

## Human *Bartonella* Diseases:

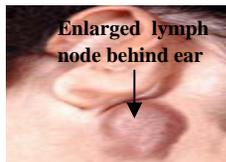
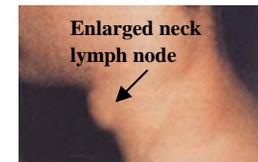
*Bartonella*, transmitted from cats, can cause 22 human diseases and cat scratch disease is only the "tip of the *Bartonella* disease iceberg." The other *Bartonella* diseases are: bacillary angiomatosis, & peliosis, febrile bacteremia, heart diseases- (endocarditis & vegetative valvular disease), eye diseases- (uveitis, neuroretinitis, disciform keratitis), neurological disorders- (meningoencephalitis & AIDS encephalitis), musculoskeletal diseases- (osteomyelitis, arthralgia, juvenile arthritis, & myositis), skin diseases- (cutaneous rash- Henoch Schenlein purpura & cutaneous granuloma annulare), inflammatory bowel disease, mononucleosis-like syndrome, pulmonary infiltrates, lymphadenopathy (lymph node enlargement) and co-infection with Lyme disease.

### Cat Scratch Disease:

Cat scratch disease is the best known *Bartonella* disease. More than 22,000 cases occur each year, of which more than 2,000 people require hospitalization. The disease usually begins a few weeks after transmission of *Bartonella* from cats with a red papule at the site of a scratch or bite. Lymph nodes that drain the injury site become inflamed, enlarged, painful, and may develop an abscess, which may burst and drain. Severe cases may progress to organ involvement, neurological complications, and rarely to coma.



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### Eye Disease:

The eye is often a site of *Bartonella* localization in people where generalized inflammation occurs in the outer membranes, eye lids, iris, retina and optic nerve.



### Neurological Disorders:

Encephalopathy, convulsions, and coma are some neurological

disorders associated with *Bartonella*-infections in people.

### Fever of Unknown Origin:

*Bartonella*-infections may cause persistent or intermittent fevers (101-105°F) where a physician is unable to diagnose the cause. The high fevers and flu-like signs may last 7 to 10 days.

### Infectious Mononucleosis-like Syndrome:

A syndrome, clinically identical to infectious mononucleosis, was recently found to be caused by *Bartonella* in children.

### Complications of Chronic Lyme Disease:

Some people with chronic Lyme disease, that were refractory to therapy, were found to be co-infected with *Bartonella* derived from cats infested with *Bartonella*-infected ticks. The signs of disease in these people cleared after treatment for *Bartonella*.

### What to Do?

#### Test:

We recommend that all healthy pet cats, especially those obtained as strays, from shelters or animal rescue organizations, and those that have had flea infestations, be tested for *Bartonella* infection. Kittens are more likely than older cats to transmit the bacteria because of their playful nature and their interactions with people, especially children. Interestingly, boys develop cat scratch disease more often than girls, probably because boys play more roughly with kittens than girls and thus, are more likely to be scratched or bitten. It is especially important that cats owned by people with young children, people whose cats have had flea infestations at any time, and people who are immunosuppressed by chemotherapy, organ transplants, or HIV infection, have their cats tested.

#### Treat:

If your cat is infected, your veterinarian will prescribe antibiotic therapy and intensive flea control. Antibiotic therapy can rid these bacteria from your cat and make it a safe pet once again.

### The National Veterinary Laboratory

The National Veterinary Laboratory is the oldest private veterinary laboratory in the United States. In 1972 we invented the first feline leukemia virus test, the FeLeuk® Test.

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See your veterinarian or visit our web site [www.natvetlab.com](http://www.natvetlab.com) for more information.

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# Cats and *Bartonella* "The Cat Scratch Disease Bacteria"

## Information for Cat Owners

**Approximately 20% of healthy cats, living in the United States, are infected carriers of these dangerous *Bartonella* bacteria.**

Now you can stop the spread of *Bartonella* from cat to cat and cat to human with a simple blood test of your cat.



The *Bartonella* test service provided exclusively by The National Veterinary Laboratory, Inc.

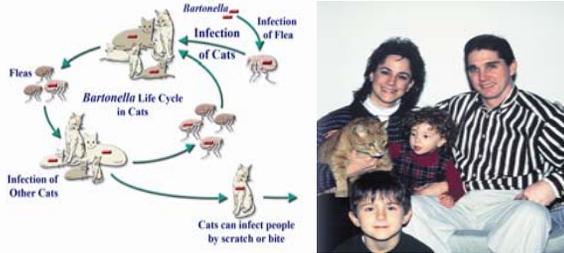


**National Veterinary Laboratory**  
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## Introduction

Healthy cats can carry six members of the *Bartonella* bacteria family in their blood, which are transmitted between cats by fleas and ticks. The bacteria can be spread to people via cat scratches, bites,   contact with fur, and probably rarely by infected fleas and ticks.

