signs of illness someone shows and the way it was spread. Signs of bubonic plague usually take 2 to 6 days to show up. Pneumonic plague causes illness in 1 to 3 days.
- Plague can be fatal. It used to be that about 66% of people infected with plague would die. Now that we have antibiotics, that rate has decreased to 11%. This underscores the need for people to receive prompt health care and the correct treatment.
- The most common forms are bubonic, pneumonic and septicemic.
- **Bubonic Plague**
 - When plague is described as bubonic it means the infected person has glands that are tender and painful (called buboes). These glands are often found in the groin, armpit and neck.
 - These patients will also have fever headache, chills and weakness.
 - This form usually comes from the bite of an infected flea.
- **Septicemic plague**
 - Septicemic plague includes the fever, chills and extreme weakness found in bubonic plague. The symptoms unique to this form of plague include pain in the abdomen, shock and possibly bleeding into the skin and other organs.
 - Skin and tissues may turn black and die- especially on the fingers, toes and nose. This is why you may have heard plague referred to insensitively as the Black Death.
 - This form usually comes from the bite of an infected flea or from handling an infected animal.

- **Pneumonic Plague**
 - Patients with pneumonic plague have pneumonia caused by *Yersinia Pestis* that develops very suddenly along with a shortness of breath, chest pain, cough and sometimes bloody or watery mucous. They may also have fever, headache, and weakness. The breathing system may have failure or shock. This is the most serious form of the disease and the only form that can be spread from person to person.
 - It is important to note that not all forms of pneumonia are caused by *Yersinia Pestis*. You can have pneumonia without having plague.
- Plague is a serious illness and if you experience symptoms like those listed here, seek immediate medical care. Prompt treatment with the right medications are critical to prevent complications and death.

How is plague diagnosed?

- Bacteria can be identified through a microscope.
- Most people infected with plague have a swollen gland in the groin, armpit or neck. Health care providers may test it for plague bacteria.
- Health care providers may also test blood or fluid from the lungs. Blood tests may be done twice, once as early as possible followed by another 4-6 weeks after the first.
- In cases where someone was not treated and died, plague may be found through tests of the glands, spleen, lung, liver tissue or bone marrow.

How is plague treated?

- Plague can be treated with commonly available antibiotics.
- Early diagnosis and treatment are critical to prevent complications and death.
- Public health professionals and doctors may evaluate the risk to people who have been in close contact with very sick pneumonic plague patients.
- These “contacts” may be placed under observation.
- If someone is believed to have been exposed after health providers evaluate a contact, they may provide a preventive antibiotic. These are commonly called “post- exposure prophylaxis” or PEP.

How can plague be prevented?

- **Reduce rodent habitat** around your home, work place and recreational spaces. Remove brush, rock piles, debris and possible rodent food supplies like pet or wild animal food. Rodent proof your home and outbuildings.
- **Protect your skin.**
 - Wear gloves if you are handling or skinning animals that may be infected with plague to prevent contact between your skin and plague bacteria.
 - Use an insect repellent when you think you could be exposed to rodent fleas. Activities that may expose you to these fleas include camping, hiking or working outdoors. Use repellents that contain DEET on the skin and on your clothing. Repellents that contain permethrin can be applied to clothing. Follow instructions carefully on both.
- **Dispose of animals properly.** Contact your local public health department if you have questions about disposing of dead animals.
- **Cover your cough and wash your hands. This an everyday step you can take to protect yourself from many illnesses, not just pneumonic plague.** It is especially important though if you are diagnosed with pneumonic plague.
- **Plague vaccine is not available.** Vaccines are being developed, but not expected to be available soon.

Can plague occur in pets?

- Plague can affect animals, including household pets.
- Cats are more vulnerable to plague.
 - Cats most often have swollen glands just below the jaw. These can look like an abscess like what a cat might have for injuries- bite wounds.
 - Cats with pneumonic plague can pose a significant risk to owners, veterinarians and others who come in close contact with these animals.
- Dogs infected with plague are less likely to develop illness than cats.
- The transfer of plague bacteria from pets to pet owners can also happen through bites scratches and contact with an infected animal's body fluids.
- Veterinarians can test for plague.
- Infected pets can be treated with antibiotics.

What would you advise to pet owners?

- Take any ill animal, especially cats, to your veterinarian.
- Treat animals for fleas. Avoid allowing animals to roam freely.
- Eliminate places where rodents might nest or find food around homes, workplaces and recreational areas. This includes removing brush, rock piles, junk and debris, cluttered firewood, and possible food supplies, such as pet and wild animal food.
- Rodent proof your home.
- Avoid touching or picking up dead animals.
- If your animal is ill, cooperate with your veterinarian and public health officials. They will want to help identify anyone else who has been exposed to your pet. Some of these individuals may need preventive antibiotics to prevent infection.
- A pet owner's risk of infection depends on the type of contact with the animal. Casual contact is a lower risk than close contact with infected body fluids or tissue.
- Consult with your health care provider and watch your health closely for 2 weeks after the last possible contact with the infected animal.
- If your health care provider and public health officials recommend post-exposure antibiotics to you, follow all instructions.

How can veterinary staff avoid plague?

- Veterinary staff should avoid contact with animal body fluids, respiratory droplets, tissues or fleas.
- Material used to examine plague-suspect cats should be disinfected, autoclaved or incinerated.
- Veterinary staff should use appropriate personal protective equipment before beginning a necropsy on a plague-suspect animal. This should include gloves, an N95 respirator or equivalent and protective eye equipment.
- Staff believed to have been exposed to infectious material should watch their health closely for 2 weeks after the possible exposure. Discuss post-exposure prophylaxis or fever watch with a health care provider and local public health officials.

How common is plague, what is the seasonality of plague, where is plague?

- We have plague bacteria that in the United States, primarily in the western US: northern New Mexico, northern Arizona, southern Colorado, California, southern Oregon, and far western Nevada.
- Most cases happen in late spring to early fall. Cases can occur any time of the year though.
- Between 1900 and 2012 only 1,006 confirmed or likely cases of human plague were reported.
- Globally, between 1,000-2,000 cases per year are reported to the World Health Organization.
- Over 80% of cases in the US have been the bubonic form.

- In the US there are about 7 cases of plague in humans each year, with a range of 1-17 cases.
- Plague can occur in any age group. 50% of cases are in people ages 12-45.
- Though bioterrorism and biowarfare events in the US are rare, we do plan for plague as a possible agent for bioterrorism. The way in which plague spreads and the potentially high mortality rate without treatment are factors in designating it as a bioterrorism concern.
- **Additional plague resources:**
 - **OHA:**
<https://www.oregon.gov/oha/PH/DISEASESCONDITIONS/DISEASESAZ/Pages/plague.aspx>
 - **CDC:** <https://www.cdc.gov/plague/index.html>
 - **CDC:** <https://www.cdc.gov/plague/resources/index.html>

