

Cross-Border Canines: What Can Veterinarians Do?

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A large but unquantified number of companion animals (particularly dogs) are imported into Canada every year. Some of these animals carry pathogens that are uncommon or rare in Canada, and some of which are zoonotic. There is currently no monitoring and minimal control of companion animal importation into Canada. Inter-jurisdictional movement of companion animals within Canada (including movement from remote Northern regions) is associated with similar issues and risk of disease transmission and introduction, and essentially no monitoring or control. Although there is increasing pressure for regulatory changes to be made, the process can be slow and is not without its costs. In the interim, veterinarians have a very important role to play in raising awareness of and detecting these diseases to help prevent them from being imported to new areas, and minimize their impact on local domestic animal, human and wildlife populations.

Number of canine imports to Canada

The number and origin of dogs that are imported into Canada every year are unknown. An independent group of concerned citizens identified 197 Canadian “rescue” organizations (including SPCAs and Humane Societies) that imported dogs into the country in 2013-2014, and an additional 21 foreign rescues that exported dogs to Canada. In total, 6189 imported dogs from at least 29 different countries were identified through these rescue groups, but this is likely a significant underestimation of the number of animals imported into the country in this timeframe. This number does not include animals that were imported by private individuals (e.g. those who adopted an animal while travelling or working abroad, pets belonging to individuals who immigrated to Canada), nor the frequent movement of pets across the Canada-US border accompanying short-term visitors (e.g. vacationers). There is no registration requirement for rescue organizations, so there are likely others that were not identified by this group. Most of the dogs were imported into Ontario, Alberta and British Columbia.

Current Canadian import requirements

Owned dogs over 3 months of age require a current rabies vaccination certificate, or a veterinary certificate declaring the animal to be from a country recognized by Canada as rabies-free. The veterinary certificate is not required to make any additional statement regarding the health of the animal. There is no waiting period between the time of rabies vaccination and importation, even for primary vaccination. Evidence of a rabies neutralizing antibody titre of at least 0.5 IU/mL is also considered acceptable. Animals that do not meet these requirements are still allowed to enter Canada, but must be vaccinated at the owner’s expense within two weeks, and the vaccination record provided to the Canadian Food Inspection Agency (CFIA). Import permits, health certificates, microchipping or quarantine are not required. There are no specific import restrictions at all for dogs less than 3 months of age, or for assistance/service dogs when the importer is the user of the dog and accompanies the dog into Canada.

The ability to import dogs from the US under the “rescue dog” category, except in the event of a documented natural disaster, was removed in November 2013. Dogs under 8 months of age that were previously imported under this category now have to follow the requirements for commercial entry, which requires an import permit, microchip or tattoo, a veterinary health certificate, and a rabies vaccination certificate. Commercial dogs include dogs for sale, adoption, breeding, show or exhibition, scientific research, etc. It has been suggested that rescue groups may attempt to avoid these requirements by having the dogs “adopted” by

someone in Canada prior to importation, and thus the dogs are imported as owned rather than commercial/rescue animals. Commercial dogs over 8 months of age only require a current rabies vaccination certificate.

The Canadian Border Services Agency (CBSA) has the authority to deny entry to any animal presented for importation, including animals that appear sick with a communicable disease. There is currently no information regarding how often this authority is exercised. In these cases, confinement of the animal and further examination by a CFIA veterinarian at the owner's expense may be required prior to the animal being returned to its place of origin.

Within Canada, there are no health requirements for movement of companion animals except for those pertaining to humane transportation.

Falsified documents

There is growing concern related to the use of fraudulent documentation (both rabies vaccination certificates and rabies antibody titre result reports) to import dogs across international borders. For example, in 2015 a dog that was imported into the US from Egypt by a rescue organization developed clinical rabies once in the US; on further investigation it was discovered the dog had been imported into the US on the basis of a forged rabies vaccination certificate.

Welfare concerns

In some cases there are also significant animal welfare concerns with transportation of dogs, particularly with long-distance movement of animals that are clinically ill. These animals may be confined to transportation kennels in cargo areas for hours with little to no monitoring (e.g. on long-haul trans-oceanic flights), potentially leading to significant physiological and psychological stress.

