

## Zoonotic Disease

### Plague



Zoonotic: diseases that can be transmitted between people and animals.

A common concern about living near wildlife is the possibility of contracting some sort of disease or illness from the nearby animals. Wild animals in particular often have the image of being “dirty” or sick. In actuality, there are very few diseases that affect both animals and people. Diseases tend to be very species specific. For example if your dog gets a “cold” you can’t catch it from him, only other dogs could.

That being said, there are several diseases that are “zoonotic”, that can pass between humans and animals, and several of these can have very serious and even fatal health consequences. Additionally, there are some diseases that can pass from wild animals to our pets. It’s important to understand the reality of disease transmission so we can keep ourselves and our pets safe, as well as understand how to react if exposed to one of these zoonotic bugs. Following is an overview of one of the local zoonotic diseases, and myths debunked about some of peoples fears.

### Plague

Plague is an infectious disease that can affect a variety of mammals, including people. It is a bacterial infection most often transmitted by bites from infected fleas. Fleas become infected by feeding on animals with the *Yersinia pestis* bacteria in their bloodstreams. Typically the infected animals are different wild rodent species. It can also be transmitted through contact with an infected animal’s blood or fluids. It causes an infection that travels through the lymphatic system, and is fatal to about 50% of people infected who do not seek treatment. So if ten people get the plague, and none get antibiotics, five of the people will probably not survive.

Symptoms: Swollen lymph glands, called buboes, located in the armpits, groin or neck. If untreated it can affect the lungs (pneumonic plague) or blood (septicemic plague). Other symptoms include red spots on the skin that turn black, fever, coughing, vomiting blood, aching limbs, coughing and pain from decomposing skin. There is a 2 to 6 day incubation period after a person has been infected.

Treatment: A person suspected of having plague is typically isolated and hospitalized. Antibiotic treatment with streptomycin or other common antibiotics is started. Patients usually recover fully with timely antibiotic treatment.

Plague in the United States: Most cases in humans occur in two regions: 1) northern New Mexico, northern Arizona, and southern Colorado, and 2) California, southern Oregon, and far western Nevada. There have been approximately 10-15 cases in people a year. There has been a lot of research trying to discover what animal species can carry and transmit plague, since many species associated with it die too quickly for pass the disease on. It has been found in 76 species of mammals. Rock squirrels, wood rats, house rats, California ground squirrels, rabbits and grasshopper mice are all current suspects. Endangered black footed ferrets, prairie dogs and cat species (mountain lions, bobcats, lynx and house cats) are very susceptible to the disease, while canid species (wolves, coyotes, foxes and dogs) are much less affected by plague, but may bring

infected fleas into the home. Strict control of rat populations in urban, suburban and rural areas has helped reduce plague cases in people.

It is illegal to feed or attract rats in the city and county of Denver

Plague in Colorado: In 2007 there was a plague outbreak in squirrels and rabbits in the City Park area of Denver. One Denver Zoo capuchin monkey died after eating an infected squirrel. There have been no human cases in Denver. In 2006 there were 3 cases of plague in people in Colorado, all survived. From 1957 through 2005 there were a total of 55 human cases, with 10 fatalities, due to no or delayed treatment. Exposure in most cases came from infected flea bites either at home or camping or from exposure to blood and fluids when skinning infected rabbits.

Plague and fleas: Fleas tend to be fairly species specific, and the common human flea, and cat flea (found on cats and dogs) are not carriers of the plague bacterium, *Yersinia pestis*. In Colorado the rock squirrel flea is the most common carrier. But even with species preferences, a hungry flea may bite any animal so avoiding wild rodents and rabbits, alive and dead, can help eliminate possible exposure. Always keep pets away from wild animals that may transmit fleas.

Plague and prairie dogs: While “prairie dogs have plague!” is commonly heard, prairie dogs are in actuality rarely associated with plague in pets or people. Prairie dog fleas tend to not bite humans and they have no natural immunity to plague. An entire colony can be wiped out in 3 or 4 days once plague has been introduced. The disappearance of a colony is often used as an indicator of plague in a region and wildlife managers and vector control specialists closely monitor local colonies. In Denver, the small and fragmented urban colonies seem to be safer from plague than large, rural colonies. There has not been plague in Denver’s prairie dog colonies in almost 20 years.

How to avoid plague and reduce risk of exposure:

- Use insect repellent. Follow the directions on the container carefully.
- Protect your pets with a safe flea control product or leave your pets at home.
- Avoid all contact with chipmunks, prairie dogs, squirrels, mice, rats, or other wild animals. **Do not feed or lure them close to you!**
- Do not camp, rest, or sleep near animal burrows. **Avoid animal fleas.**
- Wear gloves if you are hunting and must handle wildlife.
- Do **not** touch sick or dead animals.
- If you see a large number of dead or dying animals, call the Colorado Department of Health.
- Seek medical treatment if you get sick within a week of visiting an area with plague. If you have plague, a doctor can treat you for the disease.

## Resources

Center for Disease Control and Prevention (CDC), <http://www.cdc.gov/ncidod/dvbid/plague/index.htm>

Wikipedia, [http://en.wikipedia.org/wiki/Bubonic\\_plague](http://en.wikipedia.org/wiki/Bubonic_plague)

Department of Health Promotion and Education, <http://www.dhpe.org/infect/plague.html>

Colorado Department of Public Health and Environment, <http://www.cdphe.state.co.us/dc/zoonosis/plague/index.html>

Denver’s Animal Care and Control, 311