

# State of Pet Health<sup>®</sup> 2016 Report





**Welcome to Banfield Pet Hospital's *State of Pet Health*® 2016 Report**—the first-of-its-kind to capture and analyze the medical data from 2.5 million dogs and 500,000 cats. As the world's largest veterinary practice, Banfield currently operates more than 925 hospitals in 42\* states, District of Columbia and Puerto Rico with 16,000 associates caring for pets—including more than 2,900 licensed veterinarians.

In 2011, we published the first edition of our *State of Pet Health*® Report. Because of our size and scale, as well as our ability to capture and analyze millions of electronic pet medical records from pet visits at Banfield hospitals, we are uniquely positioned to shed light on the health of companion animals across the United States. Now in its sixth year, this annual publication is just one

way our practice shares our knowledge of pet health with pet owners and the profession at large.

Our inaugural *State of Pet Health Report* (2011) analyzed five-year trends of common diseases, finding that many were on the rise. This year, we are revisiting these diseases and analyzing 10-year trends. Data from our 2011 report act as a benchmark, giving us a unique perspective to explore how disease prevalence has changed across the United States. Another enhancement this year is that, for the first time since we expanded to Puerto Rico in 2013, we have adequate data from our hospitals on the island to include in the 2016 report. We are proud to be able to provide information on pet health on the island and better serve the pets of Puerto Rico.

Disease prevalence is constantly changing—there are several key conditions that are increasing in prevalence and negatively affecting the health of our pet population. Similarly, there are a handful of common diseases that are decreasing in prevalence, indicating pet owners are doing a better job of partnering with their veterinarian on proactive disease management.

### Below is an overview of significant findings from this year's report:

**Diabetes**—In 2011, we reported a 32 percent increase in canine diabetes and a 16 percent increase in feline diabetes since 2006. Unfortunately, diabetes continues to grow in prevalence among dogs. Canine diabetes has increased by 79.7 percent since 2006, while, in felines, the prevalence of diabetes has increased 18.1 percent over the same time frame.

**Heartworm disease**—Heartworm continues to be one of the top three health risks for dogs seen in Banfield hospitals in the Southern United States. We are happy to report that since 2011, there has been a 33.1 percent decrease in cases, which is likely due to improved heartworm preventive compliance. Data over the past two years show that there has been a 12 percent increase in the use of heartworm preventives by dogs seen at Banfield hospitals—a step in the right direction.

**Dental disease**—The most common disease in dogs and cats continues to be dental disease, affecting 68 percent of cats and 76 percent of dogs. Dental disease has increased by 8 percent in dogs and 9.6 percent in cats since our initial report five years ago. We were pleased to learn that Banfield saw an increase in the number of pets receiving dental cleanings in 2015, likely due to a better understanding by pet owners of the importance of dental health in pets. In this report, you will also find information on tooth resorption, a painful condition affecting nearly 1 out of 100 cats. This is a sharp rise of 1,587 percent over the past 10 years. The cause for this increase remains unknown and warrants further research in this area.

\*The 2016 report includes data from 43 states; we closed our single hospital in South Dakota in 2015. For purposes of this report, data is included from South Dakota to showcase pet health trends in the state.

**Otitis externa**—In the five years since our 2011 publication, there has been a 6.4 percent decrease in prevalence of otitis externa (inflammation of the ear) among dogs to 12.9 cases per 100. The prevalence among cats has remained unchanged at 6.6 cases per 100 cats. While otitis externa has decreased in dogs, it remains very common in certain breeds, particularly Golden Retrievers with 1 in 4 affected and Labrador Retrievers with 1 in 5 receiving the diagnosis.

**Fleas and ticks**—Since 2011, flea infestations in dogs have decreased in prevalence by 8.3 percent and have remained unchanged in cats. The abundance of fleas is dependent upon, among other factors, the use of a flea preventive, geographic location within the United States and local weather patterns. The prevalence of fleas in cats (10.9 cases per 100) is almost twice that of dogs (5.9 cases per 100), indicating the need for greater education about flea control in the feline population. Ticks have decreased over the past 10 years for dogs (11.3 percent decrease). Ticks are uncommon for cats, and over the past 10 years there has been a 9.9 percent decrease.

**Internal parasites**—Over the last five years, there has been a reduction of roundworms, whipworms and tapeworms in dogs, though the prevalence of hookworms has remained relatively unchanged. In cats, there has been a reduction of roundworms, hookworms, whipworms and tapeworms. Increased use of flea prevention in dogs and cats, and increased use of heartworm prevention in dogs may explain some of these changes. Tapeworm remains the most common parasite in cats (4.9 cases per 100), which is greater than twice the prevalence seen in dogs (2.2 cases per 100). Since tapeworm infection is initiated by the ingestion of fleas, this suggests that more cats need to be on flea prevention year-round.

We are encouraged that preventive care has helped decrease several common diseases over the past decade, but there is still a lot of work to be done. As a practice, our focus is making a better world for pets through preventive care, and we deeply believe that early diagnosis of disease will positively impact a pet's health. We hope the information in this report will be useful to both veterinarians and pet owners as we partner to help pets live healthier lives.

Sincerely,

Daniel S. Aja, DVM  
Chief Medical Officer  
Senior Vice President of Medical Operations



## Understanding the data

The figures and graphs in this report are presented as cases per 10,000 (diabetes mellitus, heartworm disease, fleas, ticks and internal parasites) or cases per 100 (dental disease and otitis externa). For example, in 2015 there were 56 positive cases of heartworm disease detected per 10,000 tests performed in dogs.



**In 2015, Banfield Pet Hospital cared for nearly 2.5 million dogs and 500,000 cats.** Banfield's veterinarians, technicians and paraprofessionals use PetWare®, Banfield's proprietary data/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, Oregon. Data are then analyzed by Banfield's internal research team, Banfield Applied Research & 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 from the studies they conduct are shared with veterinarians and the public through various avenues, including continuing education materials, scientific journals 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 its customers by opening pet hospitals in its stores in 1994. In 2007, Banfield joined the Mars, Incorporated family of businesses with the common goal of providing the very best in veterinary care and nutrition to companion animals.

*The State of Pet Health 2016 Report* contains details of the most common and medically important diagnoses affecting dogs and cats in the United States, according to their age, breed and geographical location. In addition to the most common diagnoses affecting dogs and cats, this report also contains details on how select diagnoses have changed over the last 10 years in prevalence and geographical scope. These diagnoses have been selected because they are either the most common, preventable and transmittable to humans (zoonotic disease) or medically important due to the effect on a pet's overall health and lifespan. The diagnoses include: diabetes mellitus, heartworm disease, dental disease, otitis externa (ear infection), fleas, ticks and internal parasites (roundworms, hookworms, tapeworms and whipworms).

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



## PET HEALTH TRENDS IN 2015

|                                           |              |
|-------------------------------------------|--------------|
| <b>Breed Overview .....</b>               | <b>6</b>     |
| <b>Breed Trends.....</b>                  | <b>7</b>     |
| <b>Most Common Diagnoses   Dogs .....</b> | <b>8-9</b>   |
| <b>Most Common Diagnoses   Cats .....</b> | <b>10-11</b> |



## DOGS & CATS COMMON DISEASES

|                                             |               |
|---------------------------------------------|---------------|
| <b>Section One: Diabetes Mellitus.....</b>  | <b>12-14</b>  |
| <b>Section Two: Heartworm.....</b>          | <b>15-17</b>  |
| <b>Section Three: Dental Disease .....</b>  | <b>18-21</b>  |
| <b>Section Four: Otitis Externa .....</b>   | <b>22-24</b>  |
| <b>Section Five: Flea &amp; Tick.....</b>   | <b>25-30</b>  |
| <b>Section Six: Internal Parasites.....</b> | <b>31-37</b>  |
| <br><b>Conclusion .....</b>                 | <br><b>38</b> |
| <b>Acknowledgments.....</b>                 | <b>39</b>     |

## Banfield Applied Research & Knowledge

Banfield Pet Hospital employs a team of skilled researchers to help our veterinarians deliver the best care possible based on the latest medical evidence—this team is called the Banfield Applied Research & Knowledge (BARK) team. BARK analyzes the medical data of the more than 8 million pet visits at Banfield hospitals each year through Banfield's proprietary data medical records system, PetWare. The team then conducts research and shares its findings with veterinarians and the public through a variety of formats. For the *State of Pet Health 2016 Report*, the BARK team analyzed the medical records of the nearly 2.5 million dogs and nearly 500,00 cats cared for in Banfield hospitals in 2015.





# Breed Overview

# Breed Trends



## Breed Icon

Banfield sees  
1 cat per every  
5 dogs



**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        | Common Diagnoses         | Common Names |
|----------------------|--------------------------|--------------|
| Domestic Shorthair   | Feline respiratory virus | Kitty        |
| Domestic Medium Hair | Kidney disease           | Bella        |
| Domestic Longhair    | Tapeworms                | Luna         |

45%  
of dogs seen  
at Banfield



## Toy/Small – weight: <20 lbs

| Common Breeds     | Common Diagnoses            | Common Names |
|-------------------|-----------------------------|--------------|
| Chihuahua         | Dental tartar               | Bella        |
| Maltese           | Patellar luxation           | Max          |
| Shih Tzu          | (kneecap pops out of place) | Coco         |
| Yorkshire Terrier | Retained baby teeth         | Daisy        |

16%  
of dogs seen  
at Banfield



## Medium – weight: 20 - <50 lbs

| Common Breeds  | Common Diagnoses                | Common Names |
|----------------|---------------------------------|--------------|
| Border Collie  | Conjunctivitis (eye infection)  | Bella        |
| Pit Bull*      | Cystitis (bladder inflammation) | Max          |
| Cocker Spaniel | Underbite                       | Buddy        |
| Schnauzer      |                                 | Lucy         |

36%  
of dogs seen  
at Banfield



## Large – weight: 50 - <90 lbs

| Common Breeds      | Common Diagnoses               | Common Names |
|--------------------|--------------------------------|--------------|
| German Shepherd    | Gastroenteritis (GI upset)     | Bella        |
| Golden Retriever   | Otitis externa (ear infection) | Max          |
| Labrador Retriever | Overweight                     | Bailey       |
| Boxer              |                                | Buddy        |

3%  
of dogs seen  
at Banfield



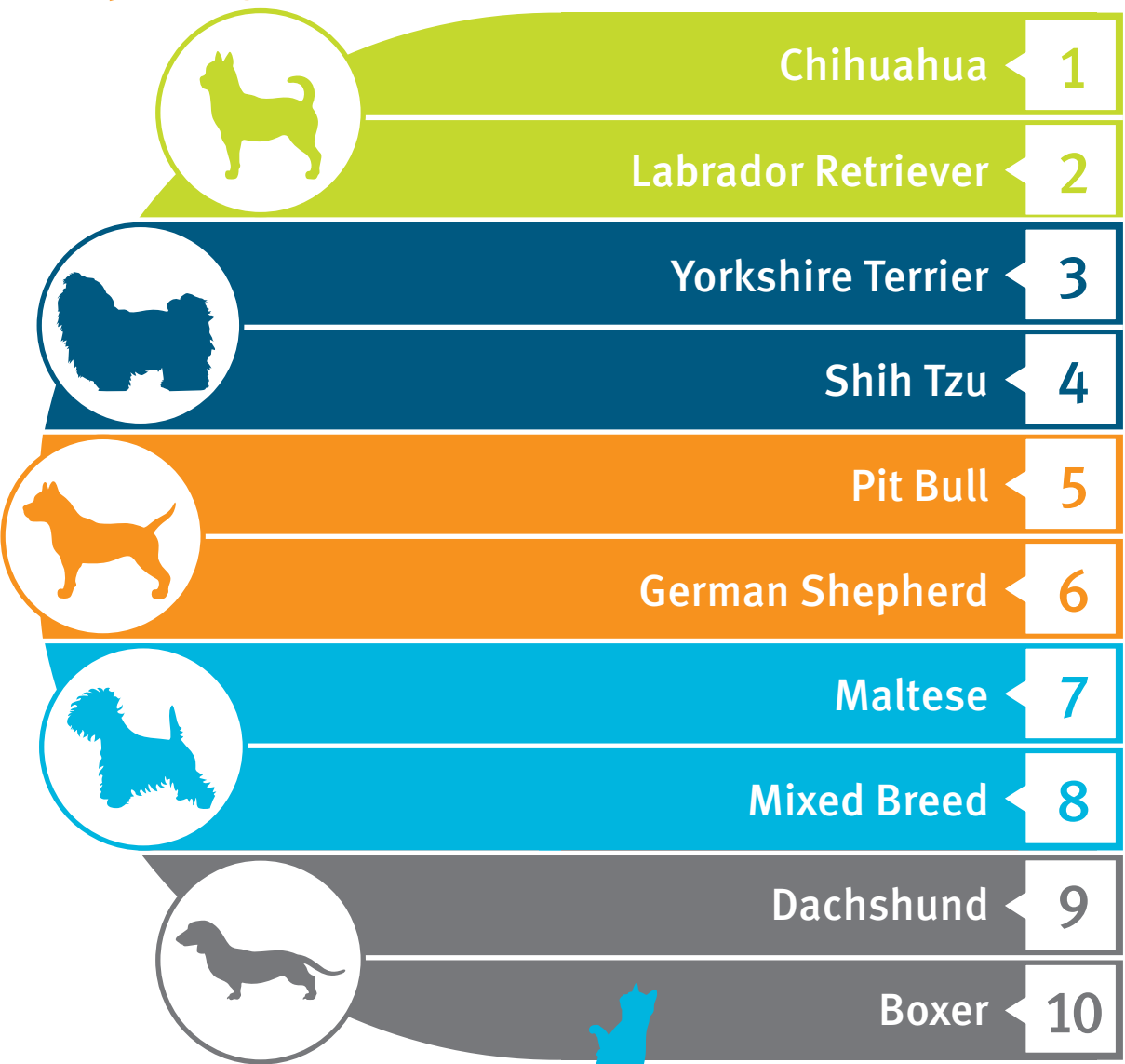
## Giant – weight: >90 lbs

| Common Breeds  | Common Diagnoses | Common Names |
|----------------|------------------|--------------|
| Great Dane     | Arthritis        | Bella        |
| Great Pyrenees | Lameness         | Zeus         |
| Mastiff        | Skin tumor       | Bear         |
| St. Bernard    |                  | Max          |

