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CHALLENGING PAST ASSUMPTIONS

Year-round protection from
heartworm and intestinal parasites



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Challenging Past Assumptions

Year-round protection from heartworm and intestinal parasites



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Microclimates and greater pet mobility increase the risk for infection.

Heartworm and intestinal parasites currently pose an almost constant, year-round threat to the health of pets. To protect dogs from infection, the Companion Animal Parasite Council (CAPC) recommends routine, consistent, year-round use of parasite control products together with careful environmental and pet management to minimize risk for infection.¹

REDUCING THE THREAT OF DISEASE

The risk of disease can be greatly reduced if not eliminated with the regular use of broad-spectrum anthelmintics, most of which eliminate immature heartworms as well as intestinal parasites. Some broad-spectrum anthelmintics also control ectoparasites. Preventing heartworm is of paramount importance because heartworm infection, allowed to proceed unchecked, is potentially life threatening. When pets are also kept free of intestinal parasites, shedding of infective stages into the environment is prevented, thereby reducing health concerns for both pets and people.

HEARTWORM INFECTION IS NOW A YEAR-ROUND THREAT

Despite the widespread availability of reliable heartworm preventatives, thousands of dogs become infected with heartworm (*Dirofilaria immitis*) each year. Recent estimates indicate that nearly 250,000 dogs are

Failure to administer preventatives consistently throughout the year is considered the most common reason dogs receiving veterinary care become infected with heartworm.

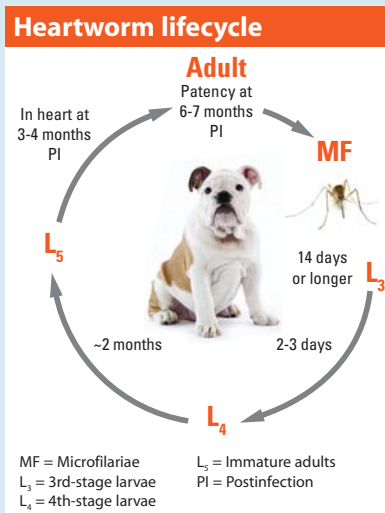
treated for heartworm infection annually in the U.S. alone² and that at least twice as many dogs are likely infected.³ Failure to administer preventatives consistently is considered to be the most common reason dogs receiving veterinary care become infected.

CLIMATE AND COMPLIANCE

Confounding the compliance issue, in any given year mosquitoes may be active and transmit *D immitis* even when adverse conditions appear to be present, depending on local climatic factors. Although careful epidemiologic studies can document when transmission of *D immitis* most likely began in previous years, it currently is not feasible – particularly in

Effective protection from heartworm

It is not feasible to precisely predict when future mosquito populations will be sufficient to begin transmission of *D immitis* in any given year. As soon as an infected mosquito deposits third-stage *D immitis* larvae onto a bite site during feeding, they penetrate into connective tissue and begin to migrate. As long as a heartworm preventative is administered within the first several weeks after infection (while immature heartworms are still third- or fourth-stage larvae), immature worms will be killed and an infection with adult heartworms will not develop.³ However, if a preventative is not administered (eg, a dose or two is missed, recommended start and stop dates are outdated, the transmission season is missed, or the dog travels to an endemic area while not on a preventative), infections can progress and worms can develop into older, disease-causing immature and adult heartworms. Treatment for *D immitis* is not without potentially life-threatening complications for the dog. For this reason, heartworm preventative should be prescribed for all dogs beginning with the first puppy visit at 6 to 8 weeks of age and the dog should be maintained on preventative year-round for the rest of his or her life.



*It is not feasible to precisely predict when future mosquito populations will be sufficient to begin transmission of *D immitis* in any given year.*

light of changing climatic and weather patterns – to predict when mosquito populations will be sufficient to begin transmission in any future given year. To add to the confusion, microclimates – small areas of increased temperature and humidity due to the activities of people, together with the biological habits of different mosquito vectors important in any given area – allow mosquito activity and subsequent transmission during times of the year traditionally considered safe.³


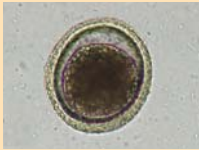


INTESTINAL PARASITES ARE A YEAR-ROUND THREAT

An additional benefit of using a heartworm preventative year-round is that most of the common monthly heartworm products also treat intestinal parasites, including ascarids, hookworms, and, in some cases, whipworms. Infection with intestinal parasites is extremely common, even during times of the year when the climate is considered inhospitable for transmission.

