

Gaining knowledge about demodicosis

My understanding of demodicosis has been a bit sketchy, so I welcomed the task of reviewing our practice data on this disease. I understood that the causative organisms, *Demodex canis* in dogs and *Demodex cati* and *Demodex gatoi* in cats, are part of the normal fauna of canine and feline skin and that they proliferate and cause disease only when the host suffers from immune deficiency or suppression (see *Diagnosing Demodex infection*, page 22).

As such, demodicosis is frequently seen in dogs less than 1 year old or in dogs and cats in immunosuppressive states (e.g., due to feline leukemia virus or feline immunodeficiency virus infection, neoplasia or chronic immunosuppressive therapy). Demodicosis is considered rare in cats.

Analyzing incidence

The first question my colleagues and I asked was, “What is the incidence of demodectic mange in dogs and cats?” We reviewed the Banfield Medical Database data from the past five years to answer this question. You can see the average annual incidence of canine demodicosis per region in *Table 1*, page 18.

Dogs in South Central and Southeastern states suffer from a higher incidence of the disease. Occurrence is not affected by the seasons (*Figure 1*, page 20). However, the incidence varies considerably by region.

The incidence of feline demodicosis was low, supporting the finding that the disease is rare in cats. The highest incidence of feline demodicosis was in the Southeast, with an average of four cases per 10,000 cats. The lowest rate was in the Northwest, which averaged only one case per 10,000 cats.

During the last five years, the Banfield Medical Database identified 48,296 Pets (48,073 dogs and 223 cats) with demodicosis. Of the total cases, 16,342 were identified as generalized, 15,199 as localized and 16,755 were not classified as either localized or generalized forms. Most of these cases (26,774 dogs and 51 cats) occurred in patients less than 1 year old (*Figure 2*, page 20).

Underlying conditions

Of the 26,774 dogs that showed evidence of the disease during their first year of life, 243 had three or more episodes. Altogether, 581 of the 48,073 dogs had recurring episodes, suggesting an underlying immune system disorder. We defined an episode as a new event separated from the previous diagnosis by at least four months.



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DataSavant's mission is to:

- Explore the health and well-being of Pet populations
- Evaluate new clinical treatments
- Monitor Pets as sentinels of zoonotic disease in family environments
- Transform Pet medical data into knowledge, i.e., open new windows into Pet health care using the Banfield medical caseload and database.

Table 1: Incidence of Canine Demodicosis*

Region	Dogs with <i>Demodex</i> Infection	Total Dogs per Region	Incidence per 10,000 Dogs
North Central	2,010	186,097	108
Northeast	4,378	315,727	139
Northwest	2,207	184,884	119
South Central	12,228	630,818	194
Southeast	18,279	740,391	247
Southwest	8,967	697,595	129

Table 2: Canine Breeds Most Commonly Affected by Demodicosis*

Breed	Dogs with <i>Demodex</i> Infection	Dogs per Breed	Percent of Breed Affected
American Pit Bull	7,759	121,143	6.4%
Boxer	3,218	68,615	4.7%
Pug	1,431	42,893	3.3%
Chihuahua	3,522	155,122	2.3%
Mix	2,438	115,758	2.1%
Beagle	1,418	70,842	2.0%
Labrador Retriever	5,594	324,263	1.7%
Dachshund	1,495	87,563	1.7%
Rottweiler	1,353	84,384	1.6%
German Shepherd	1,879	133,065	1.4%

*Source: Banfield Medical Database

dence of demodicosis—*e.g.*, West Highland White Terriers and American Pit Bulls—and the disease is considered to have a heritable basis. However, the breed incidence for dogs seen at Banfield hospitals differs (*Table 2*). The American Pit Bull had the highest incidence, while West Highland White Terriers were far down the list.

Common treatments

It is well established that many cases of demodicosis resolve without treatment, especially localized demodicosis. This was the case in 34,100 of the 48,296 Pets affected (70.6 percent). The Pets

Dogs with generalized demodicosis who were 10 years old or older had a variety of other diagnoses concurrently, including:

- Hypothyroidism
- Bacterial dermatitis or pyoderma
- Neoplasia
- Immune-mediated disease
- Alopecia
- Otitis externa.

Some of these conditions—*e.g.*, hypothyroidism, neoplasia—can cause immune deficiency or suppression and thus infection, while others result from immune dysfunction—*e.g.*, bacterial dermatitis, otitis externa, demodicosis.