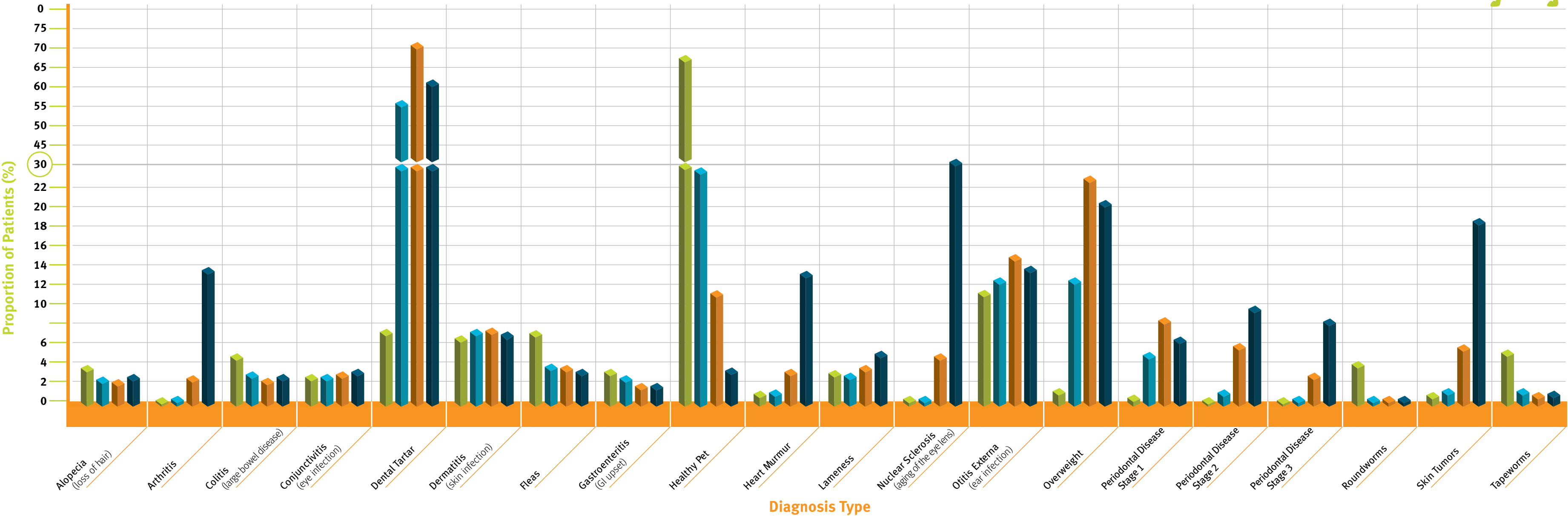
\* The weight range for Pit Bulls covers both medium and large breed categories. They have been defined in this report as medium breed.

The most common dog breeds cared for in Banfield hospitals have remained similar over the past decade. We have seen an increase in the popularity of Chihuahuas (+35 percent), Yorkshire Terriers (+95 percent), Shih Tzus (+39 percent), Maltese (+87 percent), Pit Bulls (+24 percent) and Boxers (+6 percent) and a decrease in the popularity of Labrador Retrievers (-17 percent), German Shepherds (-7 percent), Dachshunds (-9 percent) and mixed breeds (-11 percent).

## Top 10 Dog Breeds in 2015



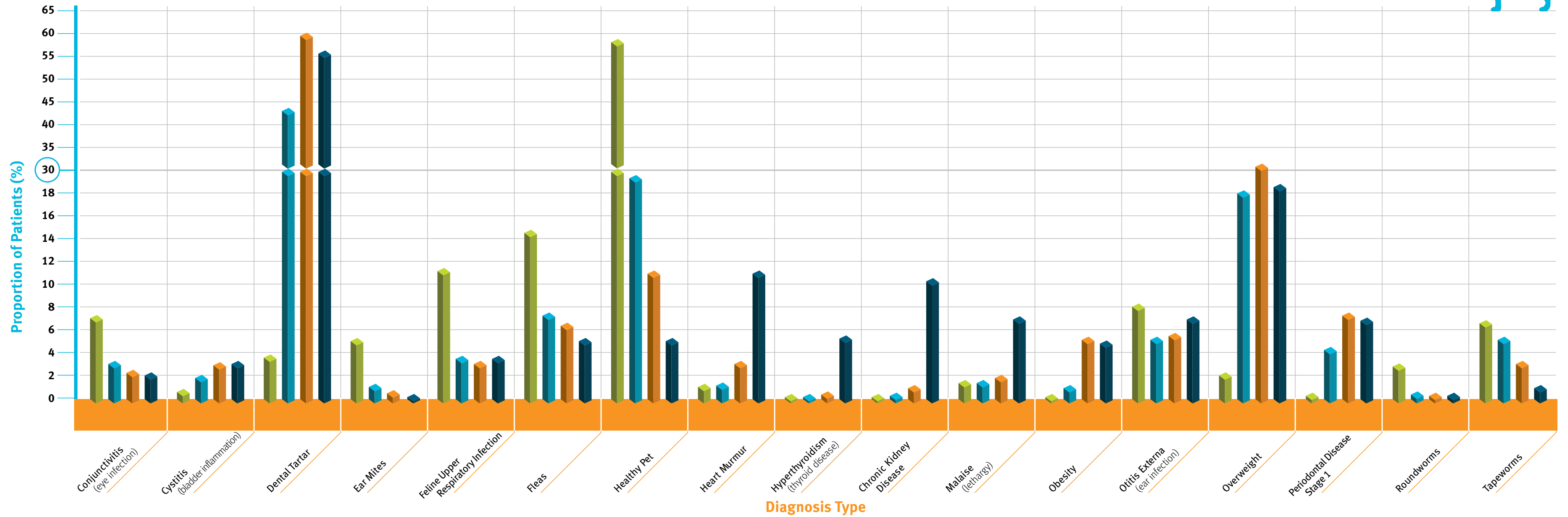
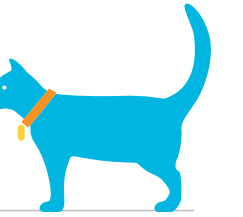
The most common cat breeds have remained consistent over the past 10 years. They include: Domestic Shorthair, Domestic Medium Hair and Domestic Longhair.



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.

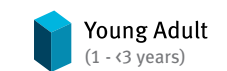


These diagnoses are a compilation of the most common diagnoses found in cats throughout the year. While “Healthy Pet” is not a true medical diagnosis, it is important to include, as it reinforces that pet owners should bring their pets to the veterinarian for preventive care, as well as when their pets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

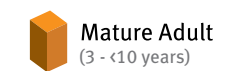
## Age Group



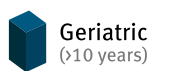
Juvenile  
(0 - <1 year)



Young Adult  
(1 - <3 years)



Mature Adult  
(3 - <10 years)



Geriatric  
(>10 years)



## Section One: Diabetes Mellitus



Diabetes mellitus is a serious medical condition in which a pet cannot control blood sugar levels due to problems with insulin production or function. Pet owners' most common concerns are when pets display polyuria (excessive urination), polydipsia (excessive thirst) and weight loss despite a good appetite. Diabetes mellitus is a chronic disease, requiring lifelong treatment and monitoring. There are two main types of diabetes mellitus: Type 1 (insulin dependent) and Type 2 (non-insulin dependent). Type 1 diabetes mellitus occurs when there is very low or no production of insulin by the pancreas. This is similar to the form of diabetes seen in children.

Type 2 diabetes mellitus occurs when the pancreas produces adequate amounts of insulin but the body is resistant to it. This is similar to the form of diabetes that develops in adult humans and can be treated with insulin, diet and other medications. Cats can suffer from either form of diabetes mellitus, but are more commonly affected by Type 2; dogs are more commonly affected by Type 1.

After confirming a diagnosis of diabetes mellitus and determining whether a pet has other health concerns, a veterinarian will most likely begin treatment with diet modification and insulin injections. Management of a diabetic pet can be challenging for both veterinarians and pet owners, as every pet responds differently to treatment.

Ongoing management of the disease requires regular trips to the veterinarian to assess how the pet is doing, monitor blood glucose levels and decide whether modifications to the treatment plan are necessary.



### Bottom line:

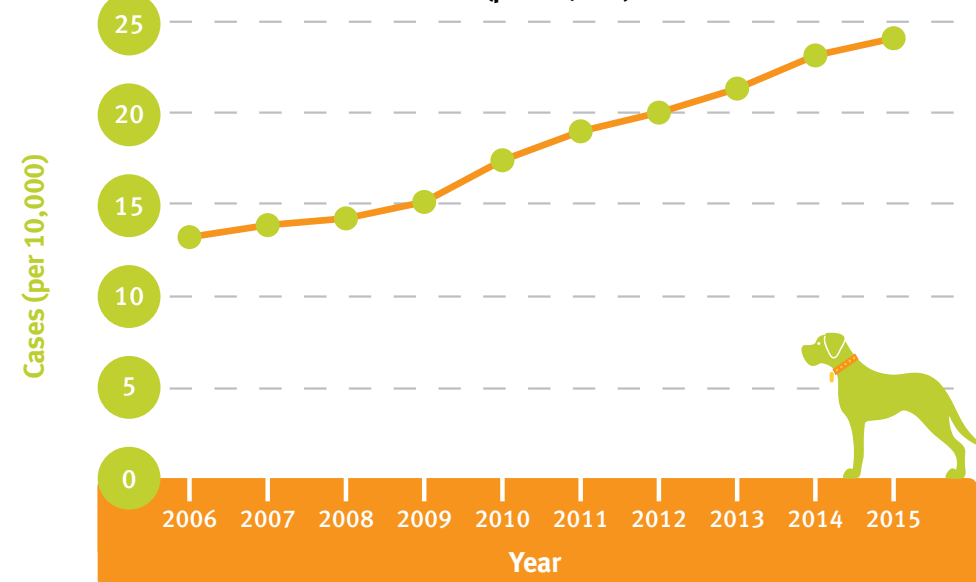
- ✚ The prevalence of diabetes mellitus in dogs increased from 13.1 cases per 10,000 in 2006 to 23.6 cases per 10,000 in 2015—a 79.7 percent increase.
- ✚ The prevalence of diabetes mellitus in cats increased from 57.2 cases per 10,000 in 2006 to 67.6 cases per 10,000 in 2015. Although this represents only an 18.1 percent increase, diabetes mellitus is much more common in cats than in dogs. This increase occurred from 2006-2011 with little change in prevalence since 2011.
- ✚ In 2015, Nevada, Montana, Iowa, Wisconsin and Kentucky had the greatest prevalence of diabetes mellitus in dogs, while New Mexico, Delaware, District of Columbia, Wisconsin and Arkansas had the greatest prevalence in cats.



### Preventive recommendations:

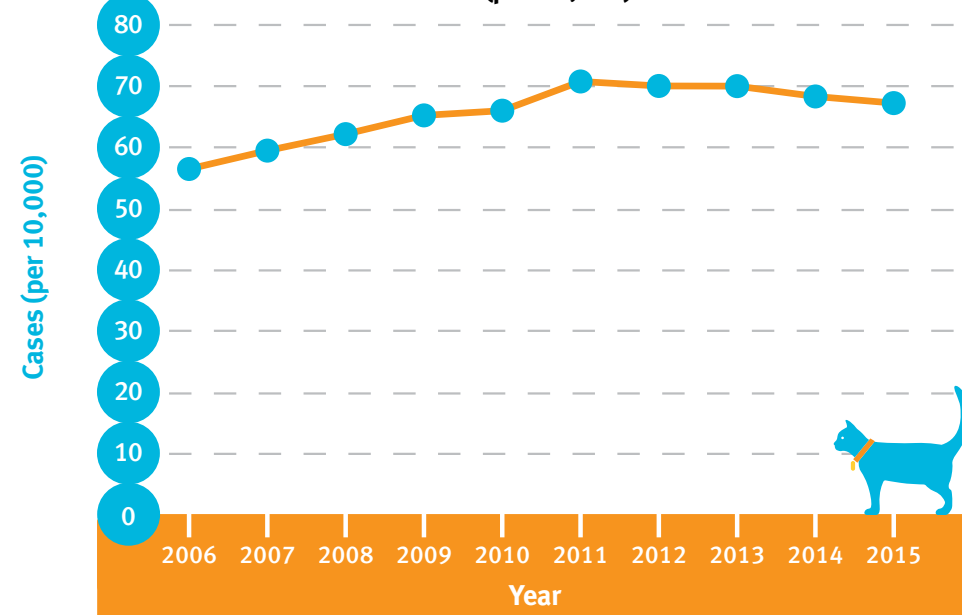
- ✚ Twice-a-year examinations help veterinarians detect clinical signs of diabetes mellitus early and reduce complications associated with the disease.
- ✚ Keeping cats from becoming overweight or obese through proper exercise, nutrition and dietary management can reduce the risk of diabetes mellitus and other serious diseases.

Diabetes Mellitus | Dog | 10-Year Trend (2006-2015)  
Cases (per 10,000)



**Key takeaway:** Since 2006, there has been a 79.7 percent increase in canine diabetes. Regular veterinary visits can help identify the disease process early and begin appropriate therapy to reduce the risk of diabetic complications.

Diabetes Mellitus | Cat | 10-Year Trend (2006-2015)  
Cases (per 10,000)

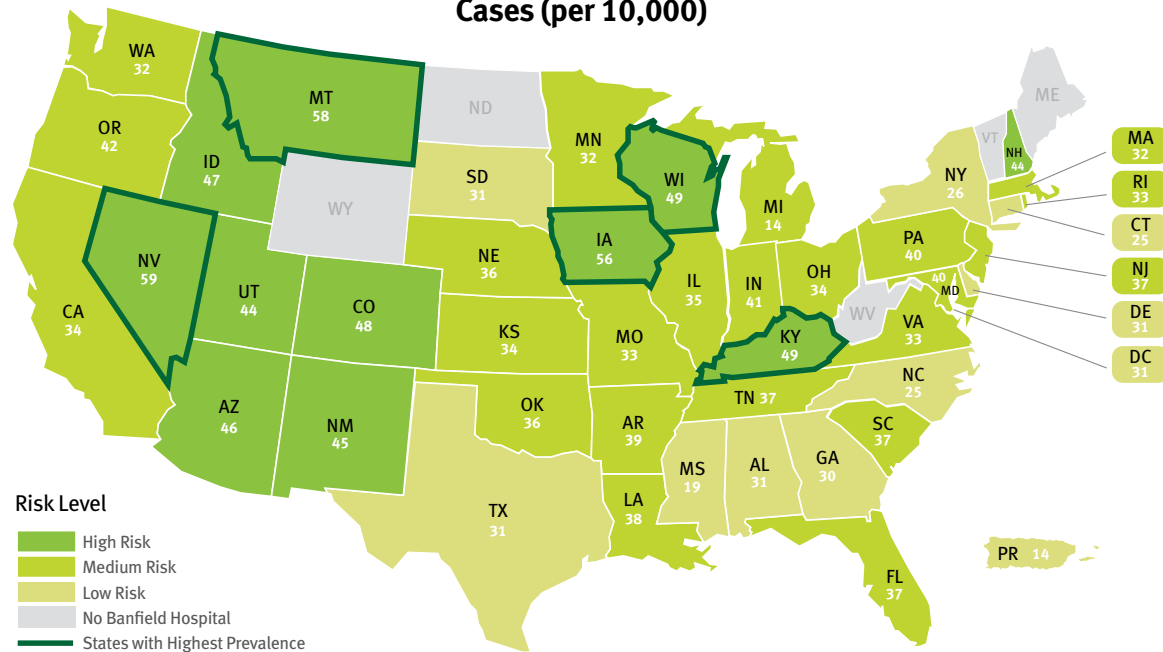


**Key takeaway:** Diabetes is nearly three times more common in cats than dogs. Maintaining a normal weight in cats can reduce the risk of developing diabetes.

