



# State of Pet Health™ 2014 Report





**Welcome to Banfield Pet Hospital's *State of Pet Health™ 2014 Report***—the only report of its kind to capture and analyze the medical data from nearly 2.3 million dogs and 470,000 cats. As the largest veterinary practice in the world, Banfield operates more than 850 hospitals in 43 states as well as Puerto Rico, and more than 14,000 associates—including 2,900 licensed veterinarians—work at Banfield. As such, Banfield has a unique understanding of the health of companion animals. Through our extensive commitment to quality and innovation, our practice has created this ground-breaking report, now in its fourth year.

Our commitment to lifetime preventive care and early disease diagnosis was the driving force behind the focus on the infectious diseases highlighted in this year's report including: parvovirus infection, kennel cough, Lyme disease and *Giardia* infection for dogs, and upper respiratory infection, feline immunodeficiency virus (FIV) infection, feline leukemia virus (FeLV) infection and ear mites for cats. In this year's report, a marked increase of

Lyme disease in dogs and FIV infection in cats is the most concerning—since 2009, the prevalence of Lyme disease in dogs has increased by 21 percent and the prevalence of FIV infection in cats has increased by a staggering 48 percent.

It's important to note that the eight infectious diseases highlighted in this report are just a subset of those impacting the larger pet population. Since there is an absence of data on many other infectious diseases impacting our pet population, it is difficult for our research team to generate solid information on prevalence and trends for them. That being said, we do touch on some of these other diseases in this publication as they also pose significant threats to pet health.

Banfield's belief is all pets need twice-yearly comprehensive examinations. These are important throughout a pet's life to ensure he or she is receiving life stage-based preventive care, including vaccinations and antiparasite treatments, and that our clients are receiving in-depth education to understand the importance of preventing infectious diseases. These exams are also essential for early disease diagnosis, which relies on the partnership between pet owners and their veterinarians to identify changes in a pet's overall health and behavior. Pets, especially cats, are known for hiding illness—by the time many diseases are diagnosed, it's often too late to successfully treat or manage the condition. This is why it is so important for pet owners to work with their veterinarians to understand and identify signs of serious health issues affecting dogs and cats.

As a practice, our focus is on making a better world for pets through delivery of high-quality veterinary medicine and preventive care. We are the leader in innovative pet health care programs such as Optimum Wellness Plans®—packages of preventive care services offered at an affordable price. Most importantly, we believe that prevention and early disease diagnosis will positively impact a pet's health and lifespan—and with proactive health management, a pet can live a happy, healthy life.

Sincerely,

Jeffrey Klausner, DVM, MS, DACVIM  
Chief Medical Officer  
Banfield Pet Hospital



**In 2013, Banfield Pet Hospital® cared for almost 2.3 million dogs and 470,000 cats.** Banfield's veterinarians and paraprofessionals use PetWare®, Banfield's proprietary electronic medical records system, to collect data from every pet cared for in Banfield hospitals. Information is downloaded daily to the medical database at Banfield's main campus in Portland, Ore. Data are then analyzed by Banfield's internal research team, Banfield Applied Research and Knowledge (BARK).

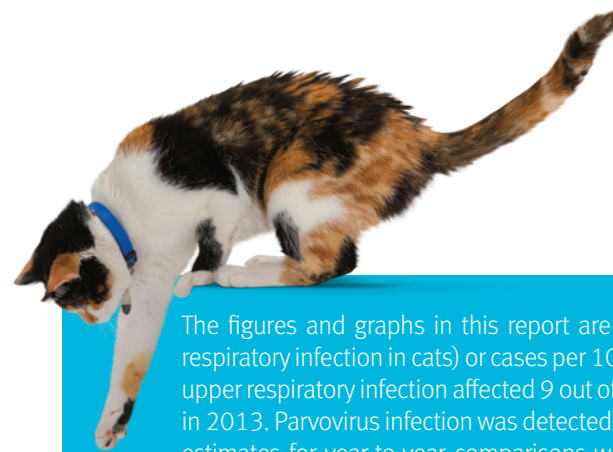
Banfield's commitment to providing high-quality veterinary care is grounded in evidence-based medicine—this is supported by BARK's team of researchers, many of whom are veterinarians and are dedicated to population-based research. The BARK team analyzes the medical data of more than 8 million pet visits at Banfield hospitals each year to develop insights into diseases affecting pets. Findings of the studies they conduct are shared with veterinarians and the public through various avenues including continuing education materials, scientific journals, the *Banfield Journal* (a medical publication) and the annual *State of Pet Health Report™*.

Our commitment also includes forming partnerships that will benefit pets and pet owners. This philosophy led PetSmart®, the nation's largest retailer of pet-related products and services, to ask Banfield to bring high-quality care to their stores in 1994. In 2007, Banfield joined the Mars, Incorporated family of businesses with the common goal of providing high-quality pet care and nutrition to companion animals.

The *State of Pet Health™ 2014 Report* details some of the most common infectious diseases affecting dogs and cats in the United States, according to their geographic location as well as over a five-year period of time. These important diseases include parvovirus, kennel cough, Lyme disease and *Giardia* for dogs and upper respiratory infection, feline immunodeficiency virus (FIV) infection, feline leukemia virus (FeLV) infection and ear mites for cats.

Banfield believes preventive care improves the quality and length of a pet's life by reducing the risk of developing serious, costly and sometimes fatal diseases—many of which are preventable or, without treatment, can become chronic. This is why Banfield emphasizes the importance of twice-yearly comprehensive examinations and a partnership between pet owners and their veterinarian to identify changes in a pet's overall health and well-being. We believe that regular preventive care and early disease diagnosis will positively impact a pet's health and lifespan.

The information in this report will be useful to veterinarians, pet owners and the public as we focus on raising awareness for important diseases affecting the overall health of pets. With increased knowledge and education, we hope to successfully decrease the number of pets living with infectious diseases.



The figures and graphs in this report are presented as cases per 100 pets seen (upper respiratory infection in cats) or cases per 10,000 pets seen (all other diseases). For example, upper respiratory infection affected 9 out of every 100 (or 9 percent of) cats seen at Banfield in 2013. Parvovirus infection was detected in 34 out of every 10,000 dogs seen. Prevalence estimates for year-to-year comparisons were adjusted to account for changes in the age distribution of patients.



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**Modes of Transmission**

*Ways pets may contract disease from infected animals*



Exposure to feces



Close contact, including playing, mating, sniffing, grooming, etc.



Tick bite



Sharing food bowls, toys, etc.



Being bitten by an infected animal



Ingesting an infected animal



Contaminated water sources



Zoonotic (can be spread between pets/other animals and people)



Sharing bedding and/or blankets



Exposure to wildlife



Exposure to urine

**Lifestyle Factors**

*Pets may be at risk of contracting certain diseases depending on their lifestyle*



Spending time outdoors (e.g., going for walks, hunting, etc.)



Frequenting outdoor areas with a high concentration of pets (e.g., dog parks)



Visiting indoor places where there are a high concentration of pets (e.g., day care and boarding facilities)

## Breed Icon\*

# Breed Overview

**Dogs and cats can be prone to certain diseases based on their breed.** For dogs, breed size can also put them at an increased risk for certain diseases. As such, breed and breed size have become important in veterinary medicine to understand the diseases or conditions to which a dog may be predisposed.

### Cat – average weight: 10 lbs

#### Common Breeds

Domestic Shorthair  
Domestic Medium Hair  
Domestic Longhair

#### Common Diagnoses

Feline respiratory virus  
Kidney disease  
Tapeworms

#### Common Names

Kitty  
Bella  
Tiger

### Toy/Small – weight: <20 lbs

#### Common Breeds

Chihuahua  
Scottish Terrier  
Shih Tzu  
Yorkshire Terrier

#### Common Diagnoses

Dental tartar  
Patellar luxation  
(kneecap pops out of place)  
Retained baby teeth

#### Common Names

Bella  
Max  
Coco  
Buddy

### Medium – weight: 20-50 lbs

#### Common Breeds

Beagle  
Boxer  
Cocker Spaniel  
Schnauzer

#### Common Diagnoses

Conjunctivitis (eye infection)  
Cystitis (bladder inflammation)  
Underbite

#### Common Names

Bella  
Max  
Buddy  
Daisy

### Large – weight: 50-90 lbs

#### Common Breeds

German Shepherd  
Golden Retriever  
Labrador Retriever  
Rottweiler

#### Common Diagnoses

Gastroenteritis (GI upset)  
Otitis externa (ear infection)  
Overweight

#### Common Names

Bella  
Max  
Buddy  
Bailey

### Giant – weight: >90 lbs

#### Common Breeds

Great Dane  
Great Pyrenees  
Mastiff  
St. Bernard

#### Common Diagnoses

Arthritis  
Lameness  
Skin tumor

#### Common Names

Bella  
Zeus  
Duke  
Max

\* The percentages for dogs add up to 101% (not 100%) due to rounding

# Breed Trends

The most common dog breeds and dog breed sizes cared for in Banfield hospitals have changed over the past decade. As noted in previous reports, an increase in smaller dogs and a decline in larger dogs seen at Banfield continues to remain true, as does the increase in mixed breed dogs.

## TOP 10 DOG BREEDS IN 2013

1. Labrador Retriever

2. Chihuahua

3. Yorkshire Terrier

4. Shih Tzu

5. Pit Bull

6. German Shepherd

7. Maltese

8. Mixed Breed

9. Dachshund

10. Boxer

Changes from  
2003 to 2013:



+141% Yorkshire Terrier  
+125% Maltese



-22% Labrador Retriever  
-27% German Shepherd

## TOP CAT BREEDS IN 2013

The most common cat breeds have remained consistent over the past 10 years. They include: Domestic Shorthair, Domestic Medium Hair and Domestic Longhair. Despite these three breeds accounting for almost 90 percent of cats cared for in Banfield hospitals in 2013, exotic cat breeds continue to increase in popularity, including:

