

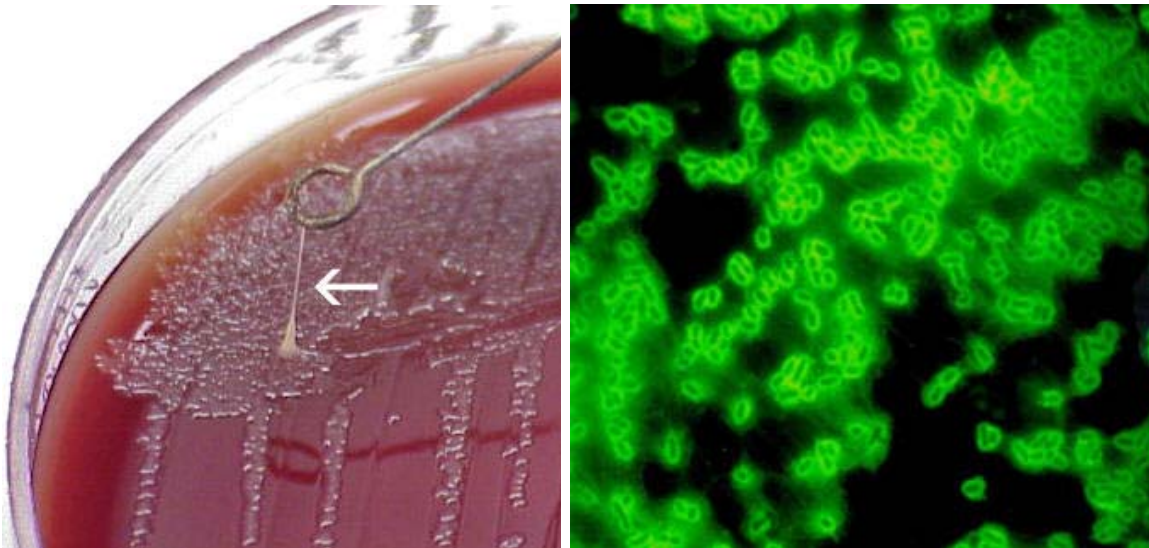


A DISEASE CATS SHOULD AVOID LIKE THE PLAGUE

Plague in cats occurs when they are infected with the bacterium *Yersinia pestis* following contact with fleas or infected rodents. Although the susceptibility of cats to plague was recognized as early as **1905**, it was not until large numbers of infected cats were diagnosed in endemic plague areas of **New Mexico** that their potential to infect people was recognized. Plague is present in Wyoming in ground squirrels and prairie dogs, and causes subclinical infection in other species such as coyotes. In June-July 2005 the Wyoming State Veterinary Laboratory had four laboratory confirmed cases of plague in **Wyoming cats**. Two cats died with **pulmonary lesions**. The other two presented with a submandibular abscess, were treated successfully, and survived. Exposed owners and other in-contact individuals either go on prophylactic antibiotics to preempt the development of disease, or go on a fever watch.

A rise in plague activity was noticed in **Colorado** in 2004, where 22 cats and prairie dogs were diagnosed with the disease. There were 3 human cases in Colorado, one of them fatal. One of the Colorado cases was probably acquired in Goshen county, since the man was hunting rabbits shortly before he became ill and one of the 12 rabbits he'd shot tested positive for plague.

The mortality rates for plague cats are estimated to be 33%. An average of 11.4 cases of human plague are reported each year in the United States. About **one human case per year in the US** is due to contact with cats; some of these human cases have ended fatally. Plague outbreaks tend to occur periodically in rodent populations, generally in 5-year cycles. In the past year we have seen plague in a black-footed ferret and in a blind mule deer with disseminated infection, in addition to a regular procession of prairie dogs with the disease.



Yersinia pestis bacterial colonies on a culture plate following isolation from a cat with plague. Colonies are characteristically sticky (arrow)

The identity of the organism is established by fluorescent antibody detection, which decorates the short rods with green fluorescence

Clinical signs in cats:

- Most cats (>50%) present with large, infected lymph nodes ("buboes"; *Gr*: groin), most commonly (75%) in one or both submandibular nodes.
- Less commonly, cervical, external iliac, popliteal, prescapular and axillary lymph nodes are involved.
- Submandibular infection is presumed to be a result of eating infected rodents and entry of the organism into the oropharynx via **small wounds**. Experimental feeding of infected rodents to cats has resulted in a large proportion of cats becoming infected.
- Swelling of lymph nodes elsewhere, particularly when cellulitis is present, may be due to bites by infected fleas.