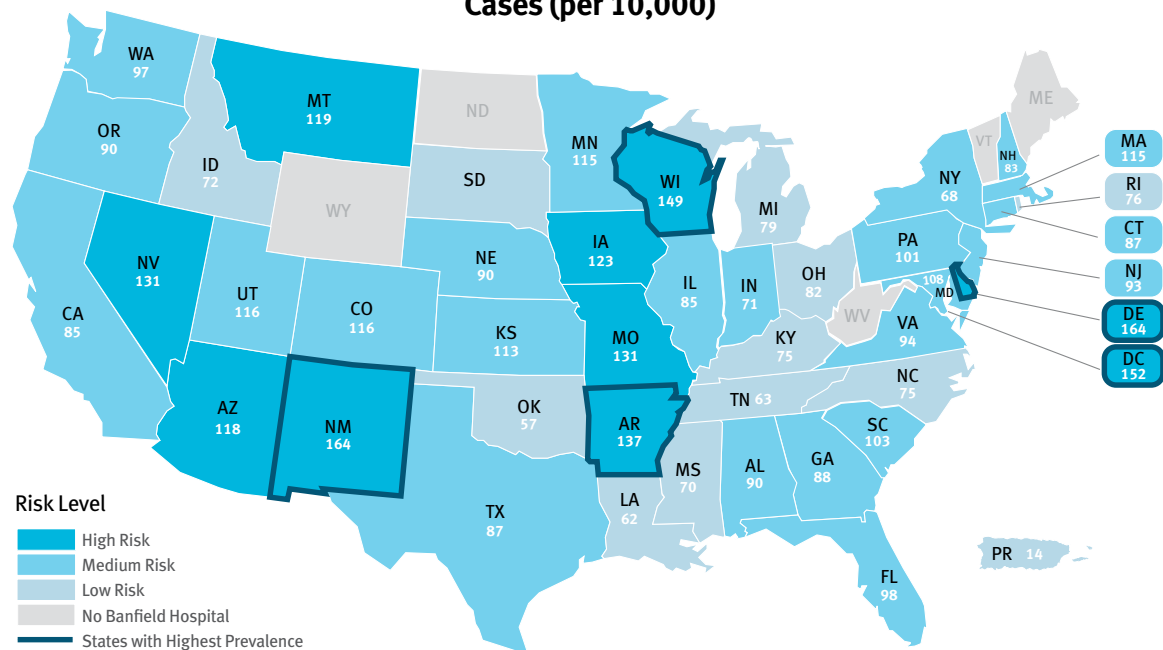


## Section One: Diabetes Mellitus

2015 Diabetes Mellitus | Dog  
Cases (per 10,000)



2015 Diabetes Mellitus | Cat  
Cases (per 10,000)



## Section Two: Heartworm Disease



Heartworm disease is a serious but preventable condition caused by *Dirofilaria immitis*—long, slender parasitic worms that can reach up to 12 inches in length. Heartworm disease affects dogs, cats and ferrets, and is potentially fatal. *Dirofilaria immitis* is transmitted from one pet to another by mosquitoes. Both indoor and outdoor pets are at risk for heartworm disease.

After infection, heartworms migrate to the blood vessels of the lungs and to the right side of the heart. Heartworms are capable of causing permanent damage to the heart and lungs before a pet shows any signs of disease. While there are treatment options for heartworm disease in dogs, there is currently no safe treatment for heartworm disease in cats or ferrets.

Clinical signs most commonly observed in pets with heartworm disease include coughing, lethargy, difficulty breathing and sometimes hemoptysis (coughing up blood). Sudden death occurs rarely in dogs, but occurs more commonly in cats. Treatment for heartworm disease is neither simple nor risk free. The most common post-treatment complication is the development of pulmonary thromboembolism (clots within the lungs), caused by a combination of inflammation in the blood vessels, an increased ability to form blood clots and the die-off of worms. Some degree of pulmonary thromboembolism will occur whenever heartworm disease is treated. Widespread blockage of pulmonary arteries can occur when worms die in great numbers.

Exercise after treatment can increase the chances of complications due to pulmonary thromboemboli, which is why exercise restriction is so important during and after treatment.



### Did you know?

Companion pets are not the only animals susceptible to heartworm disease. Certain wild animals can become infected as well, providing other potential sources through which mosquitoes might transmit heartworms to pets.

### Bottom line:

+ Heartworm disease shows a distinct geographic trend, with states in the Southeast having the highest prevalence of positive tests. In 2015, 4.1 percent of heartworm tests performed in Mississippi were positive; 3.9 percent in Louisiana; 3.6 percent in Arkansas and 1.6 percent in Puerto Rico and Alabama.

+ Based on our data, the odds of a dog contracting heartworm disease in Mississippi are 171 times those of contracting the disease in Nevada, the state with the lowest prevalence of the disease. This is followed by Louisiana, where the odds are 165 times greater than those of contracting heartworm in Nevada.

+ The prevalence of heartworm disease in dogs has decreased from 92.6 cases per 10,000 tests in 2006 to 54.2 cases per 10,000 tests in 2015—a 41.5 percent decrease. This decrease is likely due to increased heartworm preventive administration. Over the past two years at Banfield, there has been a corresponding 12 percent increase in heartworm preventive administration.

+ Although heartworm disease is more common during the warmer months, it is a year-round condition and has been diagnosed in every month and every state where Banfield has a hospital.\*

\*The American Heartworm Society reports that dogs testing positive for heartworm disease have been identified in all 50 states.



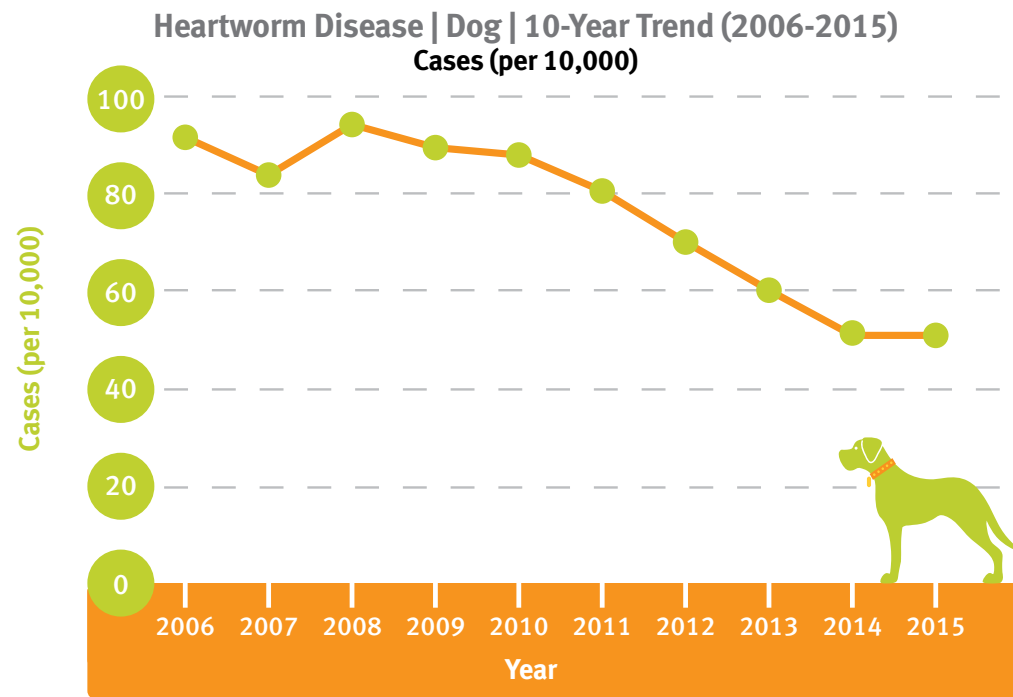
### Preventive recommendations:

- + Heartworm tests for dogs, including dogs receiving year round preventive medication, should be performed annually.
- + Year-round preventives should be given as either a monthly medication (topical or pill) or twice-yearly injection for dogs. Cats in heartworm-endemic areas should receive a monthly preventive medication.

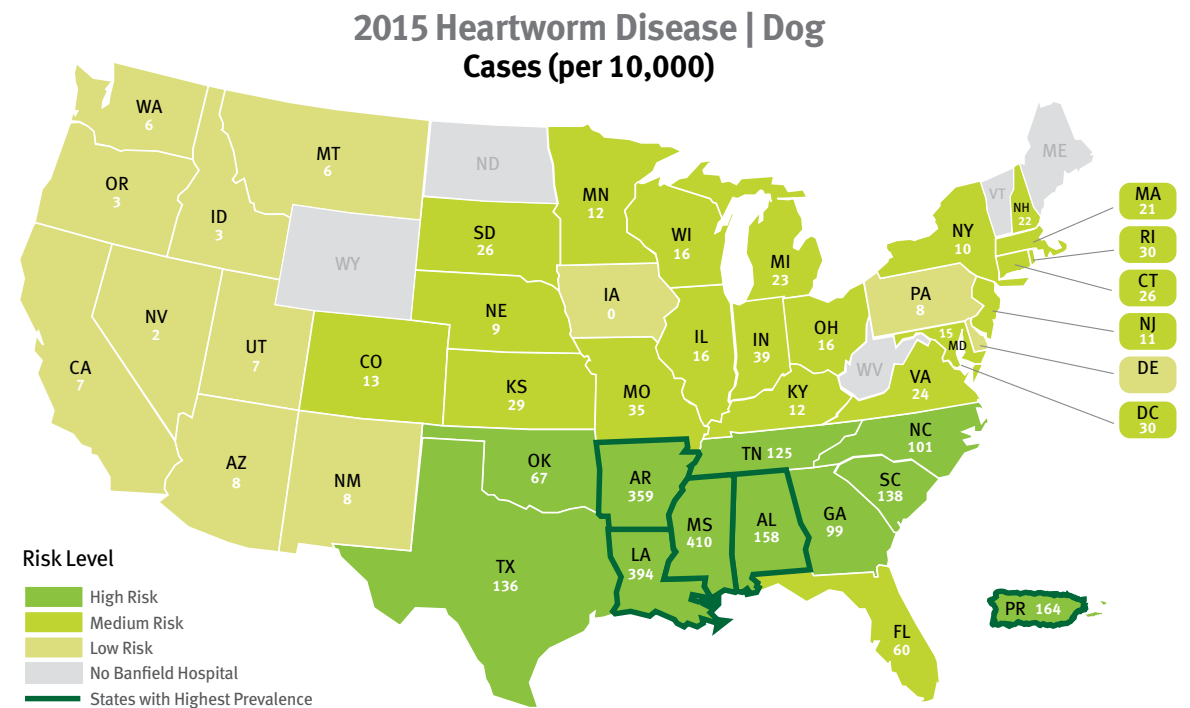




## Section Two: Heartworm Disease



**Key takeaway:** There has been a 33.1 percent decrease in heartworm prevalence since 2011.



### Heartworm disease in cats

Heartworm disease does affect cats. Although there is no safe treatment for infected cats, heartworm testing is still important in determining whether a cat has heartworm disease in order to rule out other medical conditions that may present similar clinical signs as heartworm disease, such as asthma. Indoor cats, particularly in endemic areas, are also at risk since mosquitoes can enter the home. These cats should receive monthly preventive medication.

### Heartworm in Puerto Rico

Puerto Rico is ranked among the top five states and territories for heartworm disease in dogs. While we cannot be certain, the high prevalence may be due to the tropical climate, which creates unique challenges for pets on the island. The climate favors sustained levels of disease transmission year round, which may account for the above-average prevalence of infectious diseases. Puerto Rico is also ranked among the top five states and territories for otitis externa, ticks, roundworms, hookworms and whipworms in dogs and cats. Conversely, for reasons unknown, Puerto Rico ranked the lowest for prevalence of diabetes and dental disease.





## Section Three: Dental Disease



Dental disease is the most common disease in dogs and cats, affecting 76 percent of dogs and 68 percent of cats. Dental disease includes any health issue affecting the mouth, including inflammation, tartar, gingivitis and periodontal disease, among other issues.

Periodontal disease is classified by the severity of its impact on teeth and gums. It is divided into four stages, ranging from mild tartar and gingivitis (inflammation of the gums), to gingival recession and degradation of the periodontal ligament, to significant inflammation and loss of teeth. Periodontal disease, when severe, can lead to bacterial infections and abscesses, as well as significant oral pain.

Risk factors for developing dental disease in dogs include increasing age and small breed size. Dental disease can occur at any age, but the risk increases as pets age. Prevention early in life may help reduce the frequency and severity of dental disease later in life. Professional dental cleanings under general anesthesia are vital because they include measures pet owners can't take at home. These measures include a thorough examination of a pet's teeth and gums as well as the use of special tools to remove tartar from the teeth below the gum line. Dental radiographs can also be taken at this time to evaluate the entire tooth and check for bone loss or abscesses.

### Bottom line:

- ✚ Since 2006, there has been a 23.3 percent rise in the prevalence of dental disease in dogs, with steady growth each year.
- ✚ There has been a 23.1 percent rise in the prevalence of dental disease in cats in the last 10 years.
- ✚ In 2015, Minnesota, Nevada, Iowa and Nebraska had the greatest prevalence of dental disease in dogs, while Minnesota, Wisconsin, Nevada and Washington had the greatest prevalence in cats.

