



NATIONAL VETERINARY LABORATORY

P.O. Box 239, 1Tice Road

Franklin Lakes, NJ 07417

877-NVL-LABS (877-685-5227)

www.natvetlab.com

NEWSLETTER

Let's Get Serious About *Bartonella*!©

Evelyn E. Zuckerman, Editor

Spring 2013

Vol. 12, Number 2

In This Issue:

In the spring 2013 issue of the NVL Newsletter we will ask veterinarians to get serious about *Bartonella* in cats, dogs and their clients. Accumulating evidence demonstrates that *Bartonella* is endemic in cats and the zoonosis is being recognized as a "silent epidemic" in humans. In addition, the concern in the veterinary profession is lacking and the knowledge of the *Bartonella* diseases in the medical community could be better.

Veterinarians:

Responsibility: Cats are the major reservoir host for at least 6 *Bartonella* species and feline *Bartonella* cause inflammatory diseases in experimentally inoculated and in pet cats.¹⁻¹² Despite the ample published evidence for the past 20 years supporting these facts, there are web sites, chat rooms, and on line blogs that still present misleading and incorrect information. Fleas transmit *Bartonella* among cats and spring brings increased flea exposure. Thus veterinarians must become familiar with the published facts and "get serious about *Bartonella*" for their patient's and for their client's health.

It is still perplexing that veterinarians routinely test for feline retroviruses, FeLV and FIV, with an incidence of only 3.1% combined, where there is no therapy for either virus, and no zoonotic potential, but do not routinely test for *Bartonella*.



Few veterinarians recommend routine testing for *Bartonella*, where the occurrence is about 35% (Table 1), they cause far more disease, there is an excellent sterilizing response to antibiotic therapy,¹³ and where there is a significant zoonotic threat.

Table 1

Common Pathogens* in 7,484 Healthy Cats

Pathogen	No. Tested	No. Infected	% Infected
FeLV IFA	7,484	84	1.1%
FIV WB	7,484	147	2.0%
<i>Bartonella</i> WB	7,484	2,604	35%

*All tests performed by National Veterinary Laboratory

Veterinarians who do not discuss *Bartonella* with their clients expose themselves to legal liability when one of their clients develops a *Bartonella*

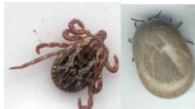
disease from one of their cats. Many veterinarians test for *Bartonella* when they are trying to determine the cause of an inflammatory disease, but will not routinely test healthy cats along with the routine retroviral tests and fecal examinations. As will be discussed later, most zoonotic spread of *Bartonella* to cat owners occurs from **HEALTHY** kittens under 1 year of age, the animals where early tests and vaccinations are routine.

Fleas and Ticks:

Cat fleas are responsible for the great majority of transmission of *Bartonella* among cats. Thus, flea control is essential for interrupting the transmission. To a lesser extent, ticks can also occasionally transmit *Bartonella* between cats but they are the more important vector for transmitting *Bartonella* to dogs. Dogs are much less a reservoir host for *Bartonella* than are cats.



Cat Flea



Dog ticks

Cats and dogs that have been strays, feral, originated from shelters or rescue groups, and those living in multiple cat or dog households, (Table 2) are more likely to have had flea infestation and thus more likely to be infected.

Table 2

Healthy Cat Risk Factors for *Bartonella* Infection

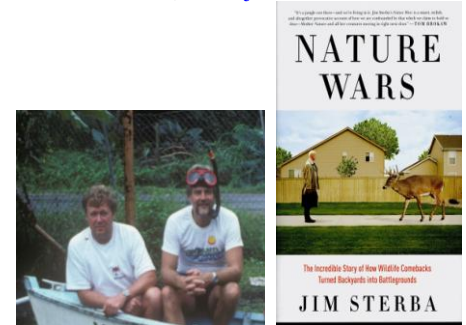
Risk Factor	No Tested	% Infected	Risk Factor (X)
None	840	20%	X
CSD Household	1,057	57%	2.9X
Strays	16,499	41%	2.1X
Shelter	10,191	33%	1.7X
Fleas: History of	9,072	48%	2.4X
Current	3,510	45%	2.3X
Multi Cat Hh	26,973	41%	2.1X
Exposed to <i>Bartonella</i> + Cat	7,229	54%	2.7X
Totals:	74,531	42%	2.1X

Hh= household Many cats had multiple risk factors. 12 years of tests to 11-4-2011

These animals certainly warrant discussion with their owners regarding the feline disease potential and the zoonotic dangers.