- Other forms of the disease in cats are the pulmonary form, in which cats have pneumonia, or the septicemic form, in which the organism is in animals' bloodstream. Although relatively rare, the pulmonary form of the disease is important from a public health standpoint. Infected cats with plague pneumonia may aerosolized bacteria and transmit infection to **people**.
- The disease is more common in summer months, when fleas and rodents are more active.
- Cats develop clinical signs within 24 - 48 days of becoming infected.

Confirming disease in cats:

- Owners and veterinarians should suspect plague when outdoor cats that are known hunters present with enlarged lymph nodes, and/or abscesses and/or acute respiratory distress, and/or lethargy and/or fever.
- The disease can be confirmed by conventional bacterial swabs of intact or discharging lymph nodes, or by blood culture.
- The Wyoming State Veterinary Laboratory uses two methods to confirm the presence of clinical infection: a rapid fluorescent antibody test (results in hours), and bacterial culture (results in 1-4 days).
- The disease can also be diagnosed retrospectively through serological testing of animals with compatible signs. Titers of $\geq 1:32$ in cats are considered diagnostic for infection. A fourfold rise in titer taken at least 2 weeks apart is confirmatory.

Treating disease in cats:

- Most cats with plague that are promptly diagnosed and treated with antibiotics and supportive therapy such as fluids will survive.
- Some antibiotics are more effective than others in treating infected cats. A higher success rate is **reported** with the use of tetracyclines (25 mg/kg body weight q 8 h) than antibiotics in the ampicillin and penicillin families. Streptomycin and tetracycline in combination are effective and, based on human cases, should be continued for ≥ 5 days after temperature returns to normal to avoid relapse.
- Cats with confirmed disease should be treated in isolation in a veterinary clinic with appropriate personal protective equipment worn by veterinary staff (gloves, masks and eye protection).
- Approximately three quarters of untreated cats die or require euthanasia. Death rates are highest in cats with the pneumonic form, followed by cats with septicemic and bubonic forms.
- Recovery in cats treated with antibiotics ranges from 1 - 10 days, with a mean of 4.4 days.

Avoiding disease in cats:

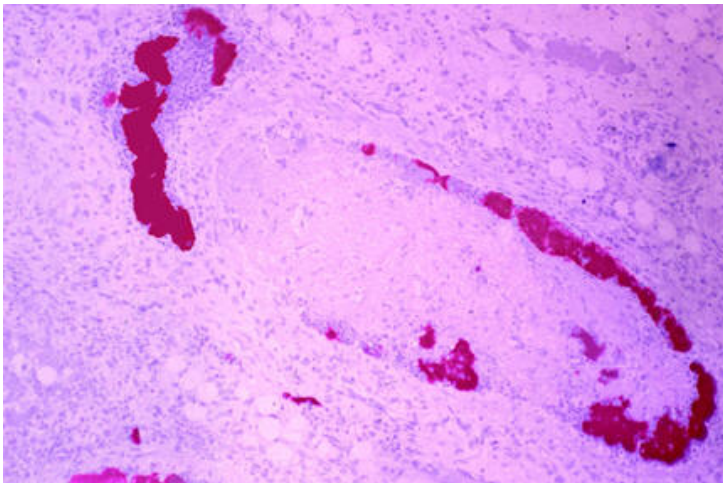
- Keep your cat indoors. This is the most effective method to ensure your cat does not acquire the disease. It will also do wonders for our wild bird population.
- Treat cats regularly with an effective anti-flea medication.
- Eliminate rodent harborage such as wood piles, junk and garbage.
- There is no vaccine for this disease in cats (or people).

Do dogs get plague?

- Yes but it is **rare**. As with most carnivores, infection in dogs is generally subclinical and self-limiting. Domestic cats, bobcats and black-footed ferrets are unusual carnivores in their high susceptibility to plague.

If you are exposed to a cat with laboratory-confirmed plague:

- Contact your physician. If you hunt and skin rodents or rabbits, and did so shortly before becoming ill, it is important to tell this to your physician.
- The CDC plague web site had **recommendations** on prevention and control if you live in a plague endemic area
- There is no longer a vaccine for plague. Individuals treated promptly with effective antibiotics have good prospects for recovery (85% recovery rate). Untreated affected individuals have mortality rates in the 50 - 90% range.



Plague organism, *Y. pestis*, in lymphatic near affected lymph node. A red chromogen bound to an antibody was used to demonstrate the large numbers of bacteria present (red = organism). The vessel is thrombosed. Early acute inflammation is present

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