- ✚ Of the most popular dog breeds, the highest prevalence of dental disease was observed in Dachshunds (85 percent), Yorkshire Terriers (80 percent), Shih Tzus (79 percent) and Maltese (79 percent).

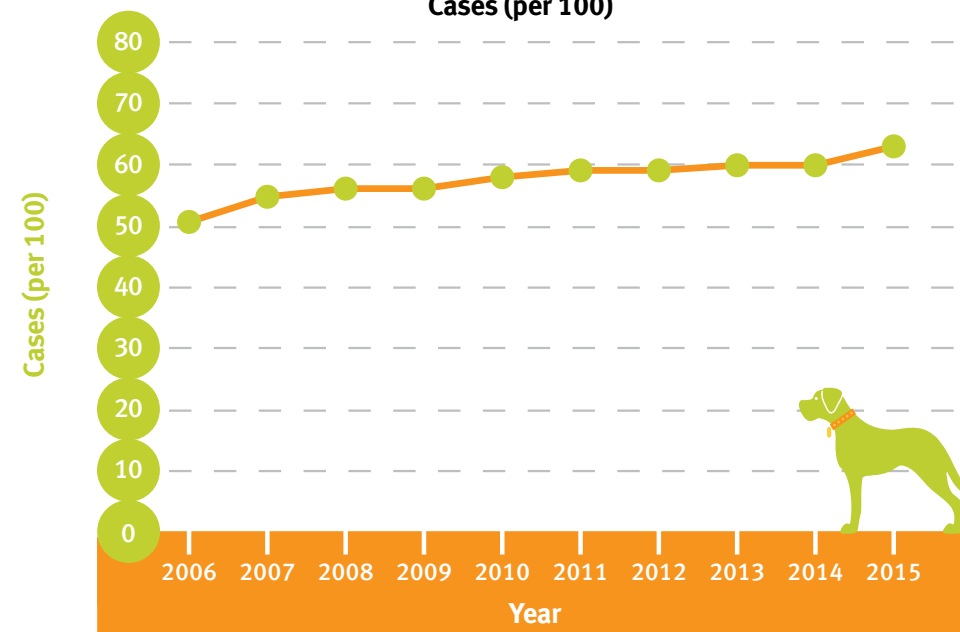


### Preventive recommendations:

- ✚ Regular dental examinations by a veterinarian and annual professional dental cleanings beginning at 1 year of age for cats and small to medium breed dogs, and 2 years of age for large and giant breed dogs are recommended.
- ✚ Tooth brushing once daily to every other day is best to help mitigate the progression of periodontal disease. Avoid using human toothpaste as this contains high-foaming detergents and abrasives that may be harmful to pets.
- ✚ Dental chews, water additives and specially formed dry pet food may also be used to help prevent tartar buildup.

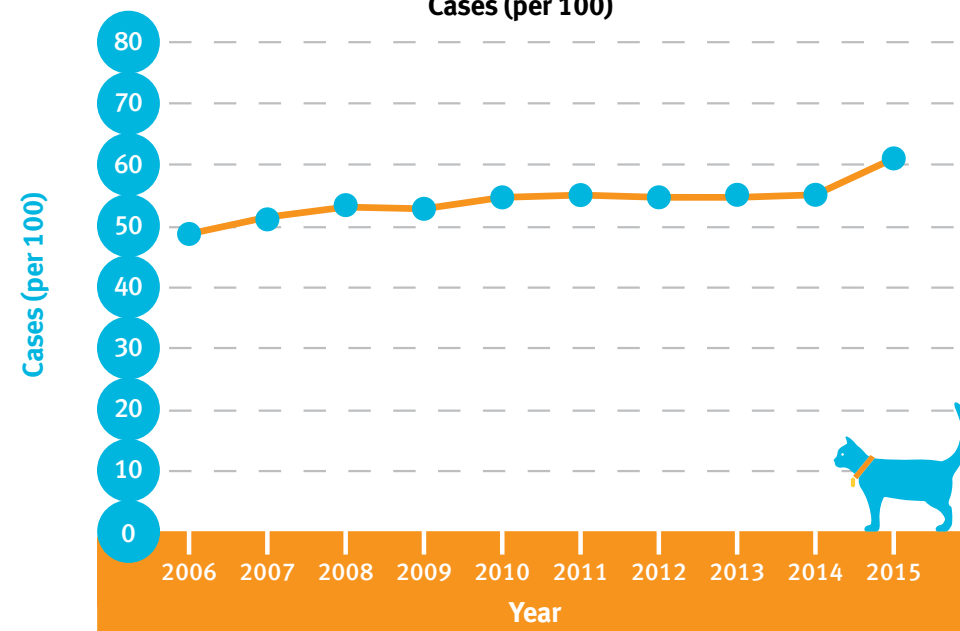


Dental Disease | Dog | 10-Year Trend (2006-2015)  
Cases (per 100)



**Key takeaway:** Since 2006, the prevalence of dental disease in dogs has increased by 23.3 percent. At-home dental care, such as teeth brushing and offering dental chews, can help slow the progression of dental disease.\*

Dental Disease | Cat | 10-Year Trend (2006-2015)  
Cases (per 100)



**Key takeaway:** Since 2006, the prevalence of dental disease in cats has increased by 23.1 percent. Cats have also had an increase in other painful dental conditions, including a 68.8 percent increase in stomatitis and a 1,587 percent increase in tooth resorption. A dental procedure under general anesthesia is needed to address both of these conditions.\*

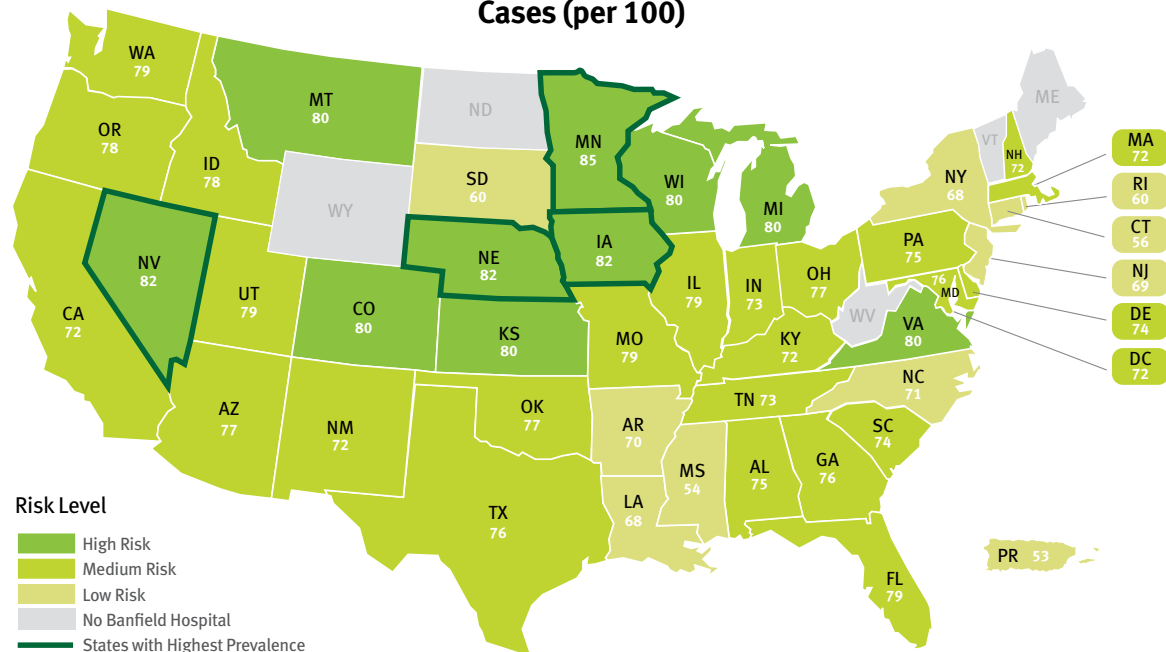
\* Graphs are age-adjusted to allow for accurate comparison across years, and therefore differ from the overall prevalence rates reported in the text.



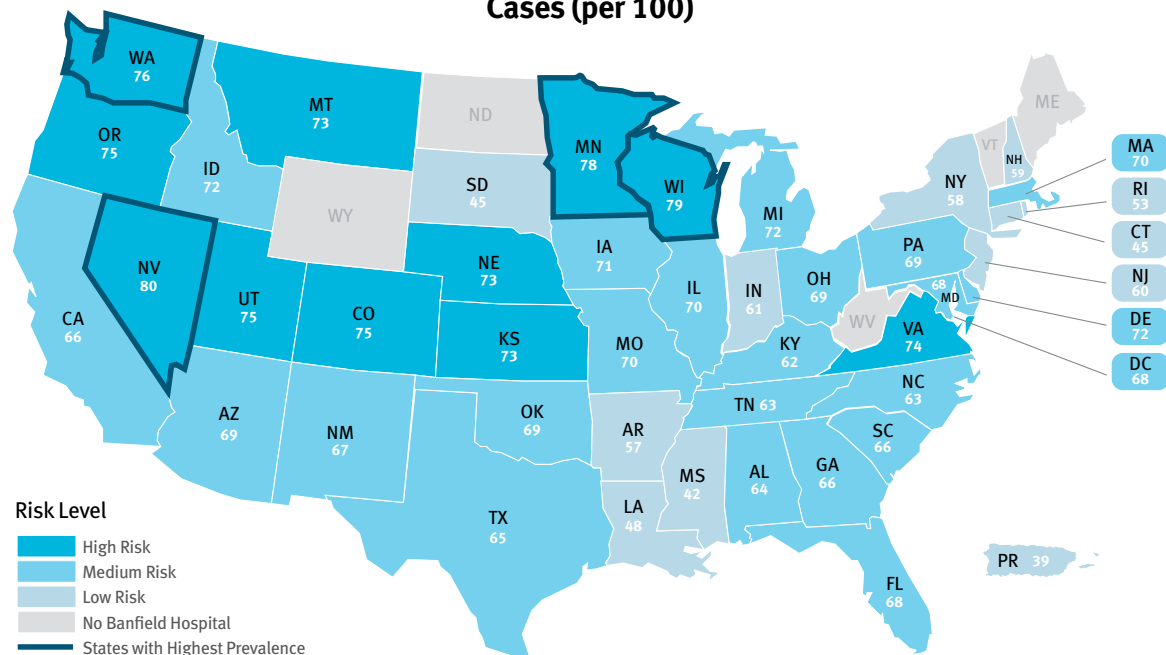
## Section Three: Dental Disease



2015 Dental Disease | Dog  
Cases (per 100)



2015 Dental Disease | Cat  
Cases (per 100)



### What would be the impact on cat health if periodontal disease were eliminated?

There are two dental conditions affecting cats that have seen very significant increases in prevalence over the past 10 years that are worth noting: tooth resorption and stomatitis. Although we can't say for certain why these diseases are on the rise, we do know that a thorough oral exam as part of a professional dental cleaning under general anesthesia is necessary to identify the extent of these disease conditions. Appropriate treatment may also be provided at this time.

**Tooth resorption** is a painful condition in cats where the tooth is broken down by the body beginning at or below the gum line. It is most easily identified during a dental cleaning under general anesthesia and is treated by extraction of the affected tooth. Tooth resorption has increased dramatically in cats from 5.4 cases per 10,000 in 2006 to 91.6 cases per 10,000 in 2015—a 1,587 percent increase. It is uncertain why such a dramatic increase in this condition has been observed.

**Stomatitis** in cats is generalized inflammation and ulceration of the oral cavity. The disease is treated with a partial or full mouth tooth extraction and, if needed, anti-inflammatory medications. Although this condition can occur in any cat, it has been linked with Feline Immunodeficiency Virus (FIV) and certain bacterial infections. Stomatitis in cats has increased by 68.8 percent from 37.7 cases per 10,000 in 2006 to 63.7 cases per 10,000 in 2015.

Cats do not always show outward signs of oral pain, making it difficult for owners to know there is a problem. The exact cause of tooth resorption and stomatitis is not well understood. Therefore, it is difficult to know the best preventive measures for these diseases. Regular professional dental cleanings with a thorough oral exam is warranted to detect these diseases early and provide appropriate therapy.

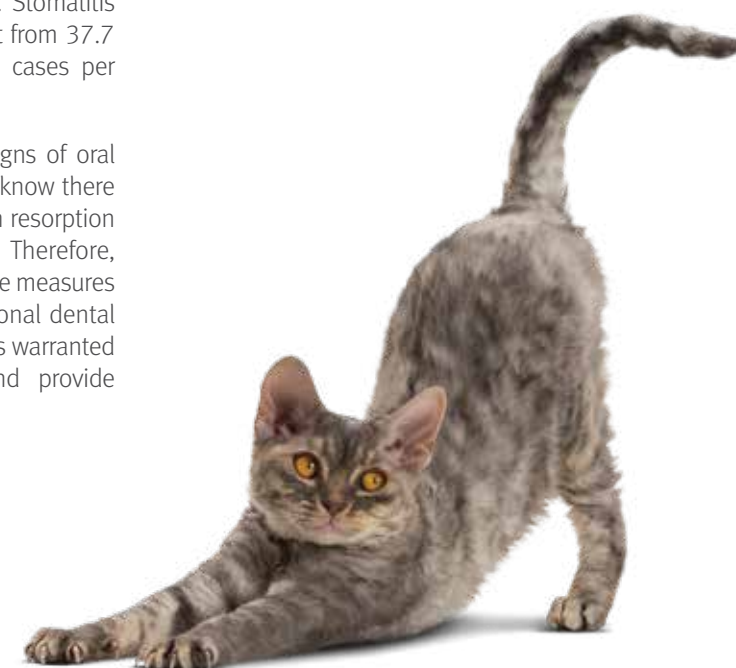


#### Did you know?

There is a link between periodontal disease and chronic kidney disease in cats?

Periodontal disease in cats, dogs and humans has been associated with increased risk of developing chronic kidney disease, a severe and debilitating illness.

BARKresearch has shown that if periodontal disease were eliminated, there could be up to **15,000** fewer cases of chronic kidney disease in cats nationwide.





## Section Four: Otitis Externa



Otitis externa is inflammation of the outer ear canal. Otitis externa is an important disease not only because it is common, but because it causes significant discomfort and can become a lifelong problem that is expensive to treat. Dogs are twice as likely to develop ear infections than cats.

