



Hit **“Refresh”** on Your Feline HEARTWORM PROTOCOL

Written by: Tom Nelson, DVM



Most veterinary professionals understand that feline heartworm disease is real, but for many their hands-on experience is limited. There's an old saying: *"You won't find what you don't look for—and you don't look for what you don't understand."* While veterinary practitioners understand canine heartworm disease reasonably well and most have experience diagnosing, preventing and treating it, feline heartworm disease is a different **"animal."** As veterinary professionals, we all need to understand how to recognize, prevent it and manage it.

The American Heartworm Society (AHS) recently revised their [Feline Heartworm Guidelines](#) for veterinarians to reflect the latest scientific information on this serious disease and to encourage veterinarians to update their diagnostic, prevention and treatment protocols.

How does feline heartworm disease differ from its canine counterpart?

Dogs are recognized as the definitive host for heartworms. When infected with heartworms, dogs develop cardiovascular disease that is characterized by pathological changes in the pulmonary arteries that lead to increased vascular resistance. This can ultimately result in right-sided heart failure. Cats, while susceptible to infection by *Dirofilaria immitis* larvae from mosquitoes, are more resistant than dogs to development of adult worms. Instead, following infection, immature heartworms get into the pulmonary vasculature and cause vascular, airway and pulmonary parenchymal disease. It is considered a pulmonary disease—not a cardiac disease—in the cat. Feline heartworm disease (FHWD), which is also known as heartworm associated respiratory disease (HARD) is a pathology caused by either a current or past heartworm infection.

Heartworm larvae mature to the juvenile or immature adult stage in both species, but while most juvenile adults develop into sexually mature adults in dogs and survive for five to seven years, in most cats they die at the juvenile stage, with

surviving worms living only two to four years. Cats with adult worms typically harbor less than six worms, but such numbers still constitute a **"heavy"** infection, due to the cat's relatively small body size. A single adult worm in a cat can be deadly.

Meanwhile, the cat's immune response to worm death at the juvenile stage can lead to damaging respiratory disease with cough, dyspnea and vomiting unrelated to eating are considered the most common clinical signs. Affected cats are frequently misdiagnosed with asthma or allergic bronchitis.

If the juvenile heartworms survive and develop into adults in the cat, the patient may be asymptomatic for a time, due to immune suppression. When worm death occurs, the dead and decomposing worms can cause an acute respiratory distress syndrome that is often fatal. Cats that survive adult worm death will suffer permanent lung injury and vascular disease.

How common is heartworm disease in cats?

This is a difficult question to answer because testing limitations and inadequate testing protocols have obscured the true number of infected cats. Cats with adult heartworms may often go untested because cats either demonstrate no clinical signs or signs of infection are mistaken for other conditions.

Necropsy surveys of shelter cats have estimated the presence of adult heartworms to vary from five to 20 percent of that of unprotected dogs. However, these numbers do not factor in the large numbers of cats affected with disease caused by immature heartworms that die before reaching the adult stage. In fact, several studies suggest that the actual infection rate of heartworms in cats may be nearly the same as that in dogs.

What techniques are used to diagnose heartworm disease in cats?

Because dogs have adult worms and the available antigen tests are highly sensitive, it is relatively easy and straightforward to test them with heartworm antigen tests. Diagnosing heartworms in cats is more complex than it is in dogs, because cats are more likely to be infected with immature worms, which aren't detected on antigen tests.

Diagnosis in cats, instead, requires two different tests—an antigen test to detect adult worms and an antibody test, which detects antibodies produced by the cat in response to heartworm larvae, immature adults or adult worms. A limitation of antibody testing is that it does not distinguish between past and present heartworm infections.

Unlike dogs, microfilaria testing has less utility in feline patients, since adult worms in cats rarely produce microfilaria and any microfilaria produced are transient, typically disappearing in a few weeks.

Thoracic radiography can be used to help differentiate heartworms from other parasites and to monitor the progression of disease in affected feline patients. Echocardiography and point-of-care ultrasound can also be useful tools for diagnosing adult worms.



Should cats be screened for heartworms? If so, what screening protocol does the American Heartworm Society (AHS) recommend?

The AHS recently updated their [Feline Heartworm Guidelines \(heartwormsociety.org/guidelines\)](https://heartwormsociety.org/guidelines) to reflect the most recent scientific information on heartworm disease in cats as well as persistent underdiagnosis and undermanagement of this serious disease. **For the first time, the AHS now strongly recommends routine (annual) screening of cats for heartworms, using the following screening protocol:**

- Antibody testing using the Heska (an Antech company) antibody test.* This test is recommended due to its greater sensitivity as demonstrated in multiple studies.
- Antigen testing using a heat-treated blood sample. Antibody-antigen complexes occur in both canine and feline blood samples but more frequently in feline samples. By heat treating the sample prior to conducting the antigen test, the sensitivity of the sample can be increased by a factor of 3 to 12 times. As a result, test results are more accurate and more cats harboring adult worms can be diagnosed.

Over time, it is hoped that routine screening of cats for heartworm will increase the veterinary profession's understanding of heartworm incidence in cats, while also yielding data to individual practitioners that can help them understand the relative risk of feline heartworm in their practice area.

What about prevention? What does the AHS recommend?

For some time, the AHS has recommended year-round prevention of heartworms in cats as well as dogs. Unlike dogs, cats have no approved medications available to treat adult worms, making prevention the only viable option. While indoor cats may have less exposure to infected mosquitoes, the ability of mosquitoes to easily come indoors means that living an indoor lifestyle does not protect cats from becoming infected. Added benefits of year-round prevention include improved compliance and added activity against common parasites covered by parasite protection products that are approved for use in cats.

The latest AHS guidelines also address the value of multimodal vector control in addition to preventive products. While vector control in dogs is typically geared toward the use of mosquito repellents that can be applied to dogs, the guidelines note that the goal of vector control in cats should be to reduce the risk of mosquitoes in the environment rather than on cats themselves.

What options do veterinarians have for managing cats infected with adult heartworms?

As noted above, there are no approved treatments to eliminate adult heartworm infections in cats. Melarsomine—the only approved medication to treat adult worms in dogs—is unsafe and unsuitable for use in cats.

The goal of medical management is to relieve the clinical signs of disease in cats and to prevent sudden death in cats infected with adult heartworms. Based on anecdotal evidence, the AHS notes that veterinarians can consider use of medications such as prednisolone, doxycycline, bronchodilators and antileukotriene medications to relieve respiratory signs of disease.

More detailed information on all aspects of feline heartworm disease is available in the current American Heartworm Society Feline Guidelines for the Prevention, Diagnosis, And Management of Heartworm (Dirofilaria immitis) Infection in Cats. This document is available at heartwormsociety.org/guidelines.

*Veterinarians can access the Heska antibody test by calling 970-493-7272 and asking for test #805514 or through the Antech test directory individually (\$14544) or bundled with a heat-treated antigen test (\$14546).

Dr. Charles Thomas (Tom) Nelson is the Medical Director the Animal Medical Center of Northeast Alabama in Anniston, Alabama. He currently serves as research chair of the American Heartworm Society and is a member of the AHS Guidelines Committee.