A recent study in Canada of animal shelter dogs during winter months showed parasite shedding rivaling that of dogs living in milder climates.⁴ A study of 1,199,293 canine fecal samples submitted to Antech Diagnostic Laboratories throughout the U.S. in 2006 showed that the same spectrum of intestinal parasites was seen in pet dogs as was seen in shelter dogs.⁵ The high infection pressure (one third to one half of all shelter dogs shedding eggs of intestinal helminths at any given point in time) leads to widespread environmental contamination with infectious parasite stages that in turn pose a risk of infection to pet dogs.⁶ Without consistent control, dogs may face some of the same infection risks seen in animal shelters. Parasites don't discriminate between well-cared-for and neglected dogs, however. The difference is that pet dogs may be more likely to defecate around homes, shedding ova of potentially zoonotic parasites in areas that expose people as well as other neighborhood dogs to infection.

Some may consider adult pet dogs to be at lower risk of infection for intestinal parasites than their shelter counterparts due to their age and lifestyle, which carry a certain amount of immunity.

Common internal parasites in the dog

Parasite	Source	Zoonotic potential
<i>Ancylostoma caninum</i> (hookworm) 	<ul style="list-style-type: none"> Larvae from dam's milk Environment^{6,8} 	<ul style="list-style-type: none"> Cutaneous larva migrans (larvae under the skin) <ul style="list-style-type: none"> Larvae penetrate skin upon direct contact with feces-contaminated soil Eosinophilic enteritis⁷ (adult hookworms in small intestine)
<i>Toxocara canis</i> (ascarid) 	<ul style="list-style-type: none"> In utero from the dam Transmammary from the dam Environmental;⁶ even with a low number of eggs⁷ 	<ul style="list-style-type: none"> Exposure to infectious eggs in feces-contaminated soil (eggs can remain viable for years, posing a threat to children who ingest soil)* Visceral or ocular larva migrans⁸
<i>Dirofilaria immitis</i> (heartworm) 	<ul style="list-style-type: none"> Mosquito bite 	<ul style="list-style-type: none"> Third-stage larvae deposited by mosquito when biting Pulmonary granuloma (asymptomatic or with coughing or pneumonitis)⁹
<i>Trichuris vulpis</i> (whipworm) 	<ul style="list-style-type: none"> Not directly transmitted from dam Environment 	<ul style="list-style-type: none"> Not clear, may warrant further investigation¹⁰

* A recent prevalence study in the U.S. revealed that 13.9% of people have serologic evidence of infection with *T canis*, suggesting zoonotic transmission may occur more commonly than previously recognized.¹¹

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It is true that the ideal healthy pet lifestyle, which involves routine veterinary care as well as management practices to limit contact with contaminated environments, results in decreased risk for parasitic infection. Healthy management practices include keeping dogs confined to a leash or behind a fence; routine removal of pet feces from the environment; feeding only a quality commercial diet (no raw meat); providing fresh water (municipal water sources are fine); and practicing good hygiene.¹ However, pet dogs may experience intermittent breaks with these control

methods when visiting parks or public areas and thus are placed at risk for infection. In addition, although age decreases the likelihood of infection with some intestinal parasites, maturity does not eliminate the risk altogether. Indeed, even ascarids, a parasite long considered to be a problem mainly in pups, has recently been shown to readily infect adult dogs.⁷

CONCLUSION

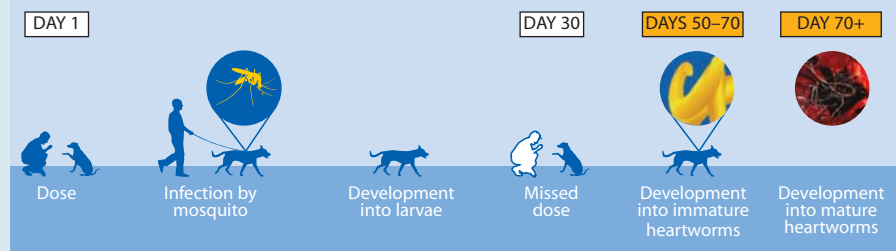
Internal parasites remain a common threat to dogs. Endemic heartworm transmission is well established across much of North America, and longer periods of warm weather can extend the transmission window further, leading to increased risk of infection. In addition to heartworm, free roaming dogs are commonly infected with intestinal parasites and deposit eggs in the environment, creating a future infection risk to young and adult dogs alike. Because some of these parasites are zoonotic, intestinal parasite infections in pet dogs also create a human health risk. Consistent use of preventatives, healthy pet management practices, and regular veterinary examinations can limit if not eliminate parasitic infections, protecting the health of both pets and people. Every dog and every family deserve year-round protection from parasites.

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Heartworm Consequences of noncompliance

Missing a single dose can be as risky as failure to treat long enough in the season.



Parasites don't discriminate between well-cared-for and neglected dogs.



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Cover heartworm photo: Dr. Brad Njaa