Clinical signs of ear problems exhibited by dogs and cats include: odor, scratching or rubbing of ears and head, discharge in the ears, or redness or swelling of the ear flap or canal. Some pets may show discomfort by shaking their head or tilting it to one side, reacting with pain dramatically when touched around the ears or showing changes in behavior such as depression or irritability.

Otitis externa in dogs and cats can be triggered by many different causes. Problems associated with otitis externa include food allergies, ear mites, bacterial or yeast infections, or irritation from foreign bodies such as pieces of plants, shrubs and trees. Diagnosis of otitis externa is made using an otoscope to look into the ear canal and assess the amount of inflammation present, whether the ear drum is involved, and whether there are any foreign bodies, tumors or other potential causes present. Swabs of the ear canal can be examined under the microscope for bacteria, yeast and mites. A thorough history and physical examination may help to determine the cause of the problem, especially in the case of allergies.

### Bottom line:

- + Otitis externa is in the top 10 diagnoses for both dogs and cats.
- + In 2015, 12.9 percent of dogs and 6.6 percent of cats were diagnosed with otitis externa.
- + There has been a 30.1 percent increase in the prevalence of otitis externa in cats, with all of the growth occurring between 2006 and 2010. The prevalence has remained steady since 2010.

+ The prevalence of otitis externa in dogs peaked in 2010 at 14.3 percent. Since that time, the prevalence has decreased by 9.8 percent.

+ In 2015, Puerto Rico, Alabama, Florida, Michigan and South Carolina had the greatest prevalence of otitis externa in dogs, while Puerto Rico, Kentucky, Indiana, Ohio and Florida had the greatest prevalence in cats.

+ Of the popular breeds, Golden Retrievers and Labrador Retrievers are at the greatest risk of otitis externa, with 1 out of 4 Golden Retrievers and 1 out of 5 Labrador Retrievers receiving this diagnosis.



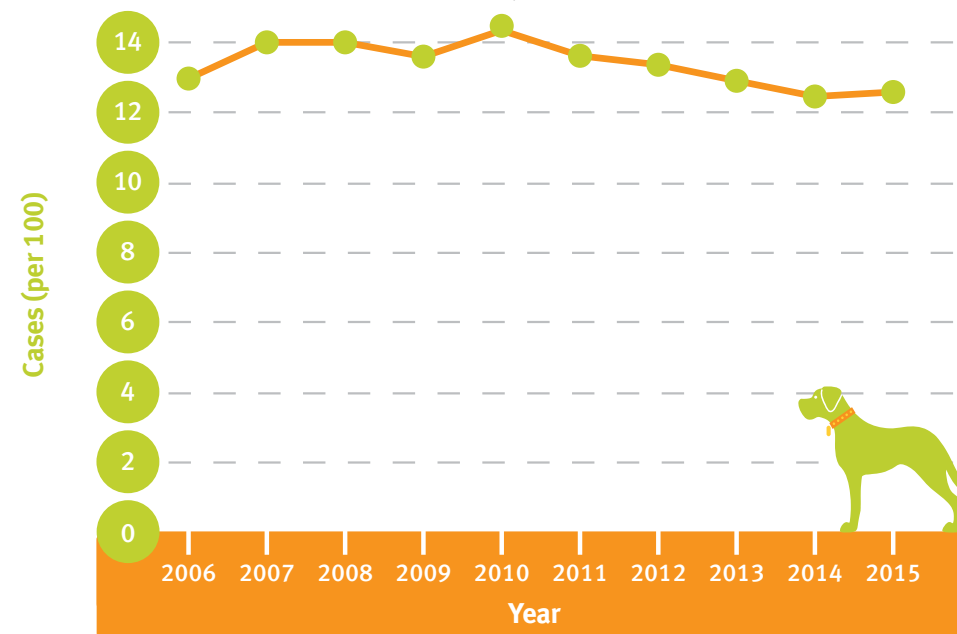
### Preventive recommendations:

+ Ear cleaning at least one to two times weekly; using proper techniques is essential for maintaining healthy ear canals in dogs that have been diagnosed with ear infections (or are at risk for ear infections).

+ Certain pets, such as dogs with allergies, may be predisposed to recurrent ear infections. Partnering with your veterinarian to manage underlying conditions contributing to ear infections can help reduce the frequency and severity of ear infections.

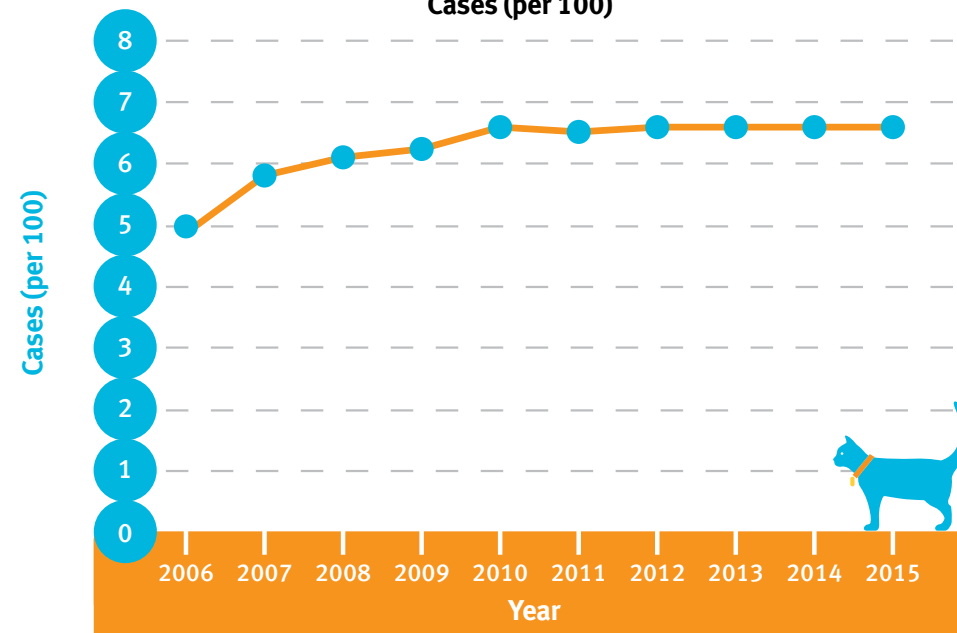


Otitis Externa | Dog | 10-Year Trend (2006-2015)  
Cases (per 100)



**Key takeaway:** An ear infection may become a chronic or recurrent problem, which can be frustrating and expensive to treat. Left untreated, the infection can spread to the middle and inner ear, ultimately resulting in hearing loss.

Otitis Externa | Cat | 10-Year Trend (2006-2015)  
Cases (per 100)

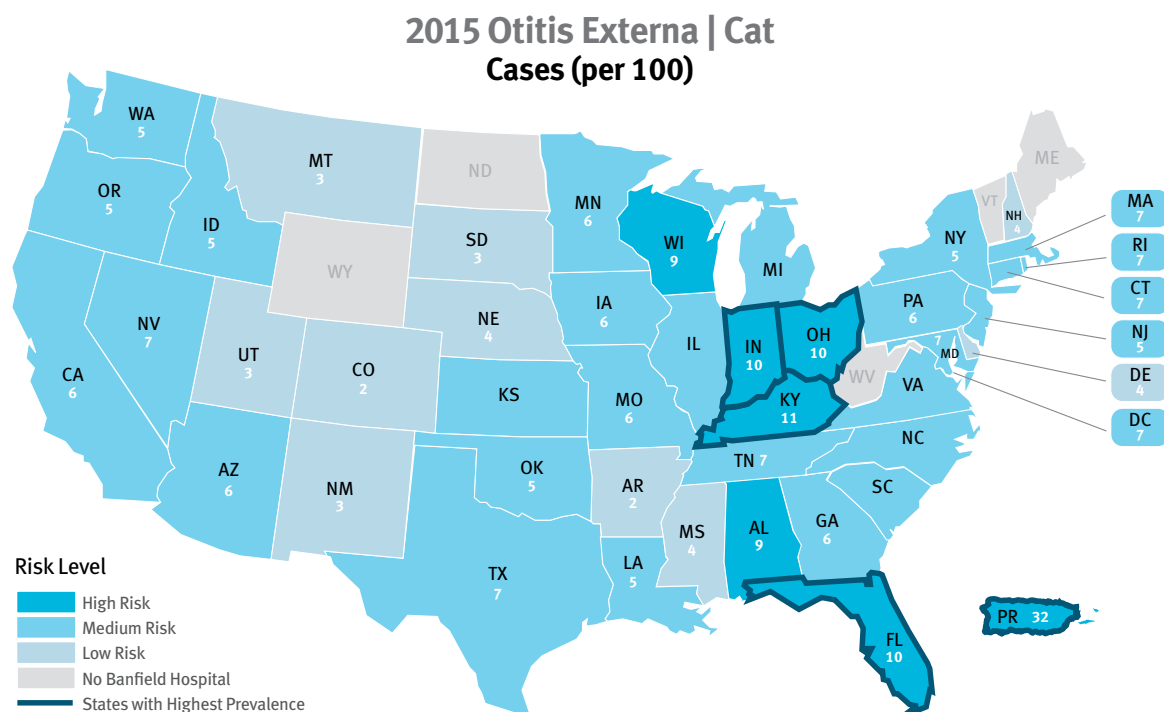
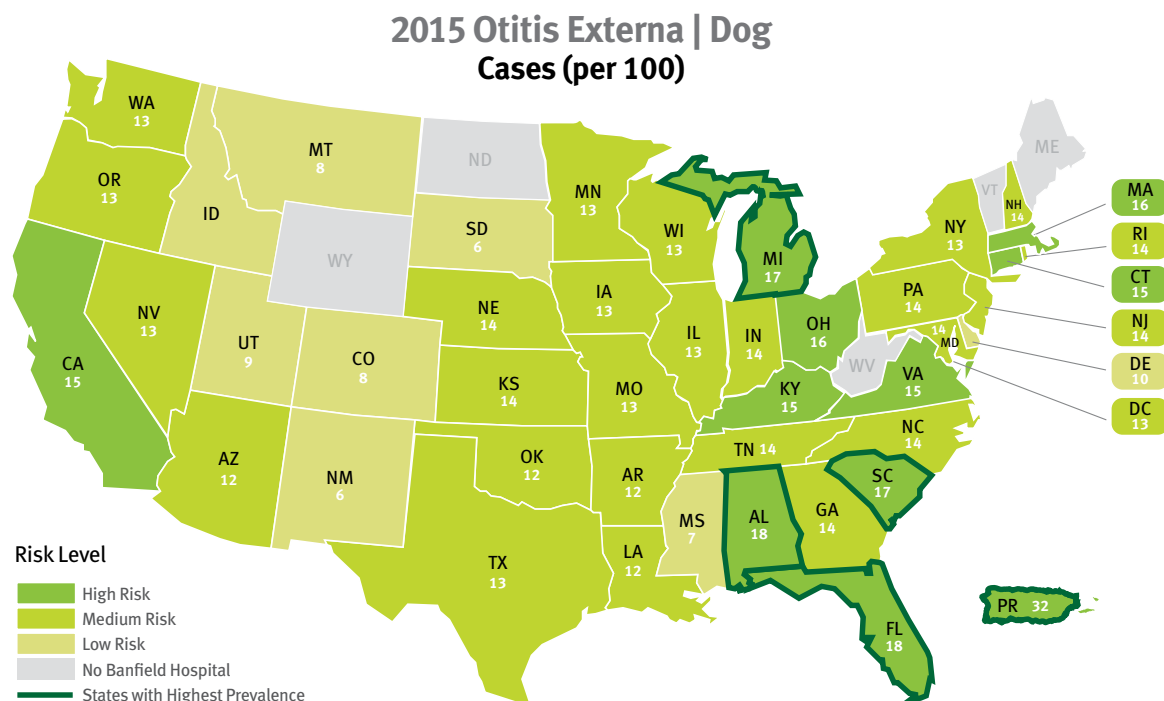


**Key takeaway:** Ear infections are about half as common in cats compared to dogs, with 6.6 percent of cats diagnosed in 2015. Feline ear problems can be caused by food allergies, parasites or from foreign bodies such as peices of plants, shrubs or trees. Bacterial or yeast infections commonly occur secondary to inflammation of the ear canal.





## Section Four: Otitis Externa



## Section Five: Flea & Tick

### Fleas

Fleas are common external parasites of mammals across the globe, and the prevalence of fleas is highest of all the external parasites. Fleas (as well as ticks) are important external parasites to prevent; their bite causes a great deal of irritation, and they can transmit disease to both animals and humans.

Flea allergy dermatitis is one of the most common skin conditions in dogs and cats. As fleas bite to eat, they inject saliva under the skin causing an irritation that can lead to scratching, hair loss and infections. In addition to the irritation caused by the bite, fleas can also transmit tapeworms and spread certain infectious diseases.

Large numbers of fleas can even consume so much blood that a puppy, kitten or a small pet can die as a result of blood loss (flea anemia).

### Ticks

Ticks are small arachnids (relatives of spiders) that live by sucking blood from mammals, including humans. They are found in most parts of the United States and can transmit diseases such as Lyme disease or Rocky Mountain spotted fever to dogs, humans and other mammals. These diseases can potentially be life-threatening.

One of the greatest risks that ticks pose to pets is the transmission of Lyme disease. Lyme disease has been identified across the country with the highest prevalence in the Northeast and the Great Lakes region.

Clinical signs most commonly observed in pets with Lyme disease include: red area where tick was attached (often unnoticed), fever, shifting leg lameness, joint swelling, enlarged lymph nodes, anorexia and general depression.

Lyme disease can be a long-term, painful and potentially debilitating disease, which is much easier to prevent than treat.

### Bottom line:

- + In 2015, fleas were among the most common parasites found in both dogs and cats.
- + Overall, the prevalence of flea infestation in dogs has increased 5.6 percent since 2006, with a peak increase in 2012 at 7.5 cases per 100 and a decrease to 5.9 cases per 100 in 2015.
- + Since 2006, cats showed a 9.9 percent increase in the prevalence of flea infestation, with a peak increase in 2012 at 12.2 cases per 100 and a decrease to 10.9 cases per 100 in 2015.
- + The prevalence of fleas in cats is twice that of dogs, indicating that more cats need to be on flea prevention.
- + In 2015, Louisiana, Alabama and Florida were among the top five states and territories with the greatest prevalence of fleas in cats and dogs.
- + There was an 11.3 percent decrease in tick infestations in dogs over the past 10 years.
- + In both dogs and cats, Puerto Rico, Arkansas and Massachusetts were among the top five states and territories with the highest prevalence of ticks.
- + Among the popular breeds, large breed dogs, including German Shepherds, Golden Retrievers, Pit Bulls and Labrador Retrievers were more likely to have ticks than small breed dogs. This may be due to a more active outdoor lifestyle of large breed dogs.





