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# Minimizing Heartworm Transmission in Relocated Dogs

*Transporting and relocating dogs is an increasingly common practice. Whether the situation is an owned pet accompanying emigrating or traveling caretakers, the relocation of homeless animals for adoption, or the movement of dogs for competition, exhibition, research or sale, this process carries the risk of spreading infectious diseases. This includes the transmission of *Dirofilaria immitis* when infected dogs have become microfilaremic.*

The following practices will minimize the risk of heartworm transmission associated with the transportation and relocation of dogs:

**1. Test all dogs greater than 6 months of age** for microfilariae and heartworm antigen.

- a. Testing should occur as close to the day of transport as possible but no longer than 30 days prior to relocation unless there is evidence of a negative antigen test along with continuous administration of a preventive leading up to the transport date.
- b. If testing is not possible, assume transmission is possible and treat according to one of the options presented in Step 3bi. In keeping with antimicrobial stewardship practices, it is not recommended to administer doxycycline without confirmation of microfilaremia or antigenemia.
- c. When transportation and relocation involve a change in ownership, all diagnostic test results (along with preventives and treatments administered where applicable) should be made available at the time of such transfer.

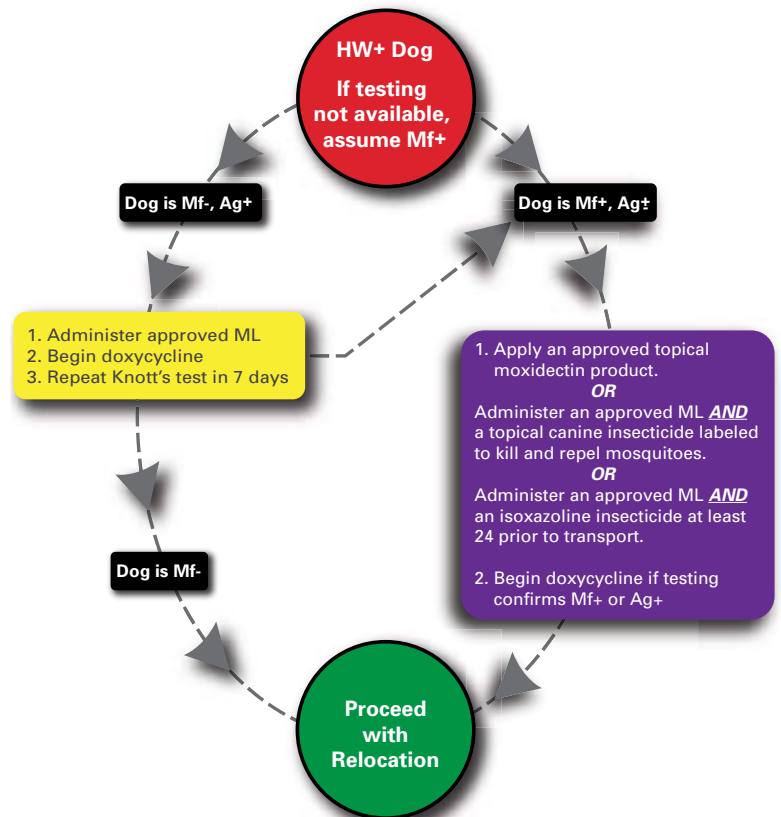
**2. If dogs test positive** for microfilariae or antigen, reconsider relocation at this time and begin treatment in accordance with the American Heartworm Society (AHS) Guidelines.

- a. Dogs with clinical signs attributed to heartworm infection should not be transported.
- b. Dogs that have been treated with melarsomine dihydrochloride should not be transported until at least a 4-week recovery period has elapsed so as not to exacerbate complications that may arise as a result of stress and physical exertion that may accompany the relocation process.
- c. The AHS recognizes that large-scale animal relocation for adoption plays a critical role in non-lethal population control of companion animals in the United States and postponing or treating heartworm positive dogs may not be feasible for many source organizations. In these circumstances, responsible relocation (see Step 3) of heartworm positive dogs is encouraged to decrease reservoirs for community transmission and enhance individual animal welfare through appropriate management at the destination.

**3. If dogs test positive** and relocation cannot be postponed, clinical decisions should be based on the dog's heartworm status.

- a. If Mf-, Ag+:
  - i. Administer an approved macrocyclic lactone product. *This should prevent the pre-patent dog from becoming microfilaria positive.*<sup>1</sup>
  - ii. Begin doxycycline therapy. *A 4-week course of doxycycline should prevent the pre-patent dog from becoming microfilaria positive.*<sup>2,3</sup>

**Note:** *It is not recommended to give the first dose of doxycycline the day of transport in order to monitor for adverse effects and distinguish those from transport-related nausea and/or stress.*



iii. Repeat Knott's testing in 7 days; if negative, proceed with relocation. If positive, repeat Knott's testing in 7 days or proceed to Step 3.b.

*Two negative tests 7 days apart can provide reasonable assurance of a lack of circulating microfilariae and reduced risk of transmission.*

b. If Mf+, Ag- OR Mf+, Ag+:

i. Apply an approved moxidectin topical product, proceed with relocation.

*A single dose of topical moxidectin prior to transport will eliminate most microfilariae.<sup>4-6</sup>*

**OR**

i. Administer an approved macrocyclic lactone product along with a topical canine insecticide that is labelled to kill and repel mosquitoes.

*This will prevent infection of mosquitoes and subsequent transmission of infective larvae during transportation and for 1 month thereafter.<sup>7</sup>*

**OR**

i. Administer an approved macrocyclic lactone product along with a dose of an isoxazoline insecticidal product at least 24 hours prior to transport.

*The isoxazoline will kill mosquitoes after they feed, preventing larval development to the infective stage; the duration of insecticidal activity varies based on specific product.<sup>8-10</sup>*

ii. Begin doxycycline therapy.

*Administration of a 4-week course of doxycycline will render microfilariae incapable of normal development to infective larvae in mosquitoes and subsequent development of these larvae in dogs.<sup>11, 12</sup>*

**Once heartworm-positive dogs have been safely transported**, heartworm treatment should be completed according to AHS Guidelines as soon as possible.

**4. If dogs test negative** for microfilariae and antigen, proceed with relocation.

a. Administer macrocyclic lactone preventive drugs to dogs greater than 6 weeks of age prior to relocation.<sup>1</sup>

b. Repeat microfilariae and antigen testing in 6 months. If a history of preventive administration is well-documented, repeat testing in 12 months.<sup>1</sup>

Caring for dogs that undergo relocation is an everyday challenge veterinarians face in today's mobile society, and one that necessitates the adoption of approaches to mitigate heartworm transmission. Along with considering the recommendations in this document, veterinarians should ensure that transportation of animals is carried out in accordance with state and/or federal transportation regulations, as well as professional guidelines.<sup>13, 14</sup> In the case of organized homeless animal relocation programs, veterinarians should work with both source and destination organizations to establish protocols for minimizing transmission of infectious diseases, including heartworm disease.



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## Resources

[Heartworm Prevention Product Chart](#)

[Heartworm Disease Management](#) (Association of Shelter Veterinarians Position Statement)

## References

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