Siamese

Maine Coon

Bengal

Ragdoll

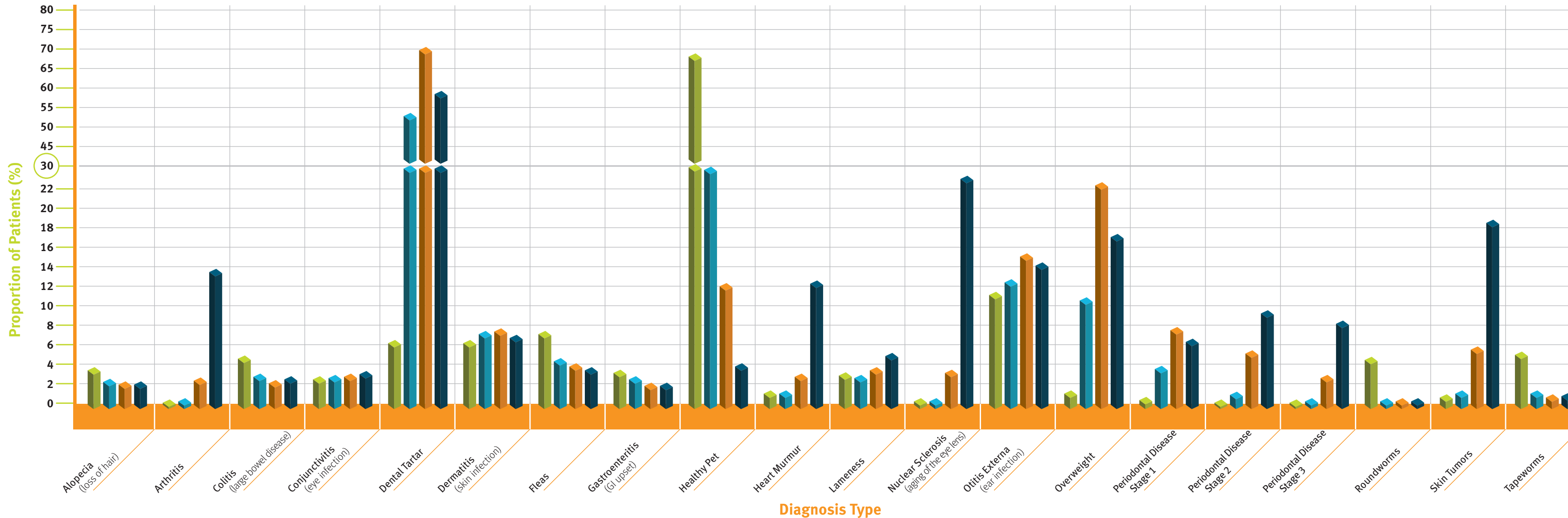
Himalayan

Manx

Russian Blue

Persian

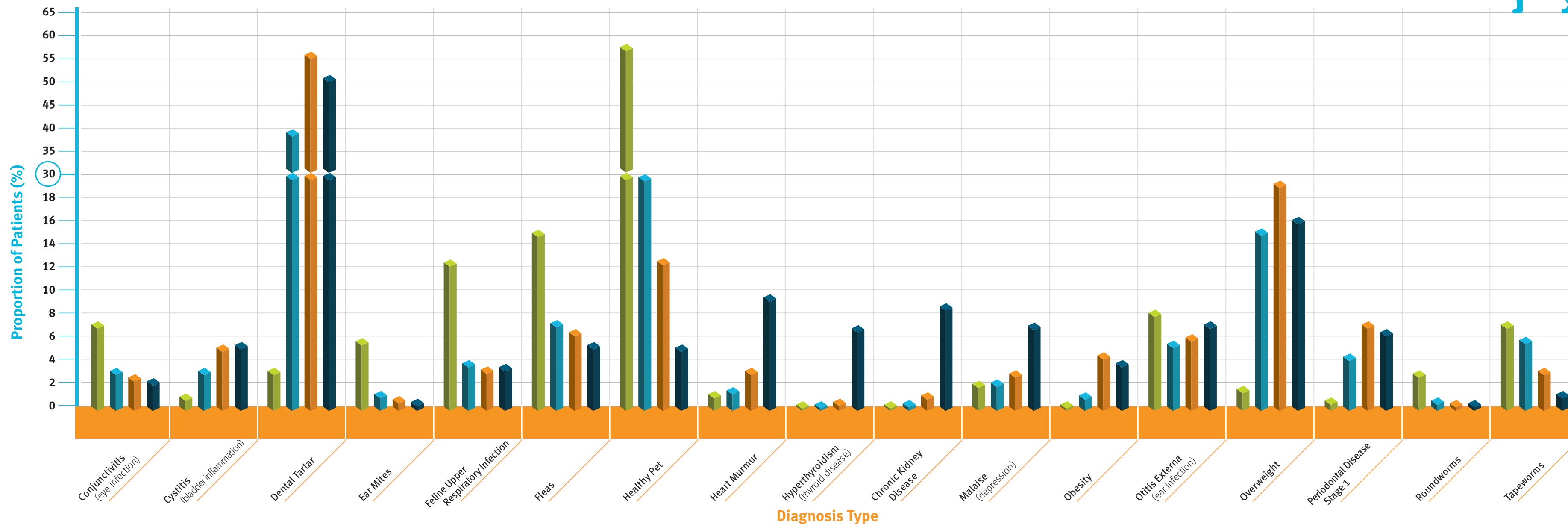
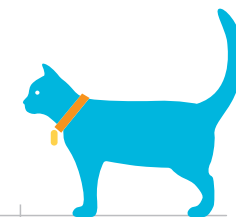




### Age Group

- Juvenile (0-1 year)
- Young Adult (1-3 years)
- Mature Adult (3-10 years)
- Geriatric (10 years)

These diagnoses are a compilation of the most common diagnoses found in dogs throughout the year. While “Healthy Pet” is not a true medical diagnosis, it is important to include as it reinforces that pet owners should bring their pets to the veterinarian for preventive care, as well as when their pets are sick or injured. Reasons for a “Healthy Pet” visit include physical examinations, routine vaccinations and blood work or nutritional counseling, among others.



These diagnoses are a compilation of the most common diagnoses found in cats throughout the year. While “Healthy Pet” is not a true medical diagnosis, it is important to include, as it reinforces that pet owners should bring their pets to the veterinarian for preventive care, as well as when their pets are sick or injured. Reasons for a “Healthy Pet” visit include physical examinations, routine vaccinations and blood work or nutritional counseling, among others.



# Feline Immunodeficiency Virus (FIV) Infection



## Background

Feline immunodeficiency virus (FIV) is a slow-acting virus (similar to HIV in humans) that may lead to permanent infection in affected cats. The virus may not cause any noticeable signs of illness for years, or at all, after the initial infection until it eventually attacks the immune system. As the immune system weakens, affected cats are at an increased risk for other infections and medical conditions.

FIV is spread through contact with an infected cat. The virus is most commonly transmitted during mating, through bite wounds associated with cat fights or from an infected mother to her kittens.

## Signs

Due to the slow-acting nature of the virus, cats may be infected with FIV for some time without showing signs of illness. When health problems do begin to appear, they may take the form of persistent illness or intermittent health problems. Signs of FIV infection are nonspecific and include fever, decreases in activity level and appetite, gum disease (appearing as mouth sores), weight loss and swollen lymph nodes.

## Diagnosis & Treatment

FIV infection is typically diagnosed by a veterinarian using a blood test. There is no cure, but infected cats can live long and relatively healthy lives with proper care at home and increased veterinary attention. Once an infected cat becomes sick, the pet owner should pay close attention to even subtle changes in the pet's health and behavior. Treatment is typically focused on minimizing the disease's impact on the pet and preventing exposure to other viruses or bacteria. This can be accomplished by keeping affected cats strictly indoors, providing good nutrition, decreasing sources of stress and seeking immediate veterinary care as problems arise.

## Preventive Recommendations

An FIV vaccine is available; however, its ability to prevent FIV infection is not fully understood, and vaccination can cause cats to have positive results when tested for FIV, making it difficult to know whether a cat is really infected. Therefore, vaccination is generally not recommended.

The best way to avoid FIV exposure is to keep cats indoors and away from potentially FIV-infected cats. For multiple-cat households, new cats should be tested before being allowed to interact with the others, and all cats that have been living together already should be tested for FIV infection whenever one of them is found to be infected.

To reduce the spread of FIV, all uninfected cats should be kept separate from the infected ones. Spaying and neutering can also reduce a cat's urge to roam or engage in other activities that may increase its risk of coming into contact with an FIV-infected cat when outdoors.

It is important to remember that seemingly healthy cats can have FIV and infect others. Cats allowed outdoors unsupervised should be tested every year.

## Mode of Transmission/Lifestyle Factors



### Bottom line

- Approximately 1 of every 300 cats seen in 2013 were found to be infected with FIV.
- Intact cats older than 1 year were 3.5 times as likely to be infected with FIV as same-aged spayed/neutered cats.
- In 2013, the states with the highest prevalence of FIV infection were Oklahoma, Iowa and Arkansas.

In 2013, male cats were

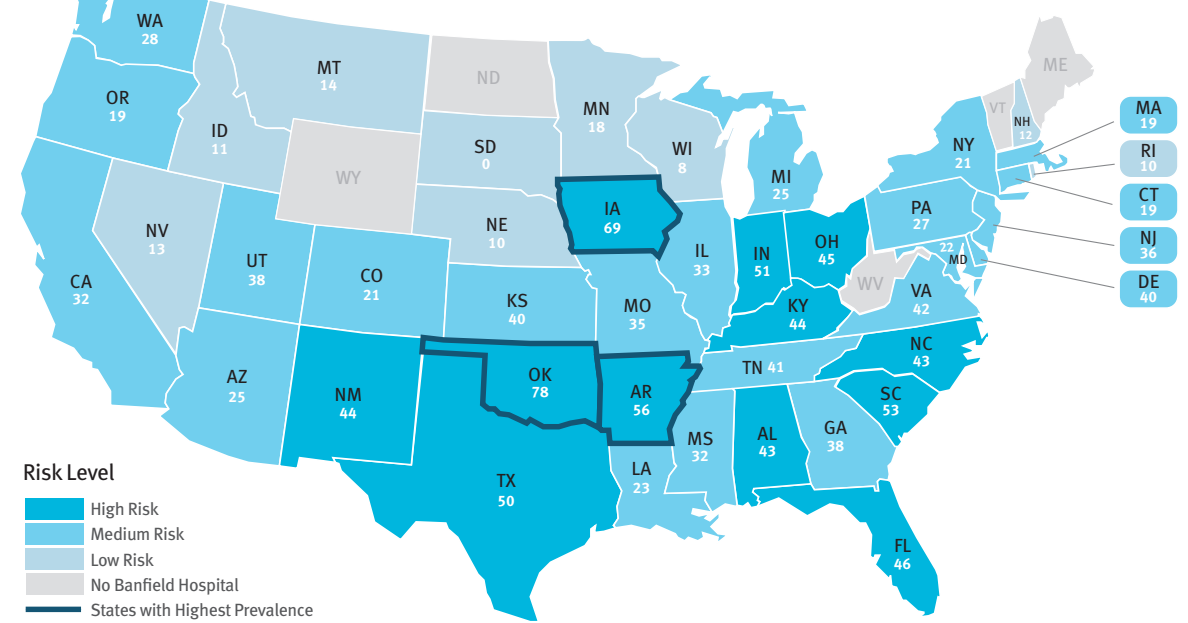


as female cats

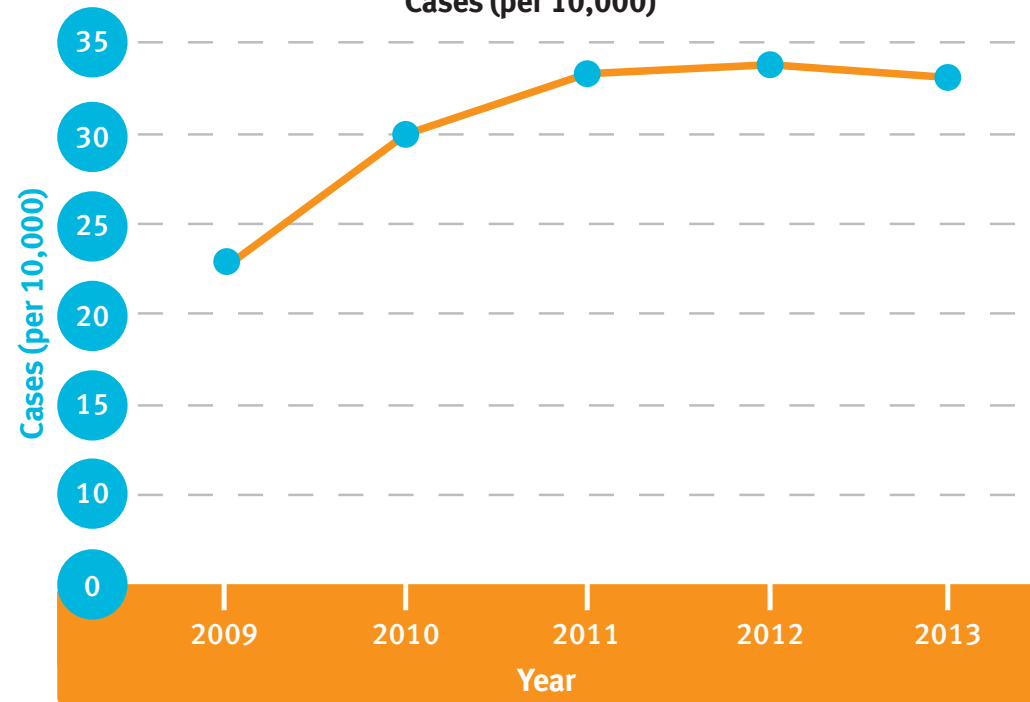
**3X**  
as likely to be infected with FIV



### Feline Immunodeficiency Virus | 2013 Cases (per 10,000)



### Feline Immunodeficiency Virus | 5-Year Trend Cases (per 10,000)



**Key takeaway:** Since 2009, the prevalence of cats infected with FIV has increased by 48 percent—from approximately 23 cases per 10,000 in 2009, to 33 cases per 10,000 in 2013.



## CASE STUDY



**Pet Name:** Marble  
**Breed:** Domestic Shorthair  
**Age:** 11 years  
**Hometown:** Atlanta, Ga.  
**Condition:** Feline immunodeficiency virus (FIV) infection  
**Diagnosed:** 2012

### Meet Marble

Marble's owners, Claudia and Mike, rescued her in 2011. They first met Marble at the construction site where they were building a new house. One cold and rainy day, Marble started pawing on their door.

Once the couple let her into their home, she became a permanent fixture in the family. Although it takes Marble a little while to warm up to new people, she loves being around those she is familiar with and is very affectionate. She has a weakness for catnip and loves scratching pieces of paper on the floor as well as chasing string.

### Diagnosis & Treatment

Marble never exhibited any warning signs of FIV infection. In fact, it was only when she was taken to Banfield for a regular comprehensive examination that FIV was detected during a routine blood test. After testing positive for FIV infection, Dr. Lindsay McClintock sat down with her family to educate them about the disease.

Although Marble currently has no signs of the disease, her owners are careful to watch out for small infections or colds, which may be difficult for Marble's immune system to combat. It is important that Marble has twice-yearly exams to detect problems early since her immune system may not fight infections as adequately as it needs to.

### Prognosis

Marble has a good prognosis and has not displayed any signs of her illness since she was diagnosed two years ago. In addition to providing regular preventive care, Marble's owners keep her indoors, which greatly reduces her risk of contracting other illnesses or spreading FIV to other cats.

### Preventive Measures

FIV is a virus that is spread through bites, fights and mating behavior. The best way to avoid FIV exposure is to keep cats indoors and away from other cats that might have the disease. It is important to test any new cats before introducing a new cat into the household. Outdoor cats should be tested annually for FIV given their increased risk for contracting the disease.