## Section Five: Flea & Tick



### Preventive recommendations:

- + Many suitable products are available for the prevention and treatment of fleas. These are available in the form of shampoos, rinses, sprays, mists/fogs, chewable tablets and spot-on treatments. Before selecting a product, pet owners should work directly with a veterinarian to ensure the selected product is appropriate for their pet's lifestyle and health.
- + Pet owners should only use flea and tick preventatives that have been registered and approved for use with the EPA or FDA.
- + Prevention of tick infestation involves environmental management (such as building fences and cutting grass to reduce access to tick habitat) and application of approved products to animals or the environment.
- + When returning from outdoor activities, a pet's skin and coat should be inspected in order to identify fleas and ticks.
- + Some ingredients in flea and tick preventives are not safe for use in cats. Pet owners with both dogs and cats in the home should discuss proper preventive medications with their veterinarian to eliminate any health risks to cats.



### Did you know?

Fleas live in areas frequented by animals and humans and seek out dark, warm, humid places—usually carpets, bedding, under furniture or in garden debris.

Physical removal of a tick using tweezers within 24 to 48 hours is thought to prevent transmission of most tick-carried diseases.

Indoor-only pets are also at risk for fleas and ticks since these parasites can unknowingly be on people, other animals or materials that enter the pet's environment. Therefore, it is important to continue using flea and tick preventives on indoor pets.

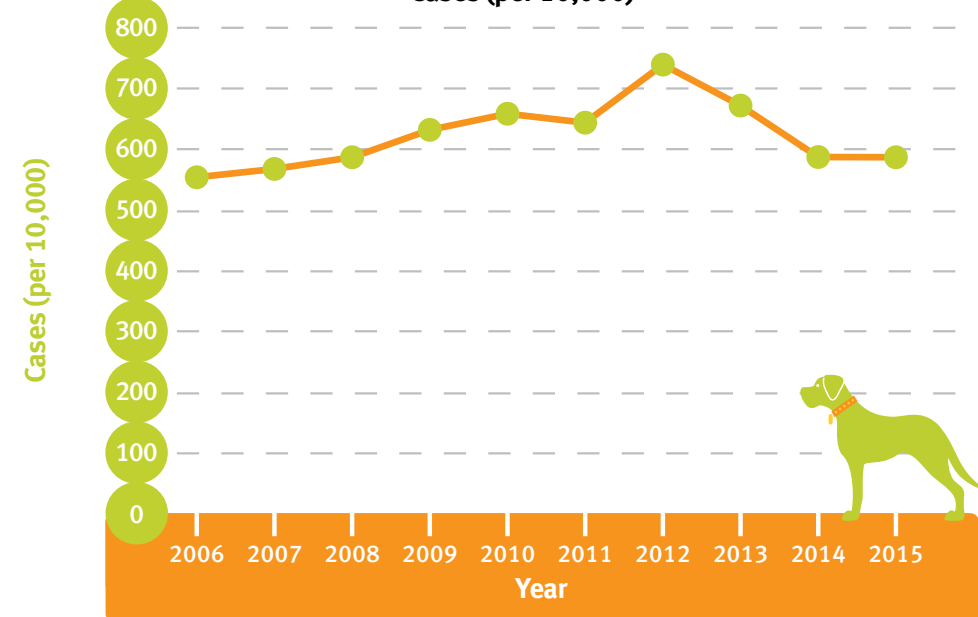


### Flea allergies

Flea allergy dermatitis (FAD) is an inflammatory reaction in response to proteins in flea saliva. Clinical signs vary in severity and can include generalized itching or biting at the skin, redness, inflammation and alopecia (fur loss exposing the skin below).

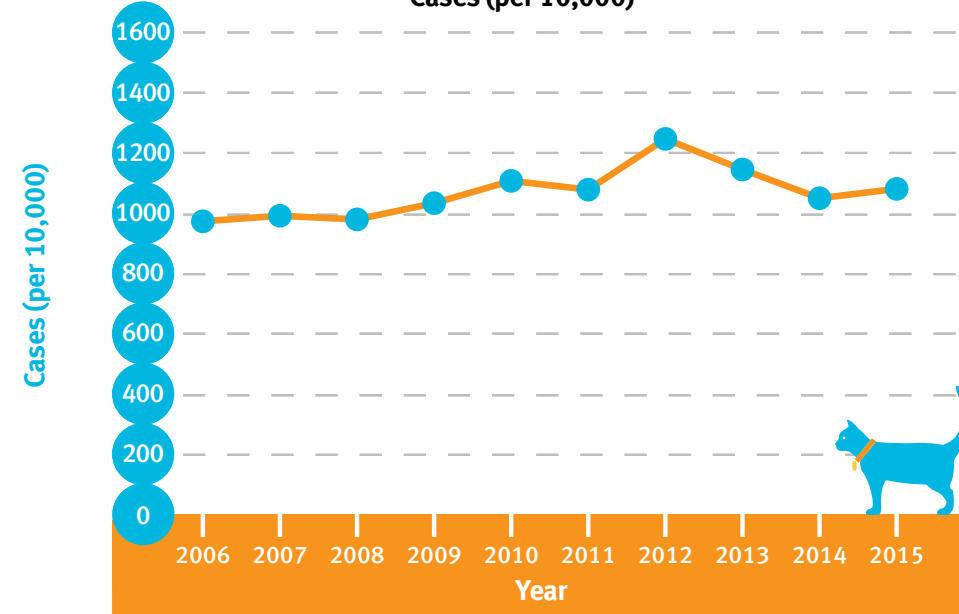
“Hot spots” or moist dermatitis is common with FAD. Ear infections (otitis externa) and foot infections (pododermatitis) may also develop. Treatment requires aggressive flea therapy and control of the inflammation, generally with a steroid such as prednisone. Antibiotics or antifungal medications may be warranted if a secondary skin or ear infection is present.

Fleas | Dog | 10-Year Trend (2006-2015)  
Cases (per 10,000)



**Key takeaway:** Since 2006, the prevalence of fleas in dogs has increased by 5.6 percent.

Flea | Cat | 10-Year Trend (2006-2015)  
Cases (per 10,000)



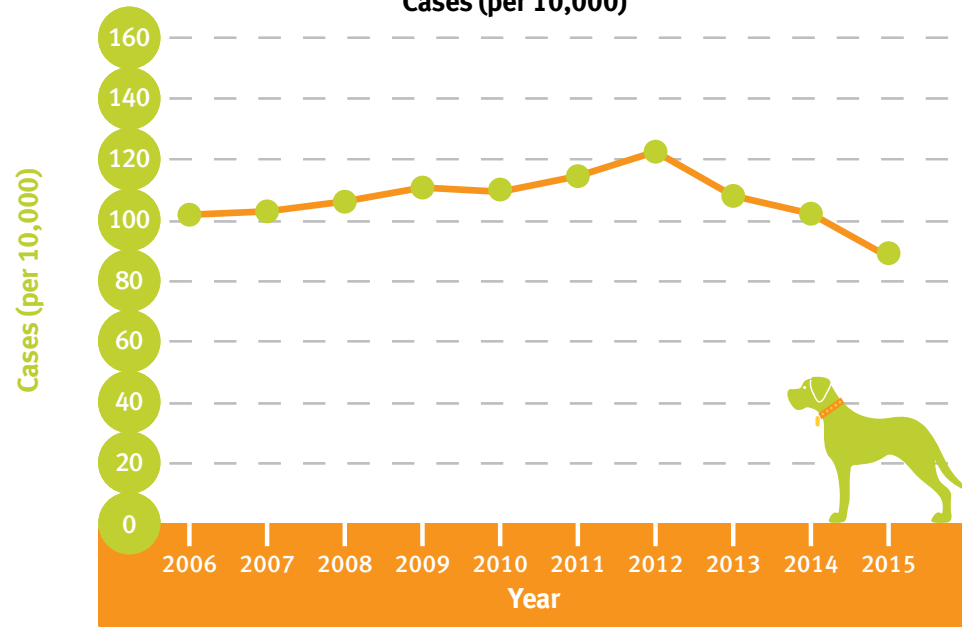
**Key takeaway:** Since 2006, the prevalence of fleas in cats has increased by 9.9 percent.



## Section Five: Flea & Tick

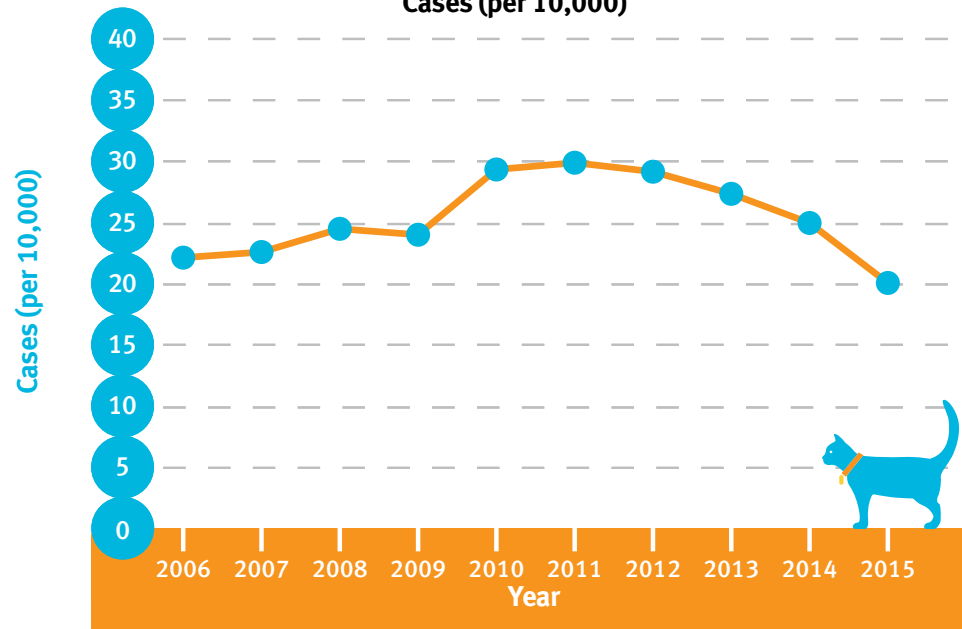


Tick | Dog | 10-Year Trend (2006-2015)  
Cases (per 10,000)



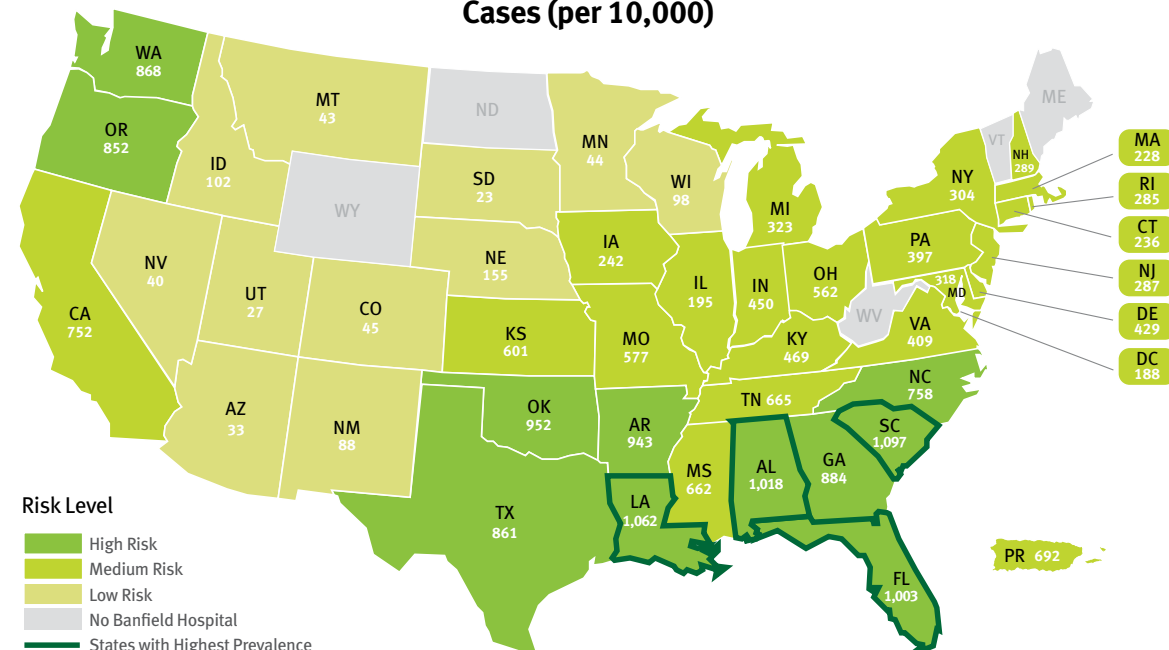
**Key takeaway:** Since 2006, tick prevalence has decreased by 11.3 percent.