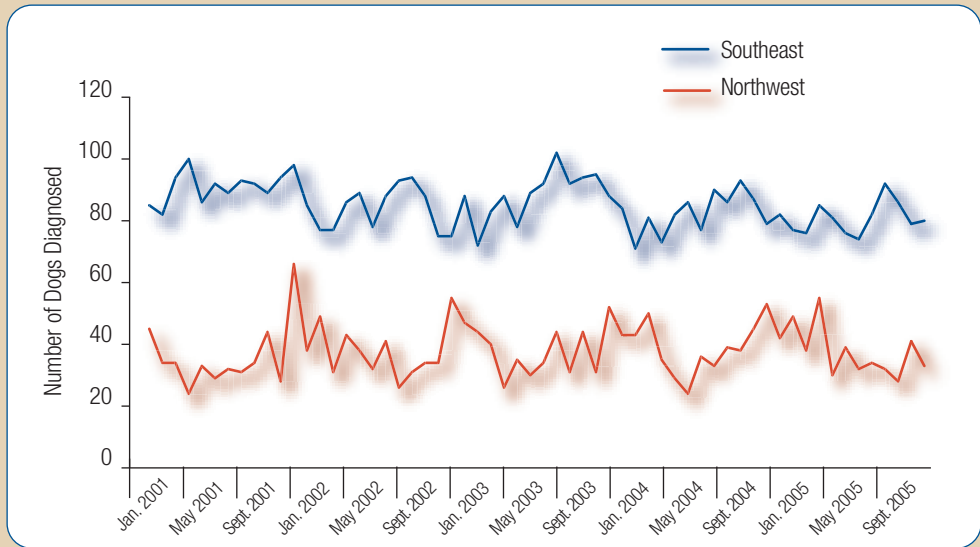
Various breeds have been reported in some studies to have an increased inci-

diagnosed with generalized demodicosis were most commonly treated with amitraz dip (7,098 patients or 14.7 percent) once every two weeks. Ivermectin in syrup given daily for four or more weeks closely followed as the second most common treatment (6,830 patients or 14.1 percent). For more information on treating *Demodex* infection, see *Treating canine demodicosis* on page 30.

Conclusion

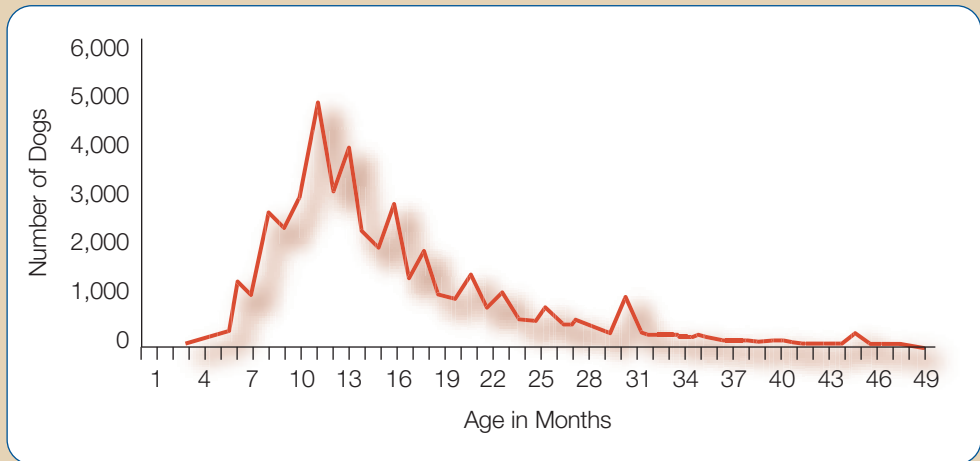
As is often the case, data on a disease condition—demodicosis is no exception—seem to result in more questions than answers. It is still not clear to me after reviewing the literature why some dogs

Figure 1: Canine Demodicosis Cases Diagnosed per Month in the Northwest and Southeast*



*Source: Banfield Medical Database

Figure 2: Incidence of Canine Demodicosis by Age at Diagnosis*



*Source: Banfield Medical Database

develop demodicosis and not others, why the disease is self-limiting in the majority, and why it predisposes some patients to chronic, superficial or deep bacterial dermatitis and pyoderma. Is there a common underlying form of immune deficiency associated with demodicosis? What is clear after reviewing the data is that we

still have a lot to learn about this parasitic skin disease. 🐾

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