Marble's family, Marble and Dr. Lindsay McClintock

### Background

Feline leukemia virus (FeLV) is transmitted among cats through body fluids such as saliva, blood and urine. The virus is typically passed from mother to kitten or spread through close contact with an infected cat. Activities such as grooming each other, fighting and sharing litter boxes or bowls are common modes of transmission among cats. Cats at increased risk of FeLV infection include outdoor cats, which have the opportunity to meet up with potentially infected strays or other cats, and cats with immature immune systems, such as kittens.

Although some cats are able to fully recover from FeLV infection, the majority develop a persistent infection that leads to anemia and suppression of the immune system. This persistent infection makes cats susceptible to other infections and can result in serious health conditions including cancer, kidney disease, bone marrow disorders and death.

### Signs

Many adult cats with FeLV infection show no signs of being infected until the disease is in its advanced stages. Over time, an infected cat's health will slowly deteriorate and/or he or she will suffer from repeated infections from other germs because of a weakened immune system. Other signs of FeLV infection vary considerably and can include fever, weight loss and decreases in activity level and appetite.

### Diagnosis & Treatment

FeLV infection is typically diagnosed using a blood test. There is no known cure for FeLV infection. Owners of FeLV-infected cats can help extend the length and quality of their pet's life by seeking regular veterinary care and reporting any signs of illness as quickly as possible.

### Preventive Recommendations

The most effective way to prevent FeLV infection is to avoid exposure. Ideally, cats should be kept indoors and away from potentially infected cats. Cats allowed outdoors should be tested for FeLV infection annually, and new cats should be tested before entering the household.

A vaccination against FeLV infection is available. Because kittens are highly susceptible to infection, it is strongly recommended that all kittens be vaccinated against FeLV. Whether adult cats should be vaccinated depends on their risk of FeLV exposure. Owners of adult cats should consult their veterinarian to discuss whether vaccination is appropriate for their pet.

### Mode of Transmission/ Lifestyle Factors



### Bottom line

- In 2013, approximately 1 in every 250 cats had an FeLV infection.
- Intact cats 1 year of age or older were 4.5 times as likely to have an FeLV infection as same-aged spayed/neutered cats.
- Geographically, the Southeast was the area of highest risk; 7 of the 10 states with highest risk for FeLV infection are located in the Southeast.



In 2013, cats under 3 years of age were approximately

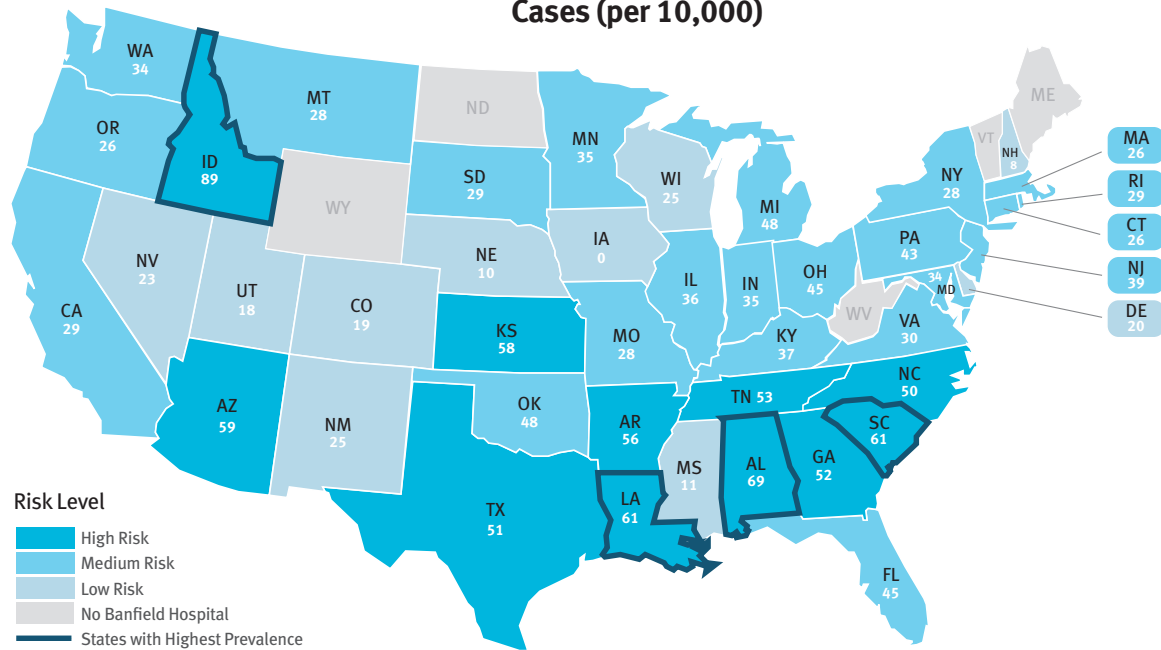
**2X** as likely to have an FeLV infection as mature adult cats (3 to 10 years of age) and

**3X** as likely as geriatric cats (>10 years of age)

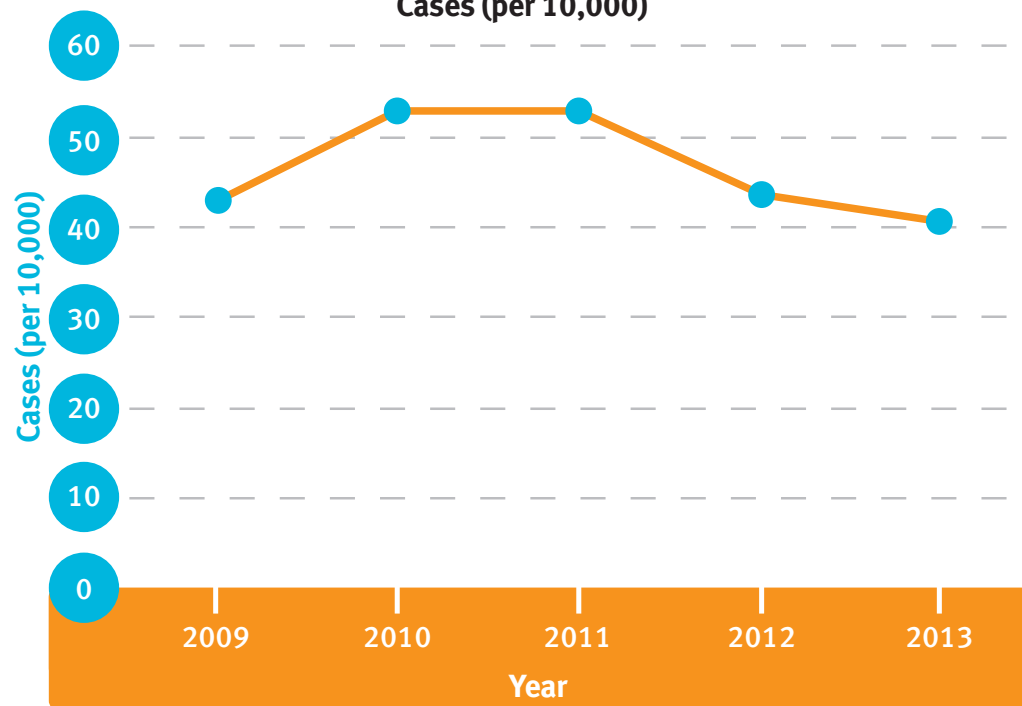




## Feline Leukemia Virus | 2013 Cases (per 10,000)



## Feline Leukemia Virus | 5-Year Trend Cases (per 10,000)



**Key takeaway:** The prevalence of FeLV infection has remained relatively stable over the past 5 years, dropping only 5 percent to 41 cases per 10,000 cats seen in 2013, from 43 cases per 10,000 in 2009.

## CASE STUDY



**Pet Name:** Kitty  
**Breed:** Domestic Shorthair  
**Age:** 7 years  
**Hometown:** Washington, Penn.  
**Condition:** Feline leukemia virus (FeLV) infection  
**Diagnosed:** 2013

### Meet Kitty

In 2009, Kitty’s family found him rolled up in a ball on their porch—he was so small, his new family thought he was a kitten. Kitty is an eccentric guy. He spends most of his time indoors; however, he refuses to use a litter box so as a result, he relieves himself outside. Despite his age, Kitty still has the energy of a kitten—he loves to run up and down the steps, chase his toys and play hide and seek.

### Diagnosis & Treatment

Kitty never exhibited any signs of FeLV infection. His disease showed up in a routine blood test at a veterinarian’s office. Once Kitty was diagnosed with the infection, the veterinarian recommended euthanasia. However, his owner Tamara decided to take Kitty to the local Banfield for a second opinion.

Although Kitty had a positive FeLV test prior to coming to Banfield, Dr. Vanessa Mirkovich wanted to confirm the infection with a blood test. After confirmation, Dr. Mirkovich let Tamara know that with proper treatment, Kitty’s infection could be managed to ensure he enjoys a good quality of life despite his illness.

### Prognosis

Today, Kitty’s prognosis is good and he appears to be doing well. As part of his treatment plan, Kitty will receive annual blood tests and his owners have been instructed to keep him away from other cats so he cannot transmit FeLV. Also, cats with FeLV infection are more susceptible to other illnesses because of their compromised immune system, so it is critical that Kitty continues receiving regular preventive care and be seen at the first sign of any problems.

### Preventive Measures

FeLV is a virus that is transmitted through close contact with an infected cat, including mutual grooming and sharing food, water bowls and litter boxes. Cats should generally be kept indoors and away from cats that might be harboring FeLV. If your cat is allowed outdoors, be sure to test him or her once a year for FeLV. Additionally, make sure to test any new cat you plan to bring into the household to avoid spreading the disease. Since kittens are more likely to contract FeLV and the disease is often more severe and fatal in young pets, it is recommended that all kittens receive the FeLV vaccine; however, it is best to speak with your veterinarian about your cat’s individual risk of contracting this disease.



Tamara, Kitty and Dr. Vanessa Mirkovich





# Feline Upper Respiratory Infection (URI)



## Background

Feline upper respiratory infection (URI) is a general term used to describe various infections of the nose, sinuses and throat in cats. Upper respiratory infections can be caused by various types of viruses and bacteria, but feline herpesvirus and feline calicivirus are the major contributors.

The organisms that cause URIs are present in body fluids and can be transmitted from cat to cat through coughing, sneezing or grooming. The germs can also be spread through contaminated objects such as food dishes and water bowls. All cats are susceptible to URI; however, unvaccinated cats, kittens and cats with weakened immune systems are more likely to contract the disease.

## Signs

The signs of URI vary according to the virus strain and the part of the respiratory tract involved, but illness typically resembles the common cold in humans. Infections generally show up as coughing, sneezing and congestion. Other signs of URI include fever, sores on the tongue and in the mouth and swollen, red, runny eyes or discharge (conjunctivitis), as well as a decrease in appetite and activity level.

## Diagnosis & Treatment

Because viruses (and not bacteria) are usually the primary cause of URIs, treatment is typically aimed at helping patients feel comfortable as they fight the infection. This means supporting the cat's needs for rest, food and water. A veterinarian may also prescribe antibiotics to help combat any secondary bacterial infection that might be present. Rarely, the infection may spread deeper into the lungs, causing pneumonia or more serious health conditions. In certain cases, some viruses that cause URIs can persist, causing occasional flare-ups of the original illness throughout a cat's lifetime. Regular veterinary examinations and preventive care can help support a strong immune system and make early detection easier.

## Preventive Recommendations

Ensuring that cats have healthy immune systems and are up-to-date on their vaccinations can help prevent infection. Core vaccines provide effective protection against the viruses responsible for some of the most common and severe infections; however, other organisms can cause URIs and vaccination does not guarantee protection against those germs.

Owners can decrease the likelihood that their cat will catch a URI by preventing contact between their cat and unvaccinated cats or those with an unknown vaccination history. Owners should also ensure that any new cats brought into the home have been vaccinated and are free of URIs.