Feral Cats:

As the pet populations increased after WWII, so did the stray dog and cat populations. This topic has been expertly researched and described by my long time scuba diving friend, Jim Sterba, in his excellent new book *Nature Wars*, published by Crown, New York about how wildlife comebacks turned backyards into battlegrounds (I highly recommend this book for veterinarians and animal lovers) www.jimsterba.com.



Jim Sterba (left) & Dr. Hardy, Fiji 1983

Jim spent years researching all aspects of the closeness of contemporary people to wildlife and the joys and problems this has fostered. In the chapter entitled "Feral Felines," Sterba chronicles the evolution of pet cats that evolved to shelter cats then to a feral lifestyle. This was due to the high percentage of shelter cats that had been euthanized over the years because of the low percentage of shelter adoptions. As we all know, the controversial policy of TNR- trap-neuter-return has grown where the intent to lower the population of feral cats has met with



Feeding feral cat colony

TNR poster

mixed results. Sterilized feral cats still pose dangers by carrying diseases, killing large numbers of wildlife, and their "colonies" can act as a dumping ground for fertile unwanted pet cats. Of course feral cats carry one of the highest *Bartonella* infection rates of all cats and they have been a source for numerous zoonotic transmissions to good hearted people who have tried to care for them. Many "shelter cats" originate as feral cats and adoptions pose a risk to the household members.

In an urban feral cat study, conceived by Dr. Douglas Wyler, owner of the Whitestone Veterinary Care in Whitestone, NY, a suburb of New York City, we found that feral cats more frequently carry infectious microorganisms when compared to owned cats. Both *Bartonella* and FIV prevalence is elevated in these feral colonies sampled, Table 3.

Table 3
Common Pathogens* in 102 Feral Cats

Pathogen	No. Infected	% Infected
FeLV IFA	1	0.9%
FIV WB	9	9%
Bartonella WB	50	49%

*All tests performed by National Veterinary Laboratory

The *Bartonella* infection incidence in healthy owned cats from this practice is only 18%. Since a large number of pet cats originate as adoptions of strays or feral cats, veterinarians should “get serious about *Bartonella*” and the public health dangers for their clients and themselves.

Physicians:

Many physicians are not thoroughly knowledgeable or are dismissive of the *Bartonella* diseases in their patients. Physicians must also “get serious about *Bartonella*” as it has been suggested that *Bartonella* is a silent epidemic. *Bartonella* is a stealth or chronic pathogen which makes detection and correlation with the clinical signs difficult for physicians. In addition, the zoonotic event, a cat scratch, bite, or tick bite, may have occurred weeks or months before the clinical signs begin. This long temporal interval can often negate consideration of this causative event by the patient or the physician.

There has been continuing controversy that *Bartonella* do not fulfill Koch’s Postulates as the cause of cat disease despite numerous publications to the contrary, some 17 years ago.¹⁴⁻¹⁵ It has been known for some time that there are frontal and stealth pathogens.¹⁶ We wrote in our Summer 2005 NLV Newsletter, available at www.natvetlab.com, that the major difference is frontal pathogens are aggressive rapidly acting, whereas stealth pathogens are slow chronic mild inducers of disease, Table 4.

