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PLAGUE (BUBONIC / PNEUMONIC)

What Is It?

Plague is a bacterial infection caused by *Yersinia pestis*, a bacteria carried in rodents, such as rats and mice, and their fleas. Plague is rare in the United States but has been found in California, Arizona, Colorado and New Mexico.

There are three manifestations of plague:

- Bubonic plague -- an infection of the lymph nodes
- Pneumonic plague -- an infection of the lungs
- Septicemic plague -- an infection of the blood

How can you get it?

Rodents carry the disease but their fleas spread plague between rodents. People acquire the bacteria when bitten by an infected flea or by handling an animal that has the bacteria. Pneumonic plague can be transmitted from human to human via respiratory droplets.

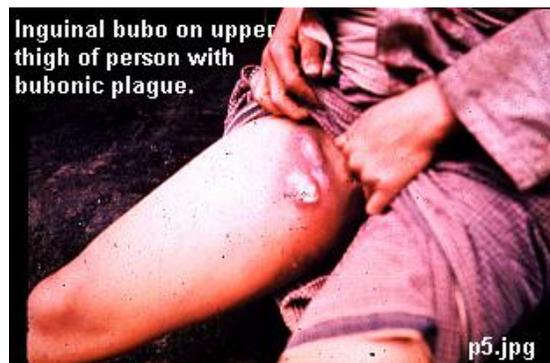
Risk factors include:

- Exposure to rodents in areas where plague is present
- Recent flea bite

What are the symptoms?

The signs and symptoms of plague vary depending on which form of plague occurs:

- Bubonic plague
 - Fever
 - General ill feeling
 - Muscle pain / aching
 - Lymph node swelling (called a bubo and typical of plague)
 - Typically found near the site of the flea bite
- Pneumonic plague
 - Fever
 - Difficulty breathing



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- Cough (can be quite severe)
- Bloody mucus
- Septicemic plague
 - Fever
 - Abdominal pain
 - Bleeding into organs

Complications: Bubonic plague, if untreated, may spread to the blood causing septicemic plague or the lungs causing pneumonic plague. Both may result in death. Recovery from plague is significantly improved with the initiation of antibiotics in the first 24 hours of infection. Without treatment, 50% of people with bubonic plague die and almost all with pneumonic plague die. Treatment reduces the death rate to 50%.

How do you prevent it?

- A vaccine for plague is not available in the US
- Environmental control
 - Eliminating food and shelter for rodents in and around homes and work places
 - Approved and appropriate insecticides to kill fleas during wild animal plague outbreaks
 - Appropriately treat pets (dogs and cats) for fleas
- Using Droplet and Universal Precautions
 - Assume patients with respiratory symptoms are contagious and provide masks for symptomatic patients
 - Limit the number of crew members having direct patient contact
 - Hand hygiene (wash with soap and water or using an alcohol based hand rub)
 - Personal protective equipment (PPE) (gloves, gowns, goggles, and respiratory protection). **IAFF recommends P100 respirators** for all patients with respiratory symptoms such as cough
 - Proper handling and disposal of contaminated instruments/devices and clothing
 - Preventing contamination and performing decontamination of surfaces
- Emergency Responders response to a bio-attack incident
<http://www.osha.gov/SLTC/plague/index.html#emergency>
 - *What personal protective equipment*
 - Recommendations for personal protective equipment are based on the anticipated level of exposure risk associated with different response situations

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- Half-mask or full face air-purifying respirators with particulate filter efficiencies ranging from N95 (for tuberculosis) to P100 (for hazards such as hantavirus) as a minimum level of protection
- Emergency first responders typically use self-contained breathing apparatus (SCBA) respirators...which provides the highest level of protection against airborne hazards when properly fitted and used. SCBA respirators are used when hazards and airborne concentrations are either unknown or expected to be high.
- How should workers decontaminate themselves
 - Decontamination of protective equipment and clothing is essential to remove any particles before taking off the gear. Equipment can be decontaminated using soap and water, and 0.5% hypochlorite solution (one part household bleach to 9 parts water) can be used as appropriate or if gear had any visible contamination.
 - Note that bleach may damage some types of firefighter turnout gear (one reason why it should not be used for biological agent response actions).
 - After taking off gear, response workers should shower using copious quantities of soap and water

What should you do if you believe you have been exposed?

- Notify your infection control officer
- See a health care provider
- Post-exposure prophylaxis with antibiotics for health care workers with close contact to pneumonic plague patients should be considered. Typical antibiotics include, tetracyclines, chloramphenicol, or one of the effective sulfonamides.

For More Information and Frequently Asked Questions (FAQs), Check Out:

- Occupational Health & Safety Administration (OSHA): <http://www.osha.gov/SLTC/plague/index.html>
- Centers for Disease Control and Prevention (CDC): <http://www.cdc.gov/plague/>
- National Institute of Allergy and Infectious Diseases (NIAID): <http://www.niaid.nih.gov/topics/plague/Pages/default.aspx>
- Public Health Agency of Canada (PHAC): <http://www.phac-aspc.gc.ca/ep-mu/plague-eng.php>