## Mode of Transmission/ Lifestyle Factors

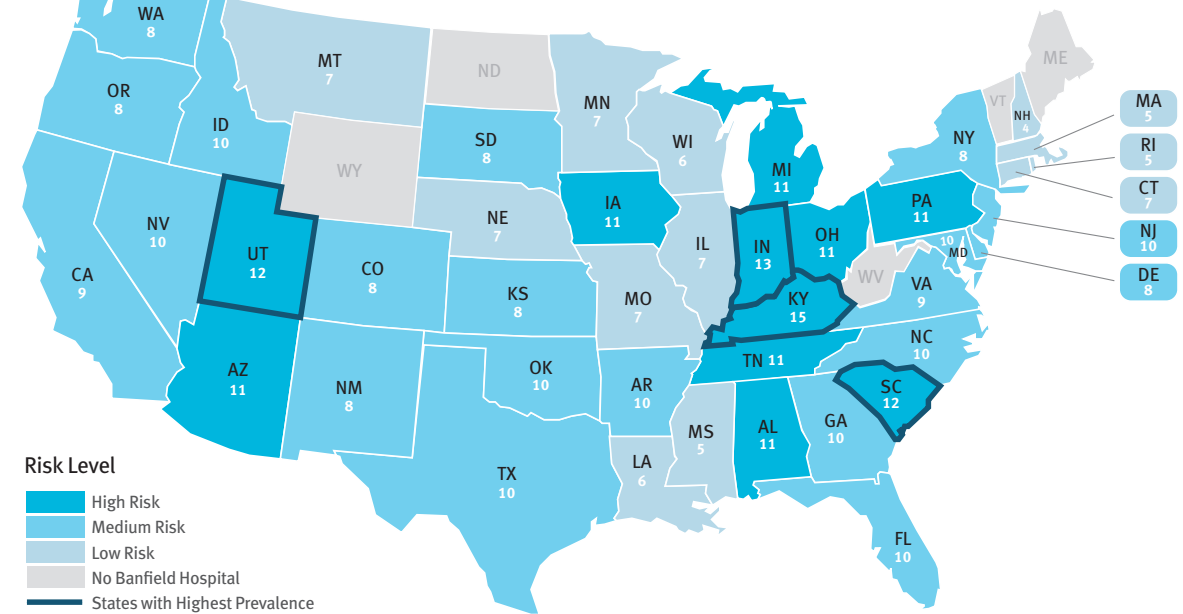


### Bottom line

- In 2013, 18 percent of juvenile cats (<1 year of age) had an upper respiratory infection; this age group was almost 3 times as likely to be diagnosed with the disease as were older cats.
- Intact juvenile cats were twice as likely as same-aged spayed/neutered cats to have an upper respiratory infection.
- Kentucky had the highest prevalence of feline upper respiratory infection in 2013, with about 1 in every 7 cats affected.

**1** in every **10** cats seen in 2013 had an upper respiratory infection—  
that's almost **10%** of cats seen

## Feline Upper Respiratory Infection | 2013 Cases (per 100)



## Feline Upper Respiratory Infection | 5-Year Trend Cases (per 100)



**Key takeaway:** The prevalence of upper respiratory infection in cats has increased by 18 percent in the past 5 years—from 8 cases for every 100 cats in 2009, to almost 10 cases per 100 in 2013.





## CASE STUDY



**Pet Name:** Kalli  
**Breed:** Domestic Longhair  
**Age:** 9 years  
**Hometown:** Mesa, Ariz.  
**Condition:** Upper respiratory infection  
**Diagnosed:** 2013

### Meet Kalli

Kalli was discovered roaming a neighborhood when her family-to-be started feeding her prior to taking her in as their family pet. Kalli was in bad shape at first, but after receiving regular care from her local veterinarian, she started gaining weight, her strength increased and her inquisitive, loving personality was revealed. Today, Kalli's favorite activities include running around the house and curling up on her owners' laps.

### Diagnosis & Treatment

When Kalli's family first took her in, she was very weak and thin. She exhibited low energy, had nasal discharge and was wheezy. Kalli also had a difficult time eating when food was placed on the floor, causing her owners to elevate her food bowl to nose level and even spoon feed her at times. These distressing signs resulted in her owner, Hazel, taking her to her local Banfield veterinarian for an examination.

Dr. Lisa Rempel completed a full physical examination which resulted in surprising findings for Hazel. Due to Kalli's small stature, Hazel had assumed that she was a kitten; however, Dr. Rempel found that Kalli was actually an older cat suffering from a number of chronic conditions including an upper respiratory infection, which she had most likely contracted from another cat.

Unfortunately, because an upper respiratory infection is often caused by a virus, there is no easy cure or treatment. Regular veterinary examinations and preventive care help keep Kalli's immune system strong so she can fight the virus.

### Prognosis

Kalli has responded well to her regular disease management and preventive care, which helps keep the respiratory disease at bay. Dr. Rempel expects that Kalli will need intermittent antibiotics to control her chronic rhinitis, also known as a runny nose. Kalli regularly visits the veterinarian for routine checkups to ensure she is healthy and receiving the preventive care she needs to live a long and healthy life.

### Preventive Measures

Upper respiratory infection can be caused by bacteria or viruses and is transmitted through close contact with an infected cat. Making sure that your cat is up-to-date on vaccinations and has a healthy immune system can help prevent upper respiratory infections. Please keep in mind that infection can be caused by a number of factors, so vaccines alone cannot protect cats from this disease. Preventing contact between your pet and those with unknown vaccination histories is a good way to prevent exposure.



Dr. Lisa Rempel and Kalli

### Background

Ear mites are tiny insects that are hard to see with the naked eye. They live in the ear canal, where they feed on ear wax and skin oils. Highly contagious, these mites are usually spread from pet to pet through direct contact or contaminated objects like bedding or blankets. Both dogs and cats are susceptible to ear mite infestation, although the problem is more common in cats. Outdoor cats are at increased risk of contracting the parasite because they have the opportunity to interact with stray or other affected cats, while kittens are especially vulnerable to severe infections because their immune systems are not fully developed.

Ear mites cause extreme irritation, which can lead to inflammation and scratching of the ears. If left untreated, damage from excessive scratching may lead to other types of infections of the ears or surrounding skin.

### Signs

Pets with ear mite infestation will usually show their discomfort by frequently scratching their ears or shaking their head. The infestation often results in a coarse, dark discharge from the ears resembling coffee grounds. Signs of ear mite infestation can be similar to those of other ear infections, so it is important to consult a veterinarian to confirm the presence of ear mites prior to treatment.

### Diagnosis & Treatment

It is recommended that pet owners routinely check their cat's ears at home. In addition, regular veterinary examinations can help identify ear problems early. A veterinarian will confirm the presence of ear mites by thoroughly examining the ears, rubbing a swab inside the ears and studying the swab contents under a microscope. Ear mite infestation is generally easy to treat with gentle ear cleaning, prescription medication and follow-up examinations. If a bacterial infection is also involved, additional treatment such as antibiotic therapy may be prescribed. Because of the extremely contagious nature of the disease, other pets sharing the home with an affected pet may also need treatment.

### Preventive Recommendations

The best way to prevent ear mite infestation is to keep pets from becoming exposed to the mites. If possible, cats should be kept indoors and away from other cats that might have ear mites. The bedding and living space of affected pets should be thoroughly washed to ensure the destruction of any mites. In addition, several topical flea and/or tick preventive products are available that can aid in the treatment and control of ear mite infestations in cats—owners should follow their veterinarian's recommendation for the use of these products.

### Mode of Transmission/ Lifestyle Factors



### Bottom line

- About 1 of every 45 cats seen in 2013 were infested with ear mites.
- Intact cats 1 year of age or older were almost 4 times as likely to have ear mites as same-aged spayed/neutered cats.
- The states with the highest prevalence of ear mite infestation in 2013 were South Dakota, Iowa and Alabama; 8 percent of all cats seen in South Dakota had ear mites.

In 2013, juvenile cats (< 1 year of age) were more than

8X

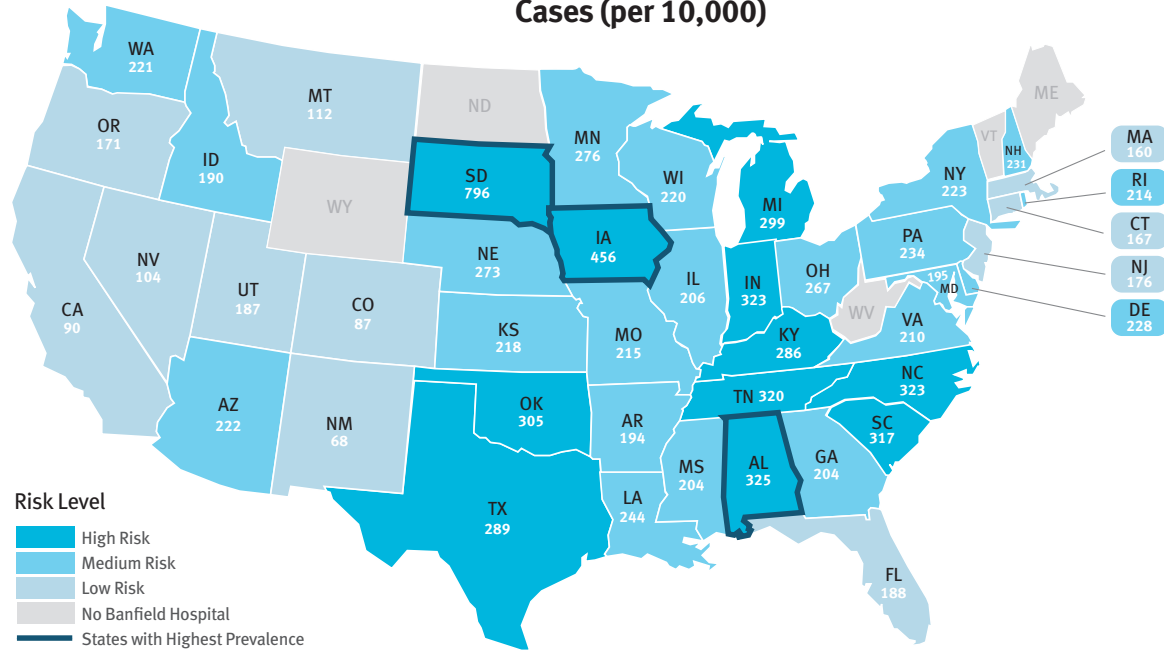


as likely to have ear mites compared with cats over 1 year of age

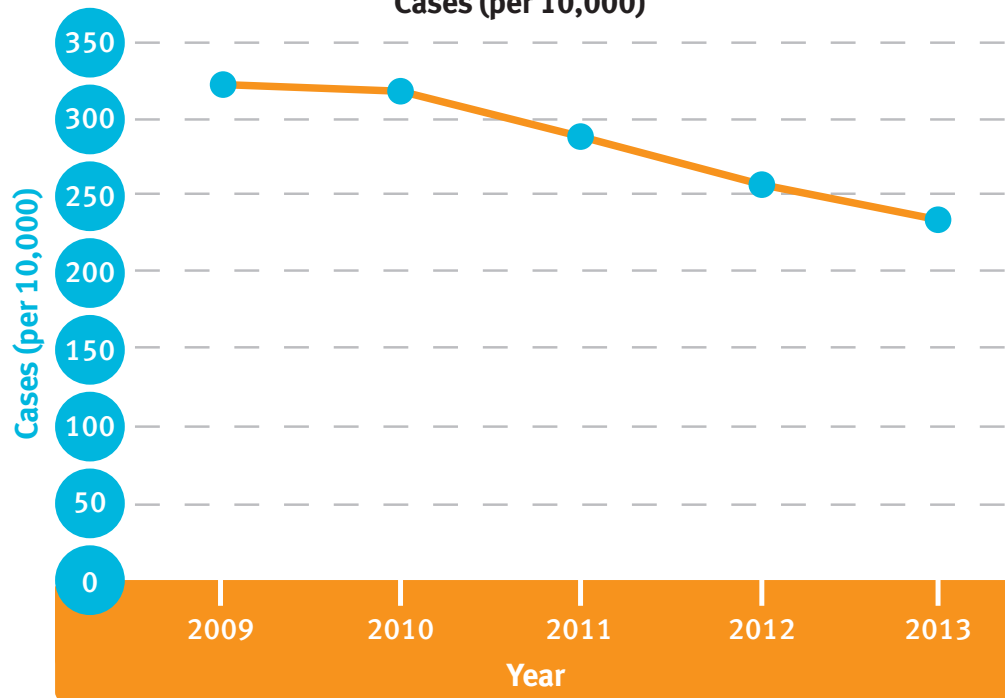




## Ear Mites | 2013 Cases (per 10,000)

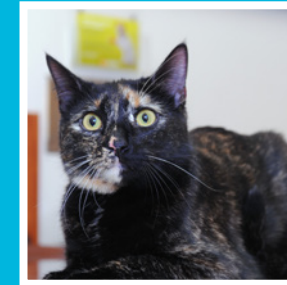


## Ear Mites | 5-Year Trend Cases (per 10,000)



**Key takeaway:** The prevalence of ear mite infestation has decreased by 28 percent over the past 5 years—in 2013, 233 of every 10,000 cats seen had ear mites, compared with 325 per 10,000 in 2009.

## CASE STUDY



**Pet Name:** Quinn  
**Breed:** Domestic Shorthair  
**Age:** 1 year  
**Hometown:** Hanover, Md.  
**Condition:** Ear mites  
**Diagnosed:** 2013

### Meet Quinn

Quinn is a pretty laid-back cat whose favorite activity is to snuggle up with her owners—preferably on their chests. A feline with a sock fetish, Quinn loves to play with socks and chase toys around the house.

### Diagnosis & Treatment

At a routine preventive care visit with Quinn’s Banfield veterinarian, Dr. Trevor Ashley noticed a brownish-black discharge in her ears. Quinn also exhibited irritation during her otoscopic (ear) exam.

After noticing these signs of ear mite infestation, Dr. Ashley collected an ear swab, which was examined under the microscope and revealed ear mites. That day, Quinn received a thorough ear cleaning followed by topical administration of two different types of medicines to kill the ear mites. Quinn was seen two weeks later for another comprehensive ear cleaning and follow-up ear exam, which confirmed the mites had been successfully removed.