Table 4
Frontal vs. Stealth Pathogenic Bacteria

Frontal- (Aggressive):	Stealth- (Slow-Mild):
Incubation period: Short	Long/ indeterminate
Clinical sign: Acute	Chronic
Innate immune system: Engages	Engages
Multiplication: Rapid	Slow
Carrier state: Uncommon	Common- shedding
Sterilizing immunity: Induces	Rarely induces
Adaptive immunity: Engages	Avoids or manipulates
Bacterial Examples: <i>Yersinia</i> & <i>Vibrio</i>	<i>Bartonella</i> & <i>Helicobacter</i>

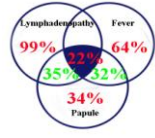
Adapted from: Merrell, D.S. & Falkow, S., Ref 16.

In fact, a recent paper has suggested adding another criterion, the “postulate of comparative infectious disease causation” to the four venerable Koch’s Postulates for determination of a causative etiology of diseases by stealth pathogens.¹⁷ In this regard, the proposed new postulate is not needed for *Bartonella* diseases of cats since there are ample publications that have fulfilled the original Koch’s Postulates for the *Bartonella* etiology of inflammatory diseases.¹⁻¹²

We will again present our abstract from the 7th International *Bartonella* Meeting which summarizes the misconceptions that veterinarians and physicians have about *Bartonella*. We do this so that both professions can “take *Bartonella* seriously” in the spring when fleas transit *Bartonella* to cats and cats then transmit *Bartonella* to people.

All *Bartonella* Diseases are not “Cat Scratch Disease”: Misconceptions about Bartonellosis. 7th Intern. Conf. on *Bartonella* as Animal and Human Pathogens, 2012.

Common misconceptions about cat scratch disease (CSD) are that: 1) fleas or flea dirt must be present on cats in order to transmit the bacteria to people, 2) there is no need to test or treat healthy cats, 3) CSD is the only *Bartonella* disease, and 4) CSD is a benign self-limiting disease. With the assistance of many of our veterinary clients, we were able to interview more than 500 people who had reported developing a *Bartonella* disease. These individuals had their cats tested for *Bartonella* at our laboratory after they were diagnosed with a *Bartonella* disease. We identified 283 people with a *Bartonella* disease who were diagnosed with the infection. 61% had developed classic CSD with fever, lymphadenopathy, malaise, and a papule. 23% developed CSD and sequelae consisting of chorioretinitis, cognitive dysfunction, psychoses, neurologic disorders, endocarditis, and hepatosplenomegaly. Finally, 16% developed only bartonellosis or sequelae with no classic CSD prodrome signs. 77% of the cases occurred in adults. 50% of the people developed chronic myalgia and arthralgia and 30% developed mental alterations including depression, cognitive dysfunctions, “brain fog,” and panic disorders.



Classic CSD Prodrome “Brain fog” metaphor

Cats that transmitted *Bartonella* were identified in 201 of the 283 cases or 71%. 97% of the cats were serologically WB positive for *Bartonella* infection, 65% were healthy, 49% were kittens under one year of age and 83% had no fleas or flea dirt on them at the time they transmitted the bacterium to people. The routes of infection were identified in 69% of the cases. Of these, 75% by scratches, 13% by bites or scratches, 5% by administering oral medication, and 31% by unknown routes.

These healthy kittens, less than one year of age obtained as strays, from shelters or as feral cats, are the most likely to transmit *Bartonella* to people. The AAEP, CDC, and many academic websites do not recommend testing of healthy cats for *Bartonella*. Excluding the 40 veterinary professionals who had developed *Bartonella* diseases in this study 94% of the patients had NOT been informed of the zoonotic danger of feline *Bartonella* by their veterinarians before their illness occurred. In addition, 70% of the patients had difficulty in obtaining a diagnosis or had to urge or insist that their physician consider *Bartonella* as a possible cause of their illness.

Let’s take *Bartonella* seriously:

1. Discuss *Bartonella* zoonosis with your cat owners.
2. Recommend the *Bartonella* test.
3. If the owners refuse- date and note in case record.
4. Test all healthy & sick cats for *Bartonella*.
5. Treat all infected cats.

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***Bartonella* references can be obtained at:**
www.nlm.nih.gov/or_natvetlab.com
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