

**BASE FEE FOR TREATMENT IS \$750 AND INCLUDES:** 2 x-rays, bloodwork, urinalysis, 2 – two-day hospitalized treatments, a 10 day re-check, 1 – three-day hospitalized treatment and 1 four month heartworm test.

Unfortunately, this estimate does not include the cost of any repeat tests that may be deemed necessary and prudent should a problem be uncovered in the initial labwork, any complication that may arise during the treatment **or the cost of preventative medication once the treatment is completed.**

**PLEASE NOTE:**

We make every attempt to predict and prevent problems stemming from the heartworms or their treatment and we will advise you of the chance of these problems occurring. It is expected that 1 in 10 dogs will have a minor reaction to the dying worms and require further care, observation or medication. There are also a smaller percentage of dogs that may experience a major reaction to the dying worms. This may involve significant amounts of further care and expense or even death – either from the worms’ original damage to the internal organs or from their effect on the dog’s systems as they are dying and being removed from the body. Unfortunately, we are not always able to predict or prevent these possibilities from occurring, but remember these are relatively uncommon and should not be a concern for most animals and their owners.

**ALL packages include a 50% discount on one future dental procedure and spay/neuter as well as discounted pricing on:**  
**\$85 Wisdom Panel (\$125 value)**  
(K9 Mixed Breed DNA Analysis)  
**\$20 Microchip (\$50 value)**  
**NO EXPIRATION!**  
These Discounted Services are NOT Included in Package Price

**\*FULL PAYMENT is DUE at the Time of Initial Phase of Treatment\***

**In Case of Emergency**  
**HGVC Weekend Emergency Services**  
**24 Hours Friday PM – Monday AM**  
**804-730-2565**

**Weekdays afterhours:**  
**Veterinary Referral & Critical Care Center**  
**(804) 784-8722 [vrccvet.com](http://vrccvet.com)**

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# HANOVER GREEN VETERINARY CLINIC



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## HEARTWORM DISEASE

Canine Heartworm Disease is a wide-spread problem in the southeastern United States. It is a very serious and often fatal disease occurring mainly in dogs and cats. Here in Mechanicsville and the surrounding counties, we see a great number of animals with heartworms as a result of our mild winters and large mosquito population. The disease process itself is caused mainly by the adult worms, measuring up to 12 inches or more in length. These worms are located in the blood vessels of the lungs and the right side of the heart. The number of adult worms can vary from 1 to 100 or more, which may explain why some dogs are more affected than others. However, the presence of even small numbers of worms can cause problems with the heart, lungs, liver, kidneys and other internal organs. Adding insult to injury, adult heartworms produce millions of microfilaria (heartworm larvae) that circulate throughout the blood stream and can damage these same organs.

In the early stages of the disease, most dogs show no sign of the infection. However, within a few months to a year or more, depending upon the number of worms and the size, age and overall health of the animal, clinical signs of the disease will become evident. These include tiring easily, difficulty breathing, coughing, weight loss or weight gain, fainting, poor appetite or sudden death. It should be mentioned that occasionally we hear reports of animals that live a normal life span even in the presence of adult heartworms. Low numbers of worms, natural immunity (like spontaneous remission of cancer) or misdiagnosis are possibilities to explain this infrequent situation.

Mosquitoes are the agents responsible for transmitting heartworms from dog to dog. When a mosquito bites an animal infected with heartworms, the blood it ingests contains several microfilaria. After further development in the mosquito, these larvae are then ready to infect the next dog the mosquito bites. They are injected underneath the skin and after various maturing processes, they arrive in the dog's heart and lungs; this will take approximately 6-7 months. As adults, these worms start producing microfilaria and so the cycle is now complete.

Heartworm disease is diagnosed by a simple blood test that only requires a few drops of blood and can be performed during your pet's routine vaccination and physical exam visit. We require yearly testing.

The best solution to the heartworm problem is through prevention. This is accomplished by performing a routine blood test first to determine if adult heartworms are already present. (In pups less than 5-6 months, this step at times is eliminated or postponed.) If the test is positive, the animal should be treated to eliminate the heartworms before preventative medication can be given; animals with heartworms that are given preventative can have serious or fatal reactions. Heartworm treatment must be completed prior to starting the preventative. However, with a negative test, preventative measures may be started. We provide two different monthly preventatives for you to purchase, Interceptor and Heartgard Plus. These monthly medications are tablets dosed according to your dog's weight. These products are also very effective against intestinal parasites.

Regardless of the medication, **we currently recommend giving a preventative year-round to all dogs.** This is due to our mild, short winters and heavy mosquito population. Keep in mind that the proper dose is vitally important, (especially in growing pups), as giving too little medication is like giving none at all. We do require a heartworm test yearly as no medication is 100% effective.

Although we have mainly discussed dogs up to this point, it should be noted that cats may have an incidence of heartworm disease anywhere from 2-59% depending on the area of the country. They usually exhibit difficulty breathing and other asthma-like symptoms. This syndrome in cats is called Heartworm Associated Respiratory Disease, or HARD. Diagnosis in cats is difficult as there is no single test that is 100% diagnostic, however chest x-rays and bloodwork can aid in the diagnosis. Preventative medication is available for cats however there is no treatment once a cat is infected.

## TREATMENT

If your dog should be diagnosed as having heartworms, a treatment protocol spanning 8-12 weeks will normally be recommended.

Initial treatment begins at the hospital with a complete physical examination, blood analysis, urine analysis, and chest x-ray. With the information gained from the physical exam and test results, we are better able to understand your dog's total health picture and therefore advise you of the benefits and possible risks associated with the treatment. On day two of your dog's hospitalization, we administer microfilaricide and observe for the day. Your dog will be sent home at the end of day two.

Thirty days later your dog will come in for another two day treatment. On day one we administer 1 dose of Immiticide (injection to kill the adult parasites) and Heartgard (microfilaricide) and observe for the day. Your dog will be released on day two with strict rest and confinement for 30 days to minimize complications. He/She should be carefully observed for poor appetite, coughing, nausea, or listlessness – in short, anything that seems out of the ordinary merits a call to the hospital. Most complications of this nature occur 7-21 days after discharge from the hospital. For this reason, we like to recheck the dog 10 days after treatment.

Thirty days after the second visit your dog will be hospitalized for three days. We administer two more doses of the drug to kill any surviving adults and a dose of Heartgard. Once again, strict rest and confinement for 30 days is recommended. And four months after the second visit a final heartworm test is done to confirm successful treatment.

This protocol is 98% effective at eliminating adult and immature heartworms. Although there is always minimal risk with treatment, this is the safest treatment protocol available. The home care of restricted exercise (leash walk only) and confinement is of paramount importance for a successful outcome. The elimination of heartworms causes a very inflammatory reaction and too much activity can result in serious complications.