### Prognosis

Quinn was clear of ear mites at her first follow-up appointment. She was seen again in January 2014 and showed no sign of the condition. Quinn was lucky—many pets require several treatments to get rid of ear mites, so it’s important that they receive regular checks.

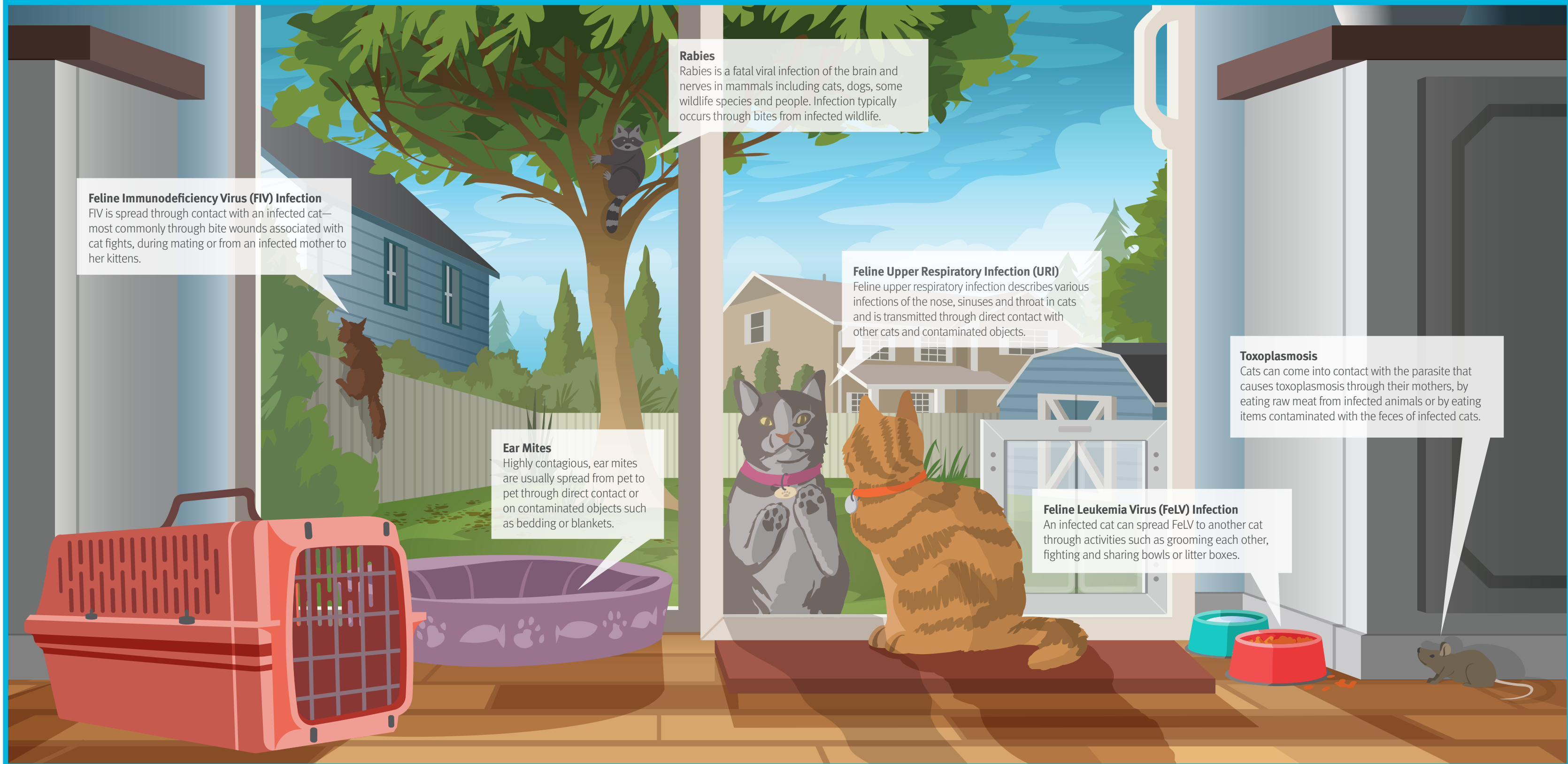
### Preventive Measures

Ear mites are tiny parasites that cause a significant inflammatory reaction in cats’ ears and sometimes surrounding skin. Pet owners should check their cat’s ears regularly at home for signs of itchiness or swelling, particularly if the cat goes outdoors. If there is any unusual discharge, see a veterinarian as soon as possible. Another good preventive measure is to give your pet flea preventive, which can help protect pets from ear mites.



Quinn’s family, Dr. Trevor Ashley and Quinn





**Feline Immunodeficiency Virus (FIV) Infection**  
 FIV is spread through contact with an infected cat—most commonly through bite wounds associated with cat fights, during mating or from an infected mother to her kittens.

**Rabies**  
 Rabies is a fatal viral infection of the brain and nerves in mammals including cats, dogs, some wildlife species and people. Infection typically occurs through bites from infected wildlife.

**Ear Mites**  
 Highly contagious, ear mites are usually spread from pet to pet through direct contact or on contaminated objects such as bedding or blankets.

**Feline Upper Respiratory Infection (URI)**  
 Feline upper respiratory infection describes various infections of the nose, sinuses and throat in cats and is transmitted through direct contact with other cats and contaminated objects.

**Feline Leukemia Virus (FeLV) Infection**  
 An infected cat can spread FeLV to another cat through activities such as grooming each other, fighting and sharing bowls or litter boxes.

**Toxoplasmosis**  
 Cats can come into contact with the parasite that causes toxoplasmosis through their mothers, by eating raw meat from infected animals or by eating items contaminated with the feces of infected cats.



**Kennel Cough**  
 Kennel cough is transmitted through direct contact with an infected dog, inhalation of contaminated air from a coughing or sneezing dog or interaction with contaminated objects.

**Lyme Disease**  
 Lyme disease is transmitted when an infected deer tick attaches to a person or animal and feeds on the victim's blood over the course of several days, allowing the bacteria to enter the bloodstream.

**Leptospirosis**  
 Dogs can contract leptospirosis by drinking, swimming or wading in contaminated water, sniffing or licking urine from an infected animal, or by direct contact with an infected animal (including some wild animals).

**Canine Distemper**  
 Canine distemper virus is transmitted through direct contact with an infected dog, inhalation of contaminated air from a coughing or sneezing dog or through interaction with objects that are contaminated with saliva from infected dogs, such as chew toys or shared bowls.

**Canine Parvovirus**  
 Parvovirus is passed in the feces of infected dogs and typically transmitted through oral contact with an infected dog's feces or surfaces the feces has touched. The virus can survive outside a dog's body in the environment for many months.

**Giardia Infection**  
 Dogs can catch *Giardia* by licking, eating or drinking water, food or other surfaces that have been contaminated with feces from infected animals (including some wildlife).



# Canine Parvovirus Infection



## Background

Canine parvovirus is a highly contagious virus that attacks the gastrointestinal tract of infected dogs. In very young dogs the virus may also attack the heart muscle, a condition that is often fatal. Young dogs and dogs that have not fully completed their puppy vaccination series are at the greatest risk of contracting parvovirus, although any dog has the potential to become infected.

Parvovirus is passed in the feces of infected dogs and typically transmitted through oral contact with that feces or surfaces the feces has touched. The virus can survive outside a dog's body in the environment for many months and can be transferred to new locations on contaminated items such as clothing or shoes.

## Signs

Parvovirus infection causes vomiting and diarrhea, which can lead to severe dehydration. Other signs may include fever and decreases in activity level and appetite. Dogs with any of these signs should receive immediate veterinary attention.

## Diagnosis & Treatment

The diagnosis of parvovirus infection is made with a fecal test performed by a veterinarian. Treatment varies according to the severity of the disease, but often involves hospitalization and intensive care as the dog fights the infection. Veterinary care may include intravenous fluid and electrolyte therapy, antibiotics, nutritional support and/or anti-vomiting medications. Early detection and aggressive treatment can improve a pet's chances of a full recovery, but even with intensive veterinary care, some critically ill patients may not survive.

## Preventive Recommendations

Effective vaccines are available to prevent parvovirus infection, and vaccination is recommended for all dogs, beginning at puppyhood. Pet owners should consult their veterinarian to ensure their dog is protected and up-to-date on his or her vaccinations. Vaccination greatly reduces the risk of parvovirus infection; however, on rare occasions, a dog's immune system may not completely respond to vaccination, and those dogs may not be fully protected against the disease.

Puppies have a greater chance of contracting parvovirus—typically, the most serious cases of parvovirus infection occur in puppies under the age of 1 year. Because the virus can survive in the environment for many months, puppy owners should avoid areas where dogs of unknown vaccination status gather (e.g., dog parks) until their pets have received the complete puppy series of vaccines.

## Mode of Transmission/ Lifestyle Factors



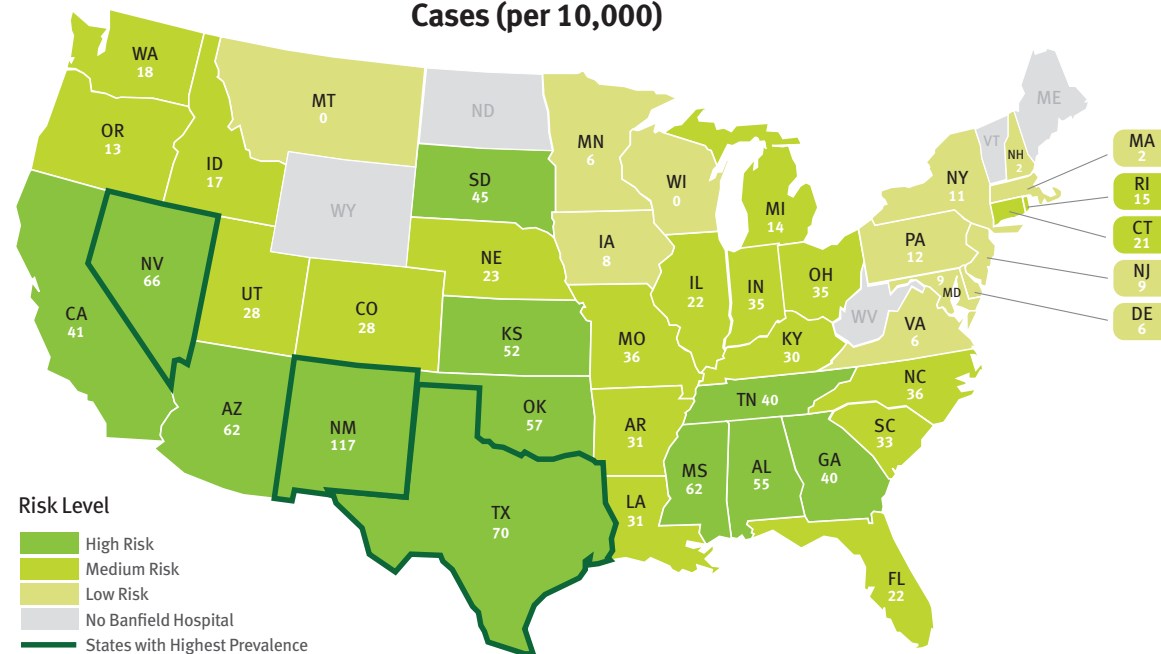
### Bottom line

- Overall, about 1 in every 290 dogs seen at Banfield in 2013 tested positive for parvovirus infection.
- States with the highest prevalence of parvovirus infection were New Mexico, Texas and Nevada.

Intact dogs 1 year of age and older were almost 23 times as likely to be infected as same-aged spayed/neutered dogs



### Parvovirus | 2013 Cases (per 10,000)



### Parvovirus | 5-Year Trend Cases (per 10,000)



**Key takeaway:** The prevalence of parvovirus infection in dogs has remained fairly stable over the past 5 years—however, despite the availability of effective vaccines, the disease persists.

Puppies are at greatest risk of parvovirus infection. In 2013, 1 in every 74 dogs under the age of 1 year had a parvovirus infection





## CASE STUDY



**Pet Name:** Papuchi  
**Breed:** Chihuahua  
**Age:** 8 months  
**Hometown:** Miami, Fla.  
**Condition:** Parvovirus infection  
**Diagnosed:** 2013

### Meet Papuchi

A little dog with a big personality, Papuchi follows his family everywhere. Papuchi was brought home as a puppy in October 2013. At the time, Papuchi was only 10-weeks-old and weighed a pound. His favorite activities include playing with Honey (a cat) and chasing stuffed animals.

### Diagnosis & Treatment

About a week after bringing Papuchi home, his owner Sandy noticed his energy level plummeted to the point where he couldn't lift his head, he wouldn't eat and he had diarrhea. Additionally, he started throwing up and his owner noticed that there was blood in his vomit. Sandy took Papuchi to her local Banfield after noticing these troubling signs.

Dr. Christine James ran a parvovirus test and confirmed that Papuchi indeed had the disease. She also performed an exam and blood work to check both red blood cell and white blood cell counts and organ function. Papuchi was immediately hospitalized and placed on intravenous (IV) fluid therapy. He was also given IV antibiotics and injections for nausea and vomiting. After two days of treatment, Papuchi finally started feeling better. He was sent home on oral medications and a prescription diet with instructions to bring him back for a follow-up appointment one week later.