Tick | Cat | 10-Year Trend (2006-2015)  
Cases (per 10,000)

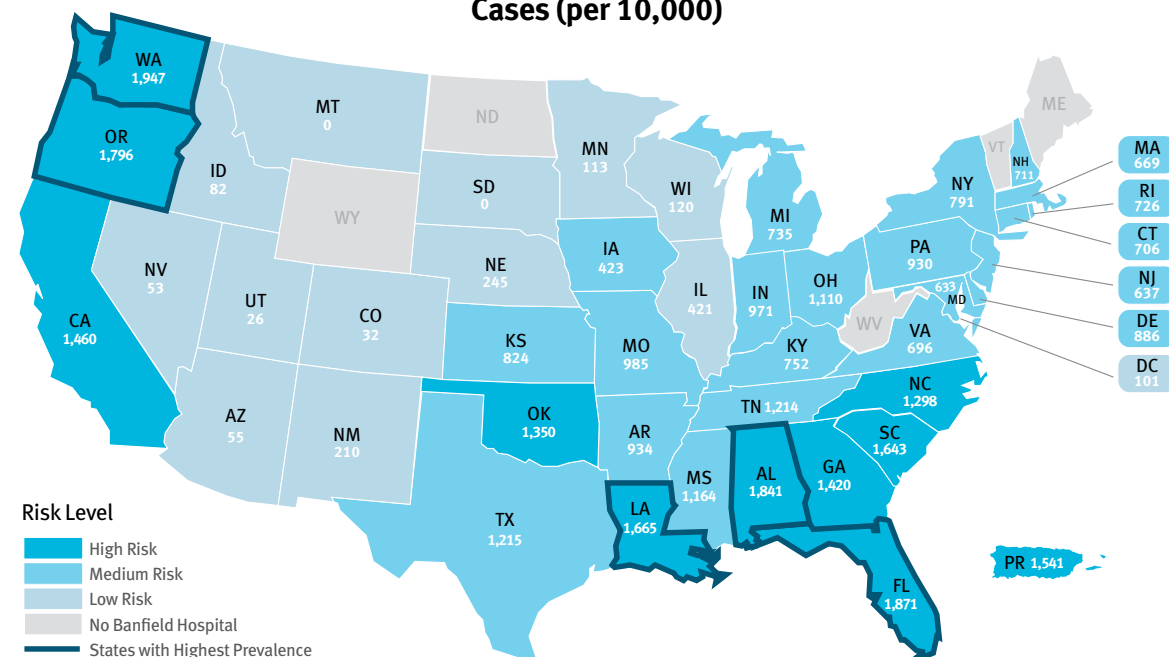


**Key takeaway:** Ticks remain an uncommon problem in cats and have decreased 9.9 percent over the last 10 years.

2015 Fleas | Dog  
Cases (per 10,000)



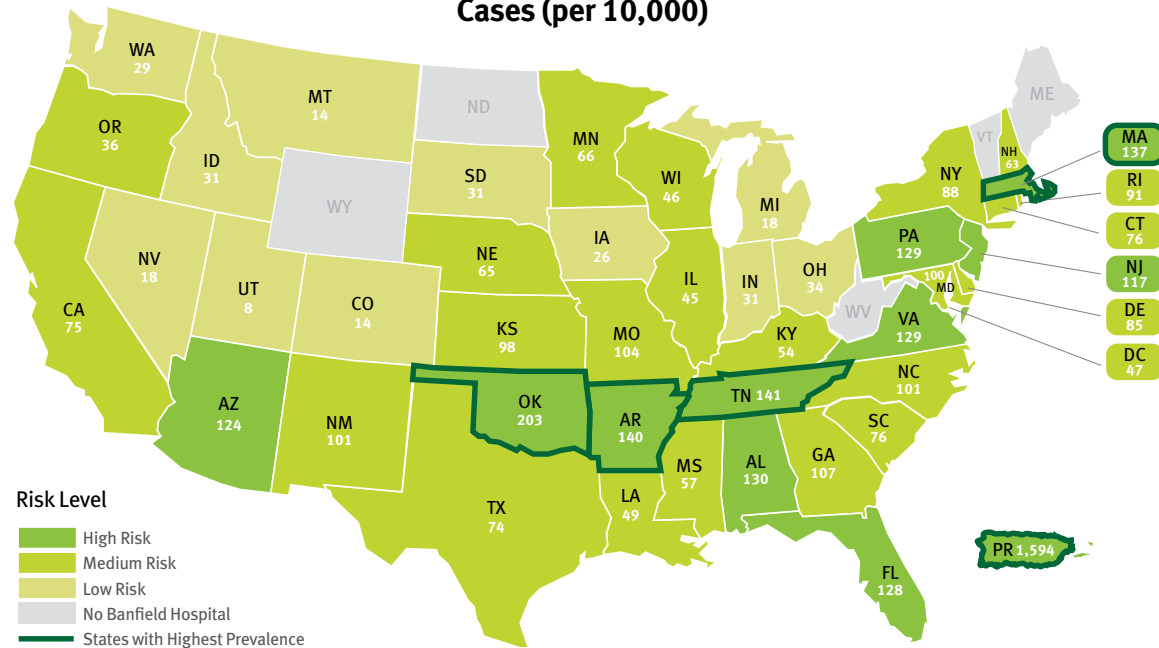
2015 Fleas | Cat  
Cases (per 10,000)



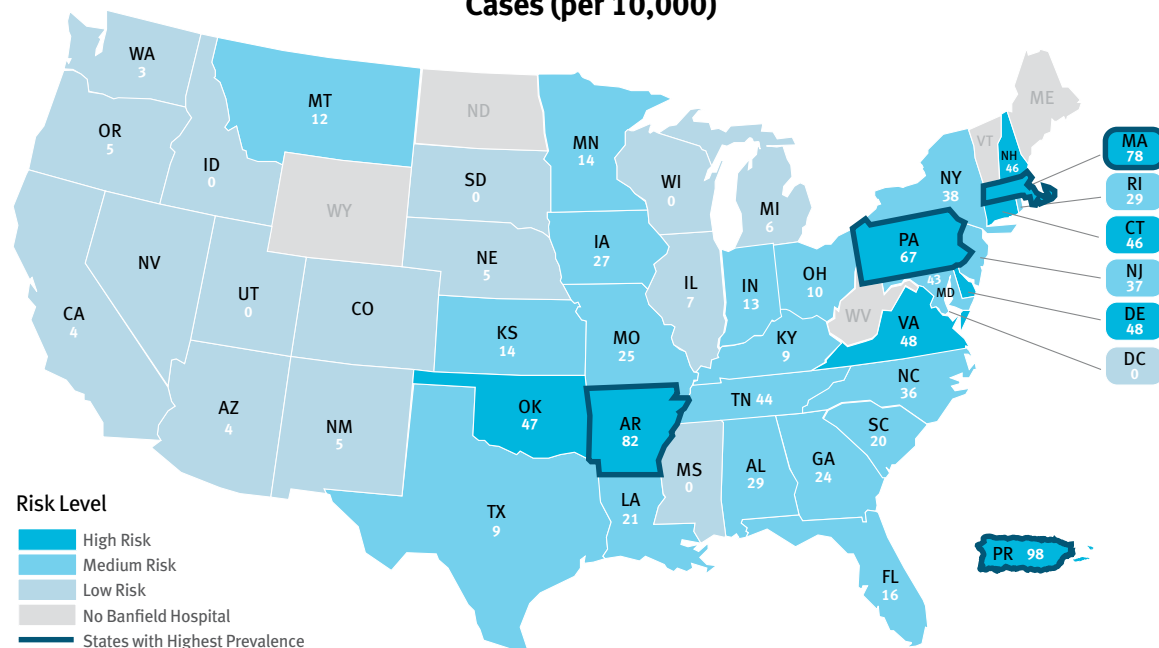


## Section Five: Flea & Tick

2015 Ticks | Dog  
Cases (per 10,000)



2015 Ticks | Cat  
Cases (per 10,000)



## Section Six: Internal Parasites



Internal parasites are important to diagnose as they can cause vomiting, diarrhea and poor absorption of nutrients from the food pets eat. Additionally, some of the most common internal parasites carry a zoonotic risk because they can be transmitted from animals to humans.

### Roundworms and hookworms

Roundworms and hookworms are zoonotic parasites that inhabit the intestinal tract of dogs and cats. While most common in puppies and kittens, infection can occur in dogs and cats of all ages. The mouthparts of hookworms attach to the pet's small intestine allowing them to feed on the pet's blood. Roundworms and hookworms can cause mild to extreme illness in pets and even death in some cases.

Most pets infected with roundworms and hookworms show no signs of infection. Some pets, especially puppies or kittens, become noticeably ill from roundworms and hookworms. Clinical signs most commonly observed in pets severely infected with roundworms and hookworms include: vomiting, severe weight loss, loss of appetite, distended abdomen, severe anemia and even death.

### Tapeworms

Tapeworms are long, flat, segmented parasites that live in the small intestines of dogs, cats, domestic animals and wildlife. Tapeworms do not have a mouth; instead, they attach to the inside of the intestines with suckers. Some also have hooks to aid attachment. Pets infected with tapeworms may not show any clinical signs; pet owners usually notice tapeworm segments around the anal area or on the surface of the stool. The segments may move or appear as grains of rice caught in the hair around the rectum. They may also be found in places where infected pets rest and sleep.

### Whipworms

Whipworms live in the intestines of dogs, coyotes and wolves. Cats may also become infected with whipworms, but it is more common in dogs. Adult whipworms are shaped very thin at the front and become wider toward the rear. As with roundworms and hookworms, many pets infected with whipworms will initially show no sign of infection. However, whipworms can cause mild to extreme illness in pets and, in some cases, lead to death. Whipworm infection can lead to bloody diarrhea, severe weight loss, dehydration and severe anemia.

Whipworms can cause disease in humans; however, there is no evidence that they are transmitted from animals to humans.

### Who in the family is at risk?

All human family members are potentially at risk from zoonotic parasites. The presence of dogs in a household, especially puppies, increases this risk due to their soiling habits.

Cats can also transmit zoonotic parasites, but due to their tendency to defecate in one area and bury their feces, exposure is less likely. Children run a higher risk of contracting a parasite due to their play habits, attraction to pets and pica (eating dirt, most commonly). In addition to regular deworming of pets, proper hygiene (such as handwashing after handling stool) is one of the best ways to reduce the risk of zoonotic diseases.







## Section Six: Internal Parasites



### Bottom line:

- + There has been a 10 percent decrease in hookworm prevalence in dogs and a 20.9 percent decrease in prevalence in cats since 2006. There has also been a decrease in roundworm infection in dogs by 15.7 percent and in cats by 18 percent over the same time period. This may be due to increased prophylactic deworming and, in the case of dogs, increased heartworm preventive administration, which also protects against these parasites.
- + Over the past 10 years, there has been a 36.1 percent decrease in whipworm prevalence in dogs. Whipworm infection remains uncommon in cats at 3.3 cases per 10,000 in 2015.
- + Tapeworm remains the most common parasite in cats (488 cases per 10,000) and dogs (215 cases per 10,000). The prevalence of tapeworm infection in cats is more than twice that of dogs.



### Did you know?

Tapeworms are transmitted to dogs and cats through the ingestion of fleas. The prevalence of fleas and tapeworms in cats are twice that of dogs, indicating the need for better flea control in the feline population. This can subsequently reduce the prevalence of tapeworms. If a tapeworm infection is diagnosed, it is important to ensure that appropriate flea prevention is being used, in addition to tapeworm treatment, to prevent reinfection.



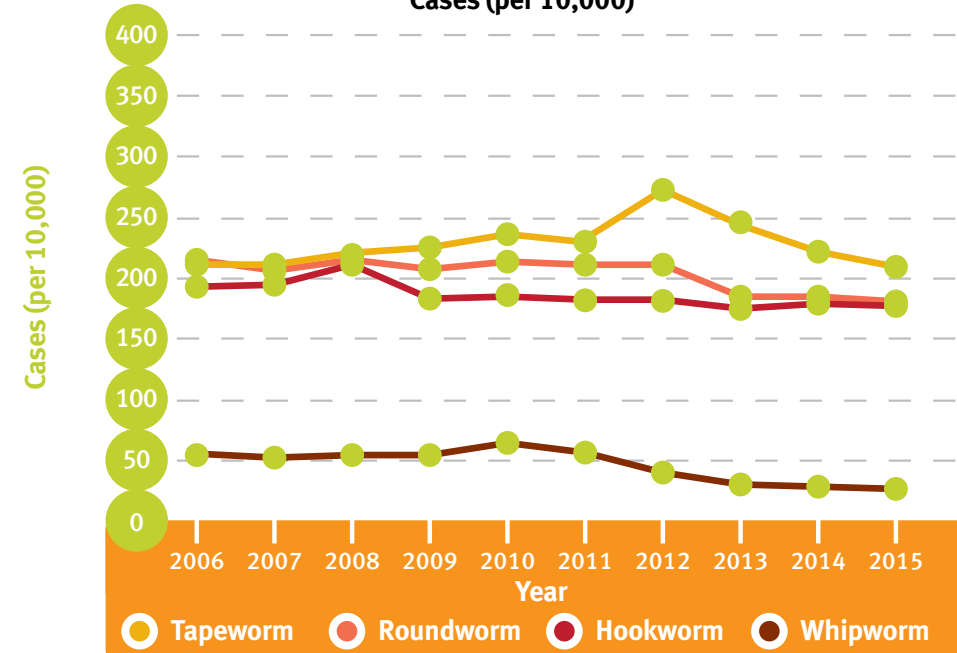
- + Puerto Rico had the highest prevalence of roundworms, hookworms and whipworms in dogs and cats.
- + In 2015, Alabama, Arkansas, Louisiana and South Carolina were among the top five states for tapeworm prevalence in dogs and cats.
- + Florida was among the top five states for hookworm, whipworm and tapeworm infection in cats.
- + Among popular dog breeds, internal parasites are more common in large breed dogs compared to small breed dogs. This may be due to large breed dogs having a more active outdoor lifestyle compared to small breed dogs.



### Preventive recommendations:

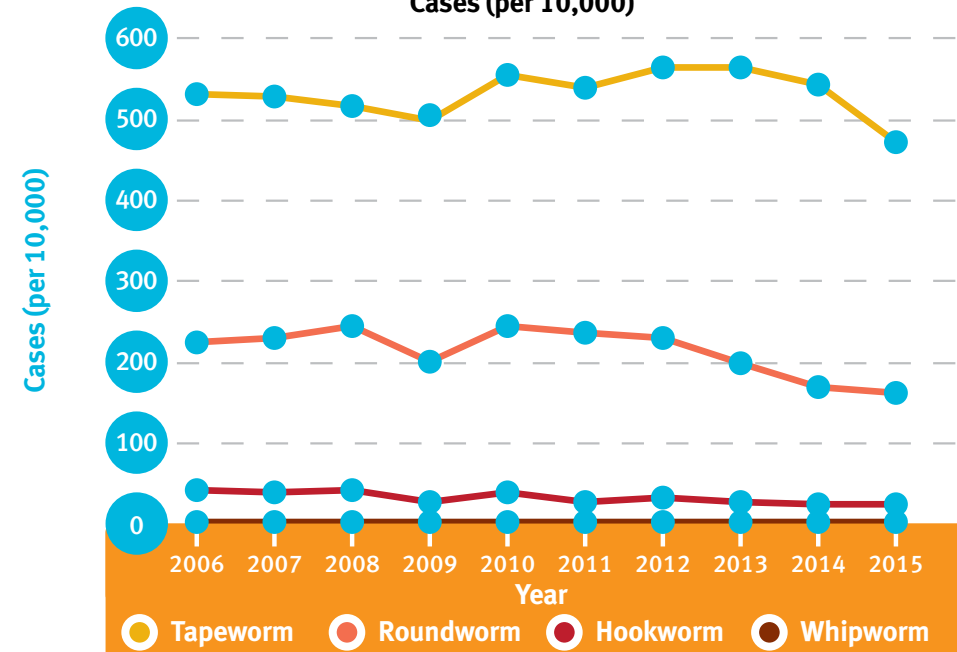
- + Deworming medication, administered or dispensed by a veterinary professional, is the recommended way to prevent internal parasites. The recommended frequency of deworming varies depending on the life stage and individual environment of the pet.
- + Quickly clean up pet waste after pets to remove potentially infective eggs from the environment.
- + Children should be discouraged from eating soil. Sand boxes should be covered when not in use and potentially contaminated areas should be avoided.
- + Practice good hygiene, such as regular handwashing after handling pets or cleaning up waste, in order to reduce the risk of zoonotic transmission of parasites.

