



Review

Animal shelters: Managing heartworms in resource-scarce environments



Katherine C. Polak^{a,*}, Martha Smith-Blackmore^b

^a Maddie's Shelter Medicine Program, Department of Small Animal Clinical Sciences, College of Veterinary Medicine, University of Florida, Gainesville, FL 32610, USA

^b Animal Rescue League of Boston, Boston, MA 02116, USA

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ABSTRACT

Animal shelters must frequently make difficult decisions regarding the allocation of limited resources to appropriately care for the millions of dogs and cats that enter their doors annually. Insufficient staffing, expertise, and guidance on heartworm management in animal shelters creates significant confusion on how these facilities should appropriately address heartworm infection in dogs and cats. The American Heartworm Society (AHS) issues comprehensive guidelines for the diagnosis, prevention, and management of heartworm infection in pets, but shelters are often unable to fully comply with these guidelines due to resource constraints. In response, shelter staff is forced to either ignore the disease or implement compromised management practices. Such compromises lead to suboptimal treatment of infected animals, adoption of infected animals to the public, and subsequent backlash from community veterinarians, as well as increased risk of disease transmission throughout the shelter and community. Unfortunately, when shelters lack the resources to address heartworm infection appropriately, this treatable condition may serve as grounds for automatic euthanasia in infected yet adoptable animals. The AHS guidelines must be tailored to the needs of sheltering agencies or additional resources created to appropriately address the dilemmas faced by shelter professionals when managing heartworm disease.

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1. Introduction

There are approximately 5000 animal shelters in the United States of varying sizes and types that admit 6–8 million lost and unwanted dogs and cats annually (HSUS, 2013). Due to a lack of adoptive homes, approximately 3–4 million of these animals are euthanized, many within days of admission. There are several basic types of animal shelters, each with a unique purpose. Animal control agencies are municipally-run facilities which frequently care for stray and abandoned animals in addition to responding

to wildlife complaints and animal cruelty cases. These are considered 'open-intake' facilities as they typically do not restrict the number of animals they admit. Unfortunately, due to their high intake and limited resources, many of the animals admitted are euthanized. 'Limited-admission' facilities are usually private, non-profit entities that focus primarily on rehoming animals. Such facilities historically have lower euthanasia rates due to their ability to manage their intake and allocate resources accordingly. Rescue organizations are also private organizations that utilize networks of volunteers and foster homes to rehome adoptable animals.

Regardless of the organizational structure, animal shelters are notoriously under-resourced in terms of their facility, staffing, and medical capacity. Not surprisingly,

* Corresponding author. Tel.: +1 630 390 4300; fax: +1 352 392 6125.
 E-mail addresses: polakk@ufl.edu, Kcpolak@gmail.com (K.C. Polak).

infectious disease control is often an area in which compromises are made when considering how to best allocate funding. Many shelters do not employ a full-time veterinarian and as a result lay persons are forced to make medical decisions. The allocation of limited resources must be based on a cost:benefit analysis of the shelter's competing interests. Heartworm infection is particularly challenging for shelters to address due to the cost and length of time required for diagnosis, treatment, and follow-up (Nelson, 2009). While privately run humane societies and rescue groups are more likely to comply with AHS management guidelines, larger municipal shelters admit a greater number of animals than they can rehome and are often unable to invest in heartworm diagnostics and treatment.

In animal shelters, only a limited portion of the budget is allocated for the medical care of individual animals, which includes the administration of vaccines, treatment of sick and injured animals, and any required endo- and ectoparasite treatment. The cost of spay/neuter surgery often comprises the majority of this budget as shelters are frequently legally mandated to sterilize animals before release from the facility. Routine spay/neuter procedures can exceed some shelter's medical budget leaving little money remaining for vaccines and other miscellaneous expenses such as heartworm diagnostics and treatment.