### Prognosis

Papuchi is a lucky boy—although parvovirus infection can be deadly, he returned for his follow-up appointment happy, well-hydrated and full of energy. His prognosis is great, and he is currently up-to-date on all of his preventive care.

### Preventive Measures

Parvovirus infection most typically affects puppies. In Papuchi's case, it is likely that he contracted this disease from his littermates. Until a pet has received its complete series of puppy vaccines, it is wise to avoid areas where lots of dogs gather (e.g., dog parks or day care facilities) as the disease is highly contagious and the virus can survive in the ground for many months. Most importantly, there is an effective vaccine to prevent parvovirus infection, so be sure to vaccinate your dog as recommended by your veterinarian.



Sandy, Papuchi and Dr. Christine James



## Background

*Giardia* is a microscopic parasite that attaches to the lining of the small intestine of infected dogs, causing a disease called giardiasis. Dogs can become infected by eating food, drinking water or licking surfaces that have been contaminated with feces from infected animals (including wildlife). Infected dogs pass *Giardia* in their feces.

## Signs

Not all dogs with a *Giardia* infection will appear sick. In dogs that do appear sick, severe diarrhea is the most common sign of infection. Other possible signs include weight loss, vomiting and a decrease in activity level.

## Diagnosis & Treatment

A veterinarian checks for *Giardia* infection by performing a fecal test and/or examining a sample of a dog's feces under a microscope. Several prescription medications are available to treat a confirmed *Giardia* infection. The parasite can be difficult to get rid of, and the infection can lead to serious illness without proper veterinary care. A veterinarian will typically prescribe antibiotics and/or deworming medications to kill the parasite and recommend that treated dogs come in for a follow-up evaluation to ensure that they have fully cleared the infection.

## Preventive Recommendations

All dogs are susceptible to *Giardia* infection, but young puppies or dogs housed in crowded conditions are at an increased risk. There is no effective vaccine, so the best way to prevent infection is to avoid exposure. Dog owners should keep their pets away from other dogs' feces and prevent their dogs from drinking out of potentially contaminated water sources such as ponds, creeks or puddles.

*Giardia* can survive in the environment for weeks to months at a time and can reinfect treated dogs that are re-exposed to the parasite. Whether the strain that infects dogs can also infect people is not fully understood. However, it is always a good idea to practice good hygiene whenever handling pets—this is especially important for children. For the safety of people and other animals, owners of infected dogs should make sure their pet's feces is picked up immediately and thrown away to prevent contact.

## Mode of Transmission/ Lifestyle Factors



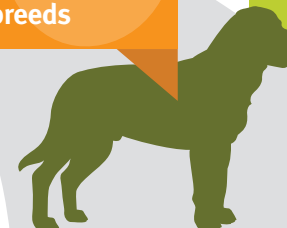
The risk of *Giardia* infection was lowest in **toy/small breeds**



Large breed dogs were

**50%**

more likely to be infected with *Giardia* compared to **toy/small breeds**



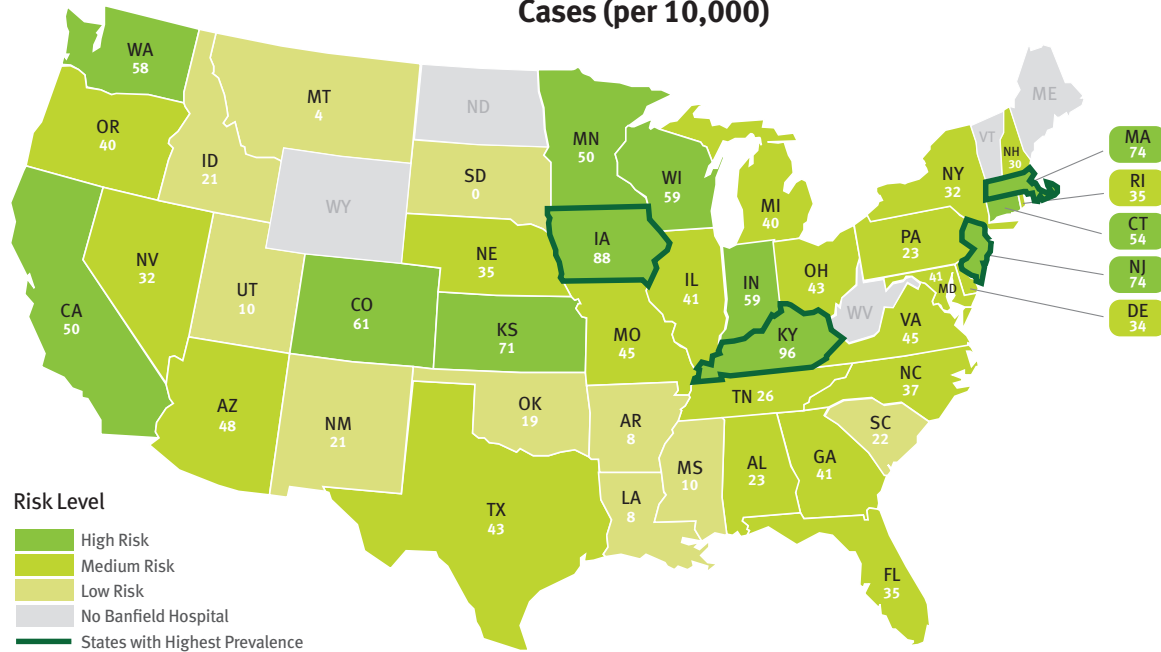
## Bottom line

- About 1 in every 230 dogs had a *Giardia* infection in 2013.
- Juvenile dogs (<1 year) were by far the age group at greatest risk for *Giardia* infection in 2013, with about 1 in every 72 puppies affected.
- *Giardia* infection was most common in dogs living in the Central and Northeastern United States, particularly in Kentucky, Iowa, Massachusetts and New Jersey.





## Giardia Infection | 2013 Cases (per 10,000)

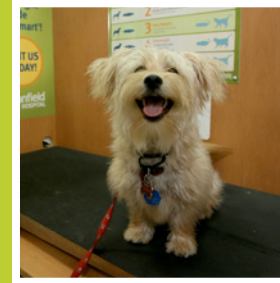


## Giardia Infection | 5-Year Trend Cases (per 10,000)



**Key takeaway:** *Giardia* infection is becoming less common. In 2013, 48 of every 10,000 dogs were identified as infected, compared with 56 per 10,000 in 2009—a 14 percent decrease.

## CASE STUDY



**Pet Name:** Lazer  
**Breed:** Yorkie Mix  
**Age:** 7 months  
**Hometown:** Canoga Park, Calif.  
**Condition:** *Giardia* infection  
**Diagnosed:** 2013

### Meet Lazer

Lazer might be a Yorkie mix, but he has the heart of a Great Dane! Lazer was rescued from a family that wasn't able to care for him and became a welcomed Christmas gift for his new owner, Krystle, on Dec. 25, 2013. At the time of his adoption, Lazer had not been receiving preventive care and was not up-to-date on his shots.

### Diagnosis & Treatment

Shortly after adoption, Lazer's owner noticed that he was suffering from persistent diarrhea. Given the fact that Lazer is a young dog that is typically out and about exploring crowded places like dog parks, Dr. Nina Nardi's first step was to test him for intestinal parasites—specifically *Giardia*. The results came back positive. Lazer was treated with medication to kill the *Giardia* parasite and an antibiotic to treat Lazer's diarrhea. The treatment usually lasts five or more days.

### Prognosis

Lazer was recently seen by Dr. Nardi who is happy to report that he no longer suffers from *Giardia* and is back to normal. However, Lazer's owners were advised to watch him and his surroundings closely to make sure that he doesn't contract the parasite again.

### Preventive Measures

*Giardia* is a microscopic intestinal parasite found in soil or water that has been contaminated with the feces of an infected animal. Since there is no effective vaccine for *Giardia*, the best preventive measure is to limit exposure to other animals or items that may contain the parasite such as dog feces and water sources like ponds or shared water bowls. It is also a good rule of thumb to always clean up after your dog to prevent the spread of infection to other pets.



Dr. Nina Nardi and Lazer





## Background

Kennel cough is the common name for canine infectious tracheobronchitis, a highly contagious respiratory infection that affects dogs and has multiple causes. The disease is primarily caused by *Bordetella bronchiseptica* (a type of bacteria), but other germs such as parainfluenza virus or *Mycoplasma* (another type of bacteria) can contribute to the illness.

Dogs can catch kennel cough through direct contact with an infected dog, breathing in contaminated air from a coughing or sneezing dog or interacting with contaminated objects like food dishes or water bowls. Kennel cough is often spread at crowded or poorly ventilated locations such as boarding facilities, animal shelters or dog parks. Young and unvaccinated dogs are at increased risk of contracting the disease.

## Signs

The most common sign of kennel cough is a frequent dry cough, which may sound like gagging or retching in some dogs. Coughing episodes are often made worse when a dog is excited or physically active. Aside from the distinctive cough, many dogs with kennel cough lack other signs of illness and behave as usual. Severe infections are characterized by fever, runny nose and/or eyes or decrease in appetite, and, if left untreated, may progress to pneumonia.

## Diagnosis & Treatment

A veterinarian will typically diagnose kennel cough by thoroughly examining the dog, assessing it for signs of illness and asking questions about possible recent exposure to other infected dogs. The disease is generally treated with antibiotics and cough suppressant medications. If the infection involves a virus, it may need to run its course before full healing can occur. Pet owners can support their dog's healing by keeping him or her well-hydrated as well as providing nutritious food and a low stress environment.

## Preventive Recommendations

Effective vaccines are available to protect against the main causes of kennel cough and are highly recommended because of the extremely contagious nature of the disease. To prevent infection by germs not covered by vaccines, owners are encouraged to limit their dog's exposure to other dogs in public places, choose boarding and day care facilities that require up-to-date vaccinations and monitor their dog's health through regular veterinary checkups. It is also important for owners of dogs with kennel cough to stop the spread of the disease by keeping their dogs separated from other dogs.

## Mode of Transmission/ Lifestyle Factors



## Bottom line

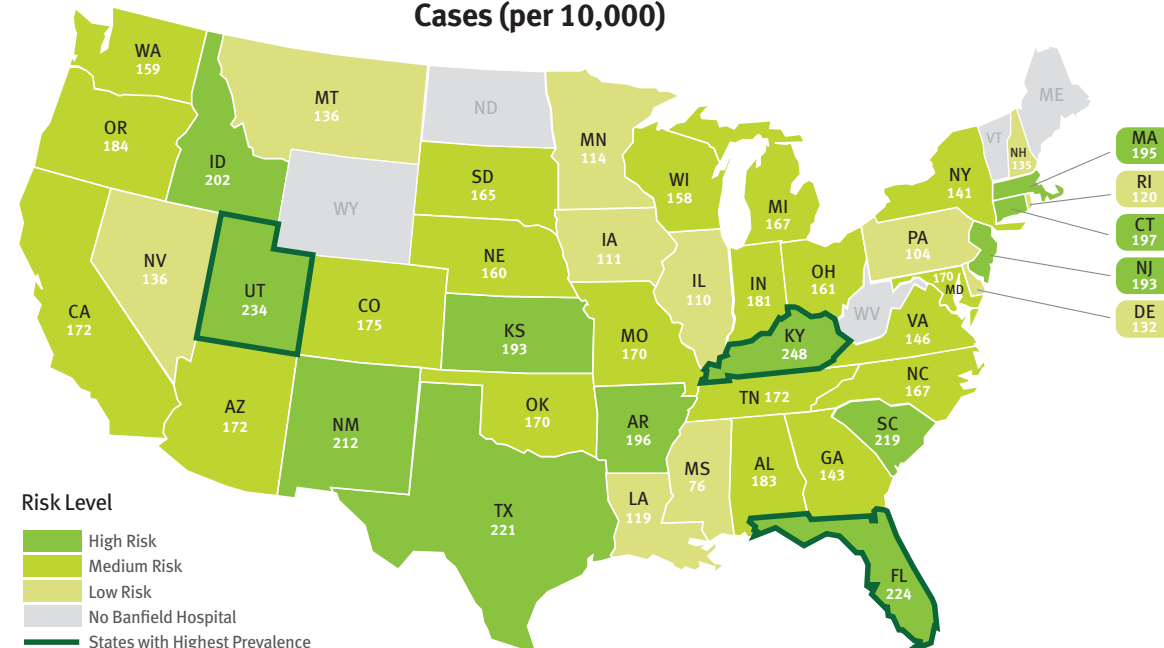
- Overall, almost 2 percent of dogs seen at Banfield in 2013 had kennel cough.
- States with the highest prevalence of kennel cough in 2013 were Kentucky, Utah and Florida.