Internal Parasites | Dog | 10-Year Trend (2006-2015)  
Cases (per 10,000)



**Key takeaway:** With dogs in the household, especially puppies, there is a greater risk of transmitting zoonotic parasites due to canine soiling habits. Roundworm and hookworm can cause mild to extreme illness in pets and, in some cases, death. All four internal parasites can infect humans under certain conditions.

Internal Parasites | Cat | 10-Year Trend (2006-2015)  
Cases (per 10,000)



**Key takeaway:** Tapeworm continues to be the most prevalent intestinal parasite in cats, even though there has been a decrease of 8.1 percent over the past 10 years.

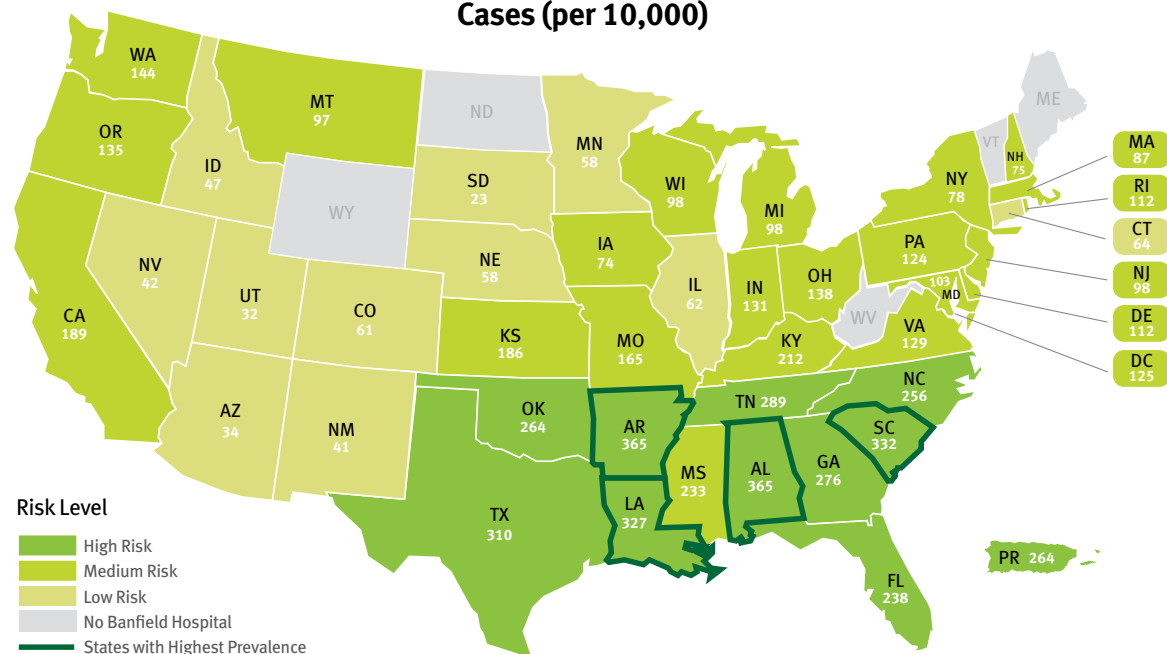




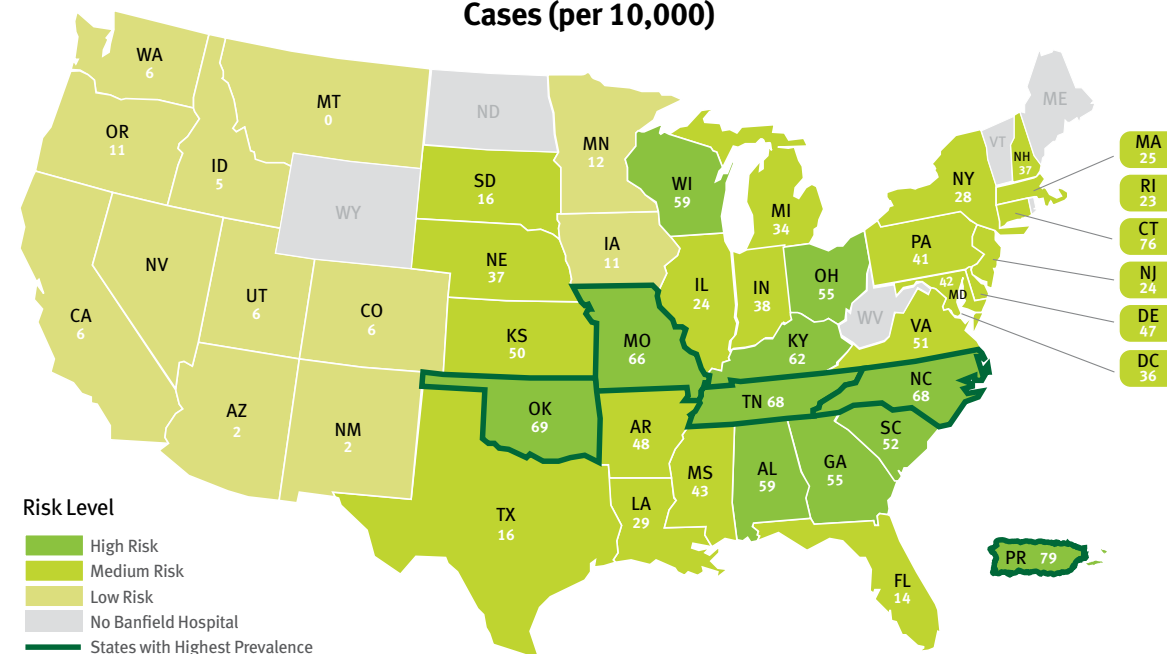
## Section Six: Internal Parasites



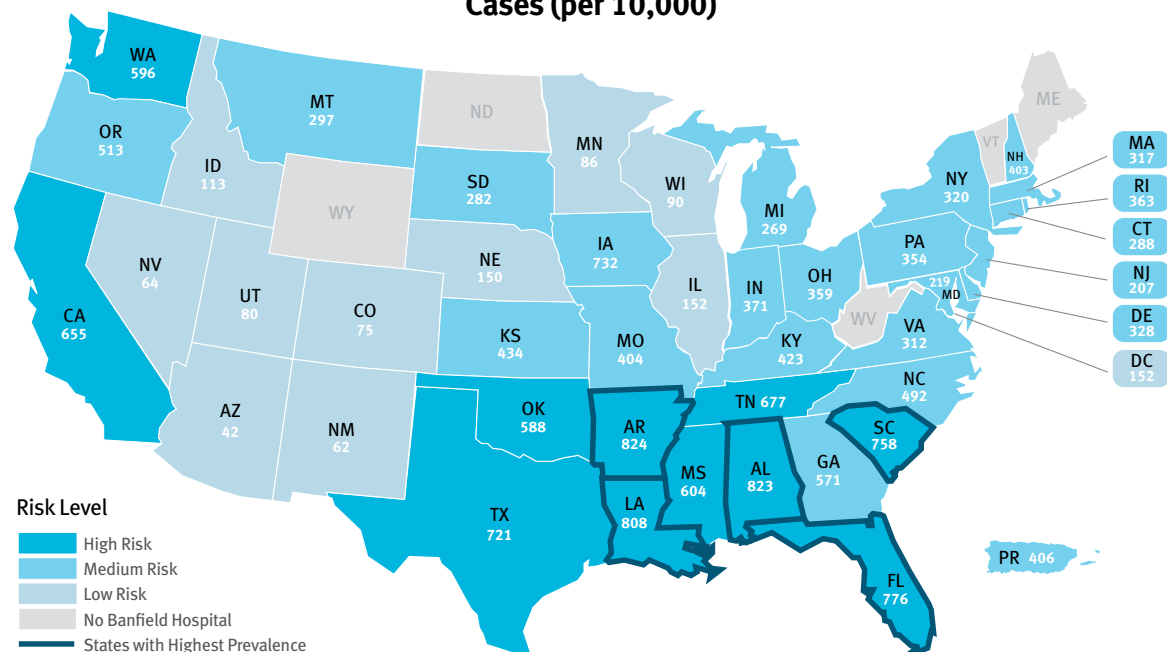
2015 Tapeworm | Dog  
Cases (per 10,000)



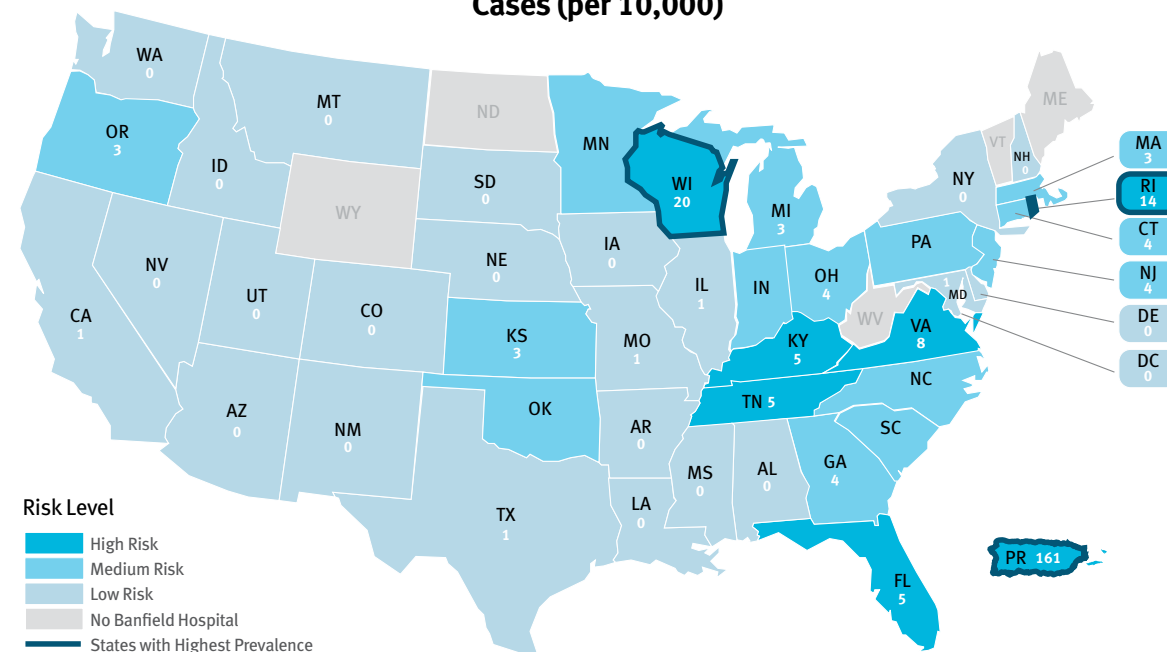
2015 Whipworm | Dog  
Cases (per 10,000)



2015 Tapeworm | Cat  
Cases (per 10,000)



2015 Whipworm | Cat  
Cases (per 10,000)





## Conclusion

Our hope is that the *State of Pet Health 2016 Report* will be beneficial in educating pet owners and veterinarians about the risk and prevalence of diseases affecting dogs and cats, and ultimately help improve the overall health of pets in the United States.

Over the past 10 years, there has been success in reducing certain preventable diseases. For example, in dogs we have seen a reduction in the prevalence of heartworm, roundworm, hookworm and whipworm infestations. Similarly, in cats there has been a reduced prevalence of roundworm, hookworm and tapeworm cases. While we cannot be certain, the decrease in dogs could be due to increased heartworm prevention, which targets these internal parasites. In cats, routine deworming and flea prevention may be contributing to this decrease.

Flea prevalence increased in dogs and cats from 2006 to 2012, but has been steadily decreasing since then. The rise of other diseases such as diabetes and dental disease in dogs and cats, and otitis externa in cats, indicates the need for continued education of clients about these diseases and their preventive strategies. The sharp rise of tooth resorption and increase of stomatitis in cats necessitates more research to understand the root causes of this trend and potentially identify more effective preventive measures. The continued rise of some of the diseases in this report demonstrates the need for frequent medical care to ensure the highest quality of life for pets.

To help reduce the risk of diseases in both dogs and cats, Banfield is committed to working in partnership with pet owners to focus on preventive care. We believe preventive care improves the quality of a pet's life by reducing the risk for contracting serious, costly and sometimes fatal diseases. This is why Banfield emphasizes the importance of routine veterinary care at least twice a year, which allows for early disease diagnosis and helps pets remain healthy during all life stages.

Looking forward, we hope that future *State of Pet Health Reports* will find a decrease in many of the preventable diseases highlighted, as well as an increase in the number of cats receiving preventive care.

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



## Acknowledgements



### Chief Medical Officer

Daniel S. Aja, DVM

### Senior Director of Research

Elizabeth Lund, DVM, MPH, PhD

### Project Sponsors

Elizabeth Lund, DVM, MPH, PhD

Marta Monetti

Jeannine Taaffe

### Program Director

Kim Van Syoc

### Project Manager

Julie Heade

### Project Leads

Molly McAllister, DVM (Research, Data and Medical Content)

Kelly O'Brien (Print Report)

Kate Scheofsky (Digital Report)

### Applied Research & Knowledge

Molly McAllister, DVM

Kirk Breuninger, VMD, MPH

Nathaniel Spofford, MPH

Mike Yang, BVMS

Rosalie Trevejo, DVM, MVPM, PhD, DACVPM (Epidemiology)

### Medical Content Experts

Karen K. Faunt, DVM, MS, DACVIM

### Editorial Content Management

Nina Silberstein

Leeza Castle

Lindsay Murphy

### Creative Director

Michelle Slater-Young

### Production Designers

Jake Givens

Bryan Wolf

### Production Manager

Leeza Castle





Follow us on   

To learn more, visit [stateofpethealth.com](http://stateofpethealth.com).

To find a Banfield near you, visit [Banfield.com](http://Banfield.com).