Heartworm infection is unfortunately not uncommon in shelters as these facilities frequently care for neglected animals with unknown medical histories. While heartworm infection was historically an issue faced predominantly by facilities in the Southeast region of the United States, the practice of transporting potentially infected animals from heartworm endemic areas with high euthanasia rates to Northern areas with lower euthanasia rates may have played a role in increasing the spread of the disease geographically (Bowman, 2010).

Shelters struggle with heartworm infection management due to a lack of practical guidelines tailored to the needs of these agencies. There are several documents available for animal shelters to use to guide medical decisions regarding vaccination and spay/neuter practices (Looney et al., 2008; Welborn et al., 2011). However, comparable guidelines tailored for the management of heartworm disease in the unique setting of animal shelters are not available. The American Heartworm Society (AHS) has issued guidelines on the diagnosis, prevention, and management of heartworm infection in dogs which is an evidence-based management tool developed for pet dogs (Graham et al., 2012). However, many of the recommendations in this document are impractical for sheltering agencies due to limited funding, staffing, and technical expertise. As a result, shelter staff with minimal medical knowledge must often devise and implement compromised management strategies. This can result in suboptimal treatment of infected dogs, adoption of infected dogs to the public, and subsequent backlash from community veterinarians as well as increased risk of disease transmission throughout the shelter and in the community. Heartworm infection, generally regarded as a treatable condition, may serve as grounds for automatic euthanasia of adoptable dogs due to insufficient resources and guidance to address the disease.

2. Current shelter practices

Heartworm management strategies vary tremendously between municipal open-intake shelters, limited-admission shelters, and rescue/foster groups. In 2011, researchers polled 504 animal shelters in heartworm-endemic states to survey canine heartworm management protocols. Heartworm testing of all adult dogs was performed by 41% of open-admission shelters, 80% of limited-admission shelters, and 98% of rescue/foster groups (Colby et al., 2011). Cost was cited as the primary reason agencies did not perform routine testing. Open-admission shelters were much more likely to euthanize dogs as a result of heartworm infection than limited-admission shelters. The majority of shelters utilized monthly canine preventive (60%) followed by livestock ivermectin products (38%) for heartworm prevention. Approximately 50% of agencies administered a preventive only after an antigen test revealed that it was below detectable limits. A total of 23% of all agencies in the South report performing heartworm testing in cats, citing issues of cost, feasibility, and education (Dunn et al., 2011). Although many of the facilities polled complied with some components of the AHS guidelines, the majority of animals with heartworm infection were not managed appropriately.

2.1. Minimizing length of stay

Length of stay is recognized as a critical management tool for shelters to assure animal health, welfare, and minimize sheltering costs. Length of stay refers to the number of days an animal stays in the shelter. Animal shelters strive to minimize an animal's length of stay, as every day an animal stays in a shelter's care its risk of contracting an infectious disease increases (Dinnage et al., 2009). Prolonged lengths of stay inevitably lead to overcrowding; this in turn serves as the catalyst for infectious disease outbreaks, poor welfare, loss of community trust, and increased euthanasia. Therefore, heartworm management strategies must take into account the need to minimize length of stay.

2.2. Prioritizing populations for testing

If shelters decide to test animals for heartworm infection, they must often prioritize which animals to test to maximize limited financial resources and staff time. Testing options include testing all dogs, highly adoptable dogs, symptomatic dogs, or long-term custody hold dogs such as those held for cruelty cases. If resources are limited, shelters should prioritize testing dogs with a high probability for adoption. This avoids wasting limited resources on testing animals that will later be euthanized. In shelters with a high live-release rate, testing all dogs is recommended if resources are available.

When animals test 'negative' on diagnostic testing with an antigen test in a shelter, staff should be careful to explain to adopters that animals test below detectable limits for heartworm antigen rather than using the term 'negative.' Due to the lag time between infection and antigen release, all dogs should still be retested in 6 months at their regular veterinarian following adoption.

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