### Bartonella Life-Cycle

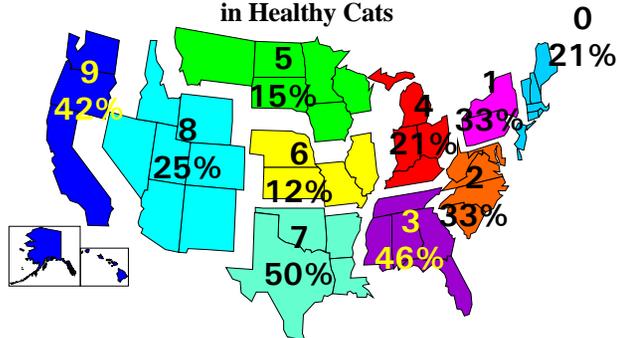


*Bartonella* are difficult to culture from the blood of infected cats. However, there is an accurate blood test, the FeBart® Test developed by The National Veterinary Laboratory, to detect infected cats.

## Cats: Prevalence of Infection:

The prevalence of *Bartonella*-infected cats varies in different geographic areas and depends on the average temperature and rainfall (humidity). About 20% of healthy cats in the U.S. are infected carriers. The highest infection rates occur in hot humid climates, where conditions are favorable for fleas and ticks. Most infected cats remain infected for years or for life.

### Zip Code Map and Bartonella Prevalence in Healthy Cats



Find the first number of your zip code in the map above and the

percentage below that number represents the percent of healthy cats infected with *Bartonella* in your area. *Bartonella* cause chronic insidious inflammatory diseases, although most infected cats are healthy and go unnoticed by their owners.

## Risk Factors for Infection:

Risk factors that make cats more likely to have flea infestation and thus become infected with *Bartonella* are: originating as a stray, coming from a shelter or humane group, living in a multi cat household, going outdoors often, and living in a hot and humid area.

## Cat Bartonella Diseases:

Cat *Bartonella* possess hair-like structures found on the bacteria's surface which allows the bacteria to stick to, and penetrate, red blood cells and the cells that make up the walls of capillaries. This ability leads to the wide and varied tissue specificity observed in cats, dogs, and people. *Bartonella* induce inflammatory reactions in many tissues throughout the infected animal's body. These tissues are: oral and respiratory mucosa, ocular tissues, the gastro-intestinal tissues, the skin, and organs such as the liver, spleen and lymph nodes. In fact, since capillaries are found in all tissues, all tissues are susceptible to the inflammatory effects of *Bartonella*. Inflammatory reactions often occur concurrently in multiple sites such as the oral and respiratory tissues, ocular and oral tissues, or in other combinations. Although numerous microorganisms can cause inflammatory diseases, it appears that *Bartonella* is the cause of about 40-50% of the following conditions in pet cats:

### Cat Bartonella Diseases:

#### Oral Diseases:

- Gingivitis
- Stomatitis
- Oral ulcers



#### Respiratory Diseases:

- Upper respiratory disease



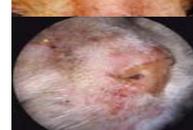
#### Ocular Diseases:

- Conjunctivitis
- Uveitis
- Chorioretinitis
- Corneal ulcers
- Keratitis



#### Intestinal Diseases:

- Inflammatory bowel disease
- Diarrhea (chronic)



Vomiting (chronic)

#### Other Diseases:

- Enlarged lymph nodes
- Fever of unknown origin
- Skin diseases- papules & dermatitis
- Heart disease- Valvular disease (murmurs)

## Bartonella Therapy:

Antibiotic therapy of healthy infected cats and cats with *Bartonella*-induced diseases is effective for most cats. Owners should be careful while treating their cats to avoid being scratched or bitten.

### Before Therapy



### After Therapy



### Gingivitis



### Conjunctivitis

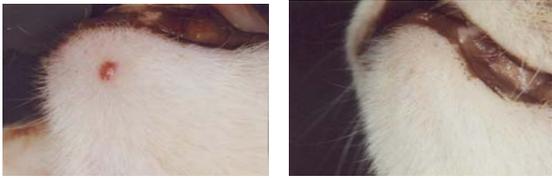


### Stomatitis



### Corneal Ulcer





**Skin Papule**  
**Upper Respiratory Infection**