Kennel cough was most common in juvenile dogs (<1 year), with



(1 in 36) affected

## Kennel Cough | 2013 Cases (per 10,000)



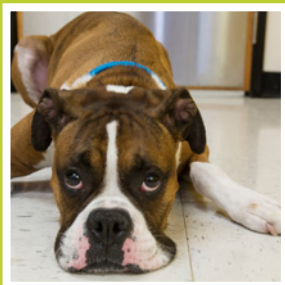
## Kennel Cough | 5-Year Trend Cases (per 10,000)



**Key takeaway:** The prevalence of kennel cough in dogs has fluctuated somewhat over the past 5 years, but the overall difference is minimal (a 2 percent decrease). Despite the availability of effective vaccines, this highly contagious disease remains a significant threat to pet health.



## CASE STUDY



**Pet Name:** Scout  
**Breed:** Boxer  
**Age:** 3 years  
**Hometown:** Hoover, Ala.  
**Condition:** Kennel cough  
**Diagnosed:** 2013

### Meet Scout

Scout is a loyal and goofy dog known for being quite the social butterfly—he loves people and hanging out with canine friends at the dog park. Scout also enjoys playing in pastures as well as regularly visiting local farms in the area.

### Diagnosis & Treatment

Scout's owner, Angie, went out of town for work and arranged for Scout to stay at an overnight boarding facility. Upon her return, she was told that Scout acted nervous and had not eaten well during her absence. Shortly after returning home, Scout started throwing up and could not hold down water, which was followed by a bout of coughing and gagging. This unusual behavior worried Angie, so she made an appointment at her local Banfield for the next day.

Given Scout's health problems and recent stay at the boarding facility, Dr. Rhesa Houston immediately suspected kennel cough. A call to the boarding facility confirmed that another dog that was cared for at the same time as Scout had been diagnosed with kennel cough. As a result, Dr. Houston felt confident that he was suffering from the disease. Scout was given an injection of a cough suppressant, cough tablets and a prescription for antibiotics.

### Prognosis

Scout's treatment was a success and he is now back to his normal, adventurous self. Given Scout's history of frequent boarding, Scout receives the intranasal *Bordetella* vaccine every six months to reduce his chance of catching kennel cough in the future.

### Preventive Measures

Kennel cough is highly contagious and is often spread at crowded locations such as boarding facilities and dog parks. Since the disease is typically caused by the bacterium *Bordetella bronchiseptica*, the *Bordetella* vaccine is a good preventive measure. Additionally, it is recommended that owners choose boarding and day care facilities that require up-to-date vaccinations to limit risk of exposure to an infected dog.



Dr. Rhesa Houston and Scout



## Background

Lyme disease is caused by a type of bacteria (*Borrelia burgdorferi*) that is spread by an infected deer tick. Transmission occurs when the deer tick attaches to a person or animal and feeds on its blood over the course of several days, allowing the bacteria to enter the victim's bloodstream.

Dogs, people and other mammals are susceptible to Lyme disease. Cats can also catch the disease, but are mostly resistant to it. The bacteria cannot be transmitted directly from pet to owner, but pets can bring an infected tick into the home or yard, where it might bite people and spread the disease to them.

The deer ticks that carry the bacteria responsible for Lyme disease are most commonly found in the Northeastern and upper Midwestern United States, but can be found elsewhere. Dogs that live where deer ticks are found are at increased risk for contracting the disease as the ticks transmit, particularly if dogs spend time in wooded or grassy areas.

## Signs

For dogs, one of the most common signs of Lyme disease is recurrent lameness caused by inflammation of the joints. Inflammation can last for several days at a time and may shift from leg to leg. Other signs of Lyme disease may include fever, as well as a decrease in activity level and appetite. In rare instances, dogs with Lyme disease can develop acute kidney disease, a serious and potentially life-threatening complication.

## Diagnosis & Treatment

Exposure to the bacteria that cause Lyme disease can be confirmed by a veterinarian using a blood test; however, many dogs that test positive may never develop signs of the disease. Owners of dogs that test positive should work with their veterinarian to determine whether their dog requires treatment. Treatment typically involves antibiotics. For severely ill dogs, a veterinarian may recommend hospitalization, fluid therapy and/or anti-inflammatory medication. If left untreated, Lyme disease can cause long-term problems including kidney disease or arthritis.

## Preventive Recommendations

Prevention of Lyme disease consists of measures to protect dogs from *Borrelia* infection through tick bites. An effective way to do this is to prevent tick exposure through the use of flea and tick collars or preventive medications such as topical flea and tick products. Other ways to prevent exposure include making the environment surrounding the home inhospitable to ticks and the wildlife that harbor them (*e.g.*, mice and deer). This can be accomplished by keeping shrubbery and grass clipped short, weeds under control and garbage stored in a covered location inaccessible to wildlife.

After spending time outdoors, especially during late spring through the fall, dogs in at-risk areas should be carefully examined for ticks and if discovered, each whole tick should be carefully and immediately removed. A deer tick must typically be attached for more than 24 hours before Lyme disease can be transmitted to a dog, making regular tick checks an important measure of prevention.

Effective vaccines are also available to prevent Lyme disease in dogs in case they are bitten by an infected tick. Pet owners are encouraged to consult with their veterinarian to discuss the best protection options for their pet based on lifestyle and geographic location.

## Mode of Transmission/ Lifestyle Factors

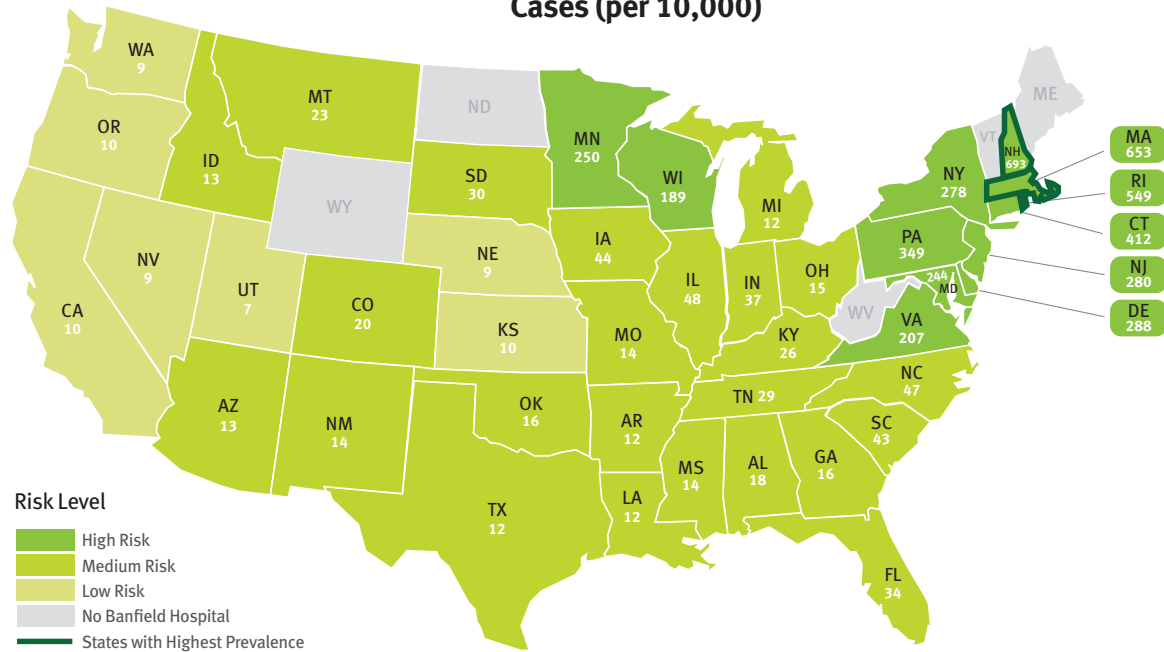


### Bottom line

- About 1 in every 130 dogs was infected with the bacterium that causes Lyme disease in 2013.
- The Northeastern states are hot spots for Lyme disease. New Hampshire had the highest prevalence of infection in 2013 at about 1 in every 15 dogs seen.
- Infection was twice as common in large breed dogs (111 cases per 10,000) as in toy/small breed dogs (55 cases per 10,000).



### Lyme Disease | 2013 Cases (per 10,000)

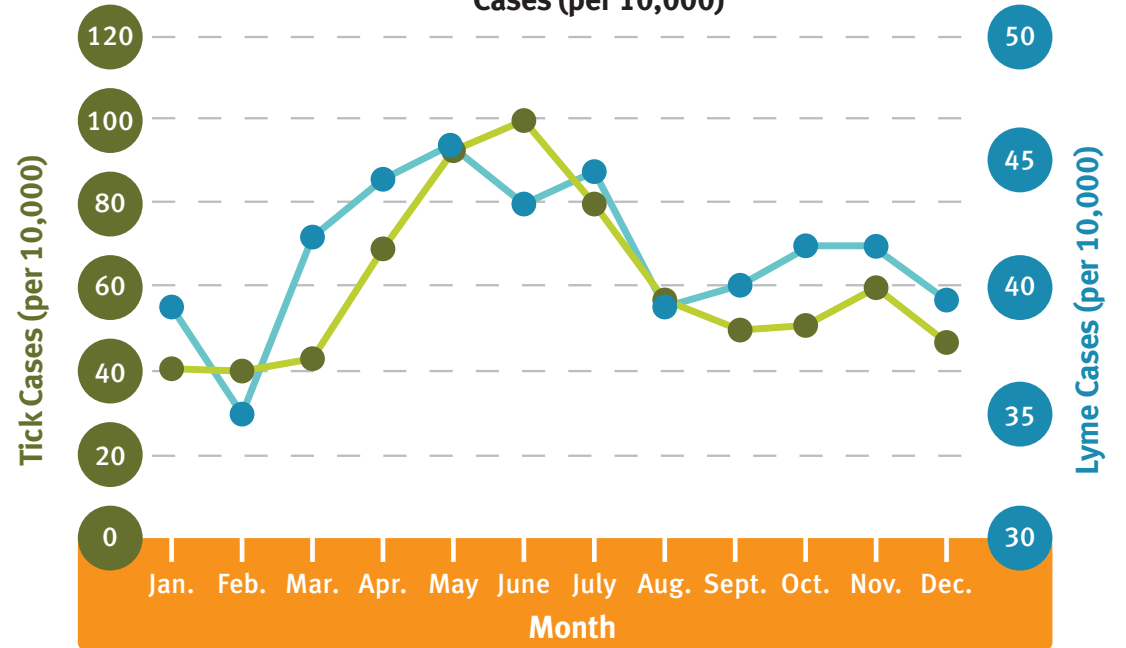


### Lyme Disease | 5-Year Trend Cases (per 10,000)



**Key takeaway:** The prevalence of infection with the bacterium that causes Lyme disease has increased by 21 percent since 2009—from 53 cases per 10,000, to 64 cases per 10,000 in 2013. This change corresponds to a similar increase in tick infestation over the same period.

### Lyme Disease | 12-Month Trend\* Cases (per 10,000)



\* Note the difference in scale between cases of tick infestation and Lyme disease



**Key takeaway:** More dogs were diagnosed with Lyme disease in the spring and early summer of 2013 than at any other time of the year. This peak in prevalence corresponds with the peak in tick infestation seen in dogs in 2013, showing the link between ticks and the spread of Lyme disease.

Geriatric dogs (> 10 years of age) were about



**10X**  
as likely to be infected with the bacterium that causes Lyme disease

as were juvenile dogs (< 1 year of age) in 2013





## CASE STUDY



**Pet Name:** Dozer  
**Breed:** Rhodesian Ridgeback  
**Age:** 1 year  
**Hometown:** Northborough, Mass.  
**Condition:** Lyme disease  
**Diagnosed:** 2014

### Meet Dozer

Dozer's two loves in life are riding in his owner's truck and tracking deer in the woods. Dozer acts like a big teddy bear—he loves to be around people and other dogs, and follows his owners all around the house. Dozer lives with two cats and enjoys spending time in the great outdoors.

### Diagnosis & Treatment

Dozer's owner, Steve, suspected something was wrong when Dozer stopped eating his meals and started limping. He was lethargic and seemed to be in pain, which resulted in constant whining. Since this behavior was so unlike Dozer, Steve took him to the local Banfield hospital.

Given Dozer's outdoor activities and health problems, and taking into account that the past year had been particularly bad for ticks in the area, Dr. Cheryl Brocki suspected that he was suffering from Lyme disease. After a blood test was conducted, Dozer was diagnosed with Lyme disease. Dr. Brocki treated Dozer with antibiotics and a pain reliever.

### Prognosis

Today, Dozer is doing well and has an excellent prognosis. At his follow-up appointment, Dr. Brocki was pleased to see that Dozer's energy had returned to normal. In a follow-up appointment, Dr. Brocki discussed the need for a monthly flea and tick preventive to keep Dozer from contracting the disease again. She also stressed the importance of an annual Lyme vaccine for Dozer.

### Preventive Measures

Lyme disease is a bacterial infection that is transmitted through the bite of an infected tick. While both humans and dogs are susceptible to Lyme disease, it cannot be transmitted directly from pets to people. The Lyme vaccine can prevent the disease in dogs. Pet owners are encouraged to discuss prevention with their veterinarian, whose recommendations will vary based on their pet's lifestyle (e.g., outdoor activities) and location. Preventive flea and tick treatments can help prevent tick exposure. This is particularly important if a dog spends time in the outdoors in high-risk areas of the country such as the Northeast.



Steve, Dozer and Dr. Cheryl Brocki

The infectious diseases featured in this report are only a few of the many infections pets can contract through their interactions with other pets, other animals or their surroundings. These diseases were chosen because we can confirm their prevalence through specific, characteristic clinical signs and/or routine diagnostic testing. Other infectious diseases were not covered because they are rare (due to state or local laws that require pets to be vaccinated against the disease) or because they cause signs of illness that are not specific to any one disease and/or testing is not routinely performed to detect them. However, these diseases can still negatively impact the life of a pet. The best way to prevent a pet from contracting an infectious disease is to provide regular, comprehensive preventive care that includes necessary vaccinations as recommended by your veterinarian, based on your pet's lifestyle and geographic location.

## DISEASES AFFECTING CATS AND DOGS

### Rabies

**Overview:** Rabies is a fatal viral infection of the brain and nerves in mammals including cats, dogs, many wildlife species and people. Infection typically occurs through bites from infected animals, most commonly raccoons, skunks, foxes and bats. Sadly, there is no cure for rabies.

**Modes of Transmission/Lifestyle Factors:** 

**Signs:** Affected pets may become aggressive, anxious or behave unusually or become weak/uncoordinated. Other classic signs include drooling, seizures and paralysis.

**Treatment:** Unfortunately, there is no treatment for rabies. Rabid animals need to be euthanized to ensure the disease is not passed to other animals or humans and to allow an official diagnosis to be made.

**Vaccine:** Vaccination of cats and dogs against rabies is the best means of prevention and is required in most states, regardless of whether the pets have access to the outdoors.





## DISEASES AFFECTING CATS

### Feline infectious peritonitis

**Overview:** Feline infectious peritonitis (FIP) is a fatal, incurable viral disease caused by the common feline coronavirus (FECV). Coronavirus is spread from an infected mother to her kittens or through contact with infected cats or their feces. Most cats with FECV infection experience mild illness and recover quickly; in rare cases the infection progresses to FIP, which can affect multiple internal organs.

**Modes of Transmission/Lifestyle Factors:**



**Signs:** Signs of FIP include fever, eating less, swollen abdomen and weight loss.

**Treatment:** Since there is no cure for FIP, treatment is focused on helping affected cats feel as comfortable as possible for the remainder of their lives.

**Vaccine:** Vaccines are available but because of questions about their effectiveness, they are not usually recommended.

### Feline panleukopenia

**Overview:** Feline panleukopenia, also known as feline distemper, is a highly contagious viral illness that attacks rapidly dividing cells in the lymph nodes, bone marrow and intestinal tract. The disease is spread from cat to cat through contact with body fluids or objects contaminated with those fluids.

**Modes of Transmission/Lifestyle Factors:**



**Signs:** Infection causes severe diarrhea, vomiting, dehydration and anemia, and can weaken the immune system leaving cats vulnerable to other illnesses.

**Treatment:** There is no cure for this life-threatening disease; hospitalization and intensive care may be required to support a cat as it fights the infection.

**Vaccine:** Effective vaccines are available to prevent panleukopenia and are included among the core vaccines suggested for all cats, beginning at kittenhood.

### Toxoplasmosis

**Overview:** Toxoplasmosis is an infection caused by the microscopic *Toxoplasma gondii* parasite. Cats typically catch the parasite from an infected mother, by eating the meat of infected animals or by eating items contaminated with the feces of infected cats.

**Modes of Transmission/Lifestyle Factors:**



**Signs:** Most infected cats do not appear sick, but signs of illness can include fever, diarrhea, eating less and being less active.

**Treatment:** Treatment involves medication to prevent the parasite from multiplying.

**Vaccine:** There is no vaccine.

## DISEASES AFFECTING DOGS

### Canine influenza

**Overview:** Canine influenza is caused by a fairly new strain of the influenza virus that affects the respiratory system of dogs. The disease is typically spread when a dog inhales air from the cough or sneeze of an infected dog or through interaction with contaminated objects.

**Modes of Transmission/Lifestyle Factors:**



**Signs:** Signs include a long-lasting cough that does not improve with antibiotics or cough suppressants, runny nose and mild fever; in severe cases, the illness may progress to pneumonia.

**Treatment:** Sick dogs should get plenty of rest, food and water to help them fight the infection and be separated from other dogs to prevent the spread of the disease.

**Vaccine:** A vaccine is available to help prevent infection and may be recommended depending on the dog's individual risk of exposure.

### Canine distemper

**Overview:** Canine distemper is a viral illness that attacks the respiratory, gastrointestinal and central nervous systems of dogs and some species of wild animals. The virus can be spread through the air, by direct contact with an infected animal or via contaminated objects.

**Modes of Transmission/Lifestyle Factors:**



**Signs:** Initially, dogs may have a high fever, runny eyes and/or nose, develop a cough and experience decreased appetite. In later stages, the virus attacks the brain, which can cause shaking, unsteadiness, seizures and death.

**Treatment:** While dogs suffering from a mild infection may recover with proper veterinary care, the disease often causes permanent brain damage and can be fatal.

**Vaccine:** Effective vaccines are available to protect against distemper and are included among the routine vaccines recommended for all dogs, beginning at puppyhood.

### Leptospirosis

**Overview:** Leptospirosis is a bacterial infection of the internal organs that dogs and people can catch through exposure to urine from infected animals such as dogs, livestock and wildlife.

**Modes of Transmission/Lifestyle Factors:**



**Signs:** Early signs include fever/shivering and decreased appetite; depending on the organs involved, later signs can include vomiting/diarrhea, yellow skin and gums, reduced urine production or even death.
















**Treatment:** Antibiotics are needed to kill the bacteria and hospitalization is often required in severe cases. Infected dogs should be kept separate from other dogs, and urine-contaminated areas should be disinfected immediately to prevent the spread to other animals and people.

**Vaccine:** Vaccines are available to prevent the disease and may be recommended depending on the dog's individual risk of exposure.



# Zoonotic & Shared Diseases



ZOONOTIC/SHARED DISEASE	SIGNS IN PETS	MODE OF TRANSMISSION	HUMAN SYMPTOMS*	DID YOU KNOW?*
<b>Rabies</b> 	<ul style="list-style-type: none"> <li>• Aggression and anxiety</li> <li>• Weakness</li> <li>• Uncoordinated behavior</li> <li>• Drooling</li> <li>• Seizures</li> <li>• Paralysis</li> </ul>		<ul style="list-style-type: none"> <li>• Weakness</li> <li>• Fever</li> <li>• Headache</li> <li>• Itching sensation at site of bite</li> <li>• Trouble with balance or coordination</li> <li>• Anxiety</li> <li>• Delirium</li> <li>• Insomnia</li> </ul>	 <p>Rabies is considered to be nearly 100 percent fatal once signs of the disease are present.</p>
<b>Giardia Infection</b> 	<ul style="list-style-type: none"> <li>• Diarrhea</li> <li>• Weight loss</li> <li>• Vomiting</li> <li>• Decreased activity level</li> </ul>		<ul style="list-style-type: none"> <li>• Diarrhea</li> <li>• Gas</li> <li>• Stomach cramps</li> <li>• Upset stomach or nausea</li> <li>• Dehydration</li> </ul>	 <p><i>Giardia</i> infection is the most common intestinal parasite disease affecting people in the U.S.</p>
<b>Leptospirosis</b> 	<ul style="list-style-type: none"> <li>• Fever/shivering</li> <li>• Loss of appetite</li> <li>• Vomiting</li> <li>• Diarrhea</li> <li>• Yellow skin and gums</li> <li>• Reduced urine production</li> </ul>		<ul style="list-style-type: none"> <li>• Flu-like symptoms</li> <li>• Chills</li> <li>• Vomiting</li> <li>• Diarrhea</li> <li>• Stomach pain</li> <li>• Rash</li> </ul>	 <p>Animals that commonly develop or spread leptospirosis include wildlife and farm animals such as rodents, raccoons, opossums, cattle, swine, dogs, horses, buffaloes, sheep and goats.</p>
<b>Lyme Disease</b> 	<ul style="list-style-type: none"> <li>• Lameness</li> <li>• Fever</li> <li>• Decrease in activity level and appetite</li> <li>• Acute kidney disease</li> </ul>		<ul style="list-style-type: none"> <li>• Stiff neck</li> <li>• Chills</li> <li>• Fever</li> <li>• Swollen lymph nodes</li> <li>• Headaches</li> <li>• Fatigue</li> <li>• Muscle aches</li> <li>• Nerve problems</li> <li>• Arthritis</li> <li>• Rash</li> </ul>	 <p>In the majority of human cases, a rash will occur at the site of the bite that resembles a bull's-eye.</p>
<b>Toxoplasmosis</b> 	<p>Most infected cats do not appear sick; however, signs may include:</p> <ul style="list-style-type: none"> <li>• Fever</li> <li>• Diarrhea</li> <li>• Loss of appetite</li> <li>• Reduced activity</li> </ul>		<ul style="list-style-type: none"> <li>• Fever</li> <li>• Diarrhea</li> <li>• Loss of appetite</li> <li>• Eye sensitivity or blurred vision</li> </ul>	 <p>Pregnant women should be especially cautious as exposure may harm an unborn child. However, it is safe to keep a cat in the home as long as preventive measures are taken (e.g., refrain from cleaning the litter box).</p>

\* Some content cited in these sections is sourced from the Centers for Disease Control and Prevention (CDC) website

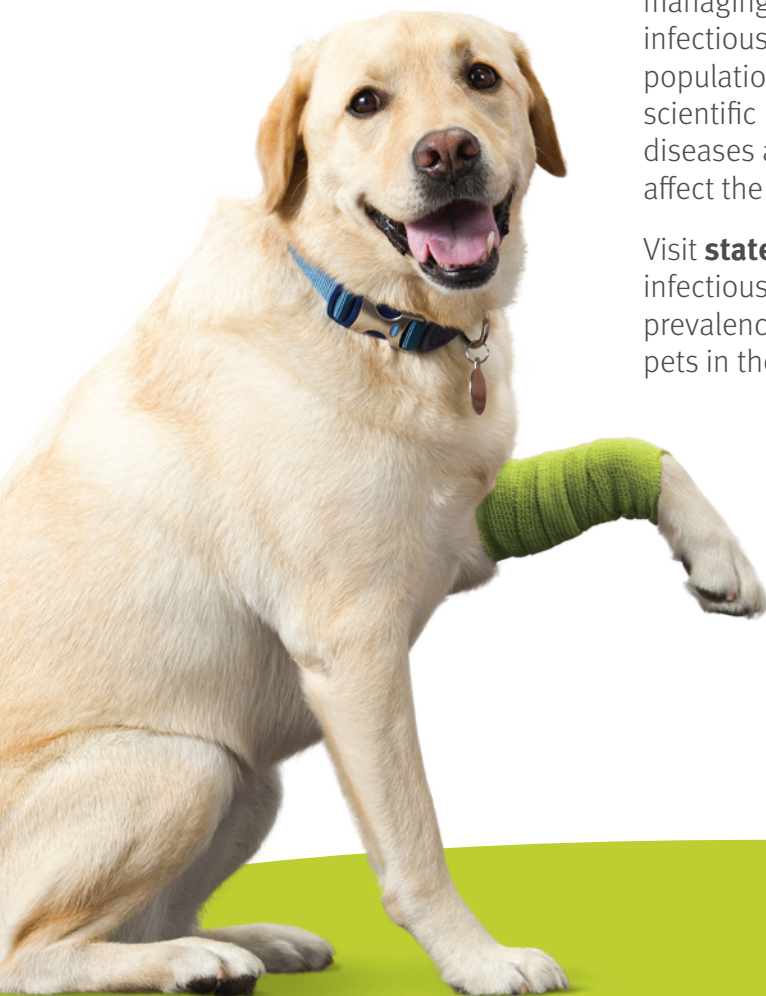


**Many types of bacteria and viruses can cause illnesses in dogs and cats.** Some of them can spread rapidly between animals, and a few can pass from animals to humans, causing severe illness. As you read in the previous pages, this year's report found some infectious diseases are on the rise, particularly feline immunodeficiency virus (FIV) infection in cats and Lyme disease in dogs.

The good news is that many of these diseases can be easily prevented through vaccination and other preventive measures, and the effects on pets that do become infected can be minimized through early disease detection. In addition to following vaccination recommendations, pet owners can protect their pet's health by understanding how diseases spread and making healthy lifestyle changes.

Banfield Pet Hospital knows prevention and early disease diagnosis are critical to successfully managing many infectious diseases. Because infectious diseases threaten both pet and human populations, Banfield will continue to support scientific research to better understand these diseases and investigate emerging diseases that affect the health of our pets.

Visit [stateofpethealth.com](http://stateofpethealth.com) to learn more about infectious diseases and explore the geographic prevalence of other common diseases affecting pets in the United States.



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