Disease risks

A significant number of imported dogs may subsequently be presented to veterinarians because they are infected with pathogens that are considered "exotic" to Canada, but are not necessarily reportable or notifiable in companion animals (e.g. *Leishmania* spp., *Brucella canis*). Anecdotal information indicates that imported dogs also have a high frequency of diseases that are present in Canada but are relatively uncommonly seen in the local canine population (e.g. canine distemper). There is potential for some of these pathogens to spread and become established/endemic within the Canadian pet population, and/or within local wildlife populations. In some cases ongoing climate change may also play a role, as insect vector ranges change and increase the potential that competent insect vectors could be present locally. Imported animals have also raised public health concerns because some of the diseases they carry are zoonotic, but animal owners, veterinarians and physicians are often unfamiliar with or unaware of the risks.

The Canadian National Canine Importation Working Group (2016) identified the top diseases of concern with regard to canine importation into Canada. Some of the risks and control challenges are briefly summarized here:

Brucellosis: There is relatively low risk to public health and the local pet population associated with importation of dogs carrying *B. canis*, unless they are involved in breeding activities. Disease in humans can be severe / chronic in a small percentage of cases. Spayed / neutered dogs are minimal risk for transmission.

Canine Influenza: Although highly infectious amongst dogs, most disease is mild and there is no evidence of increase risk of human infection from currently circulating strains (H3N2 and H3N8). The virus is unlikely to persist in stable community groups once immunity develops, but can be more problematic in shelter populations. Testing for influenza virus prior to import is impractical based on timing requirements, current cost and availability of testing in some regions. A vaccination requirement prior to import could be problematic due to limited availability of vaccine in some areas/countries, and existing vaccines may not provide protection against new/emerging subtypes. Quarantine of imported dogs for 48-96 hours and testing to detect canine influenza would potentially be effective based on the short incubation period of the virus, but is impractical and excessively costly given the limited risk posed to public and animal health at this time.

Leishmaniasis: There is currently limited risk of spread from infected imported dogs to humans or other animals via bites or blood exposure, as long as there is no competent vector present in Canada. However, if a local insect species is found to be a competent vector and comes in contact with an infected animal, the disease could spread to wildlife hosts making it extremely difficult to eradicate thereafter. Northward spread of known competent vectors from the US is also possible, particularly with climate change; however, as the vectors spread the disease will likely spread with them, at which point imported animals would not be significant contributors to the disease issue. High-risk breeds (Foxhounds, Corsicas, Spinones and Neapolitan Mastiffs) from any jurisdiction (especially the US) may pose the highest risk to Canadian dogs, particularly within these breeds where there is evidence of dog-dog transmission. Rescue or commercial dogs from high risk countries can be screened for exposure to *Leishmania* prior to import.

Rabies: There is significant risk of importation of rabies with severe consequences for exposed animals and people. Some control measures are already in place, but additional measures are required. The current vaccination requirement ensures that each animal has been examined by a veterinarian at some point, but does not necessarily reduce the risk of a rabid animal being imported as there is no waiting period following vaccination.

Alveolar echinococcosis: Imported animals harbouring intestinal infection with *Echinococcus multilocularis* are a reservoir capable of causing significant environmental contamination with parasite eggs, potentially resulting in infection of people, the consequences of which are very severe. Infection of wildlife intermediate hosts (small mammals, rodents) also increases the local wildlife reservoir, leading to increased risk of spread to both wild canids and other domestic dogs. Treatment of dogs with intestinal infection from endemic regions is relatively simple and non-invasive, and can be done immediately before or immediately after importation. Based on the occurrence of cases to date in Ontario dogs and other species, as well as research in wild canids in 2016-2017, it is now clear that *E. multilocularis* is already established in the provincial wildlife population. This makes it difficult to impose border controls if the disease is considered endemic.

Canine (fox) lungworm: *Crenosoma vulpis* poses negligible public health risk, and low to moderate risk to domestic and wild canids. This parasite is already endemic in the Maritimes, with increasing evidence of westward spread into Ontario at least as far as North Bay. The sensitivity of Baerman fecal evaluation or fecal float for detection is unknown. However, treatment is straightforward and easily accessible (benzimidazoles or avermectins), and is also effective against a number of other endoparasites and ectoparasites (including fleas).

Canine heartworm: Imported animals infected with *Dirofilaria immitis* are a reservoir capable of infecting mosquitoes and pose a genuine threat to other canids during mosquito season.

Sensitive, specific, relatively non-invasive, readily available testing is available, but must be repeated 6 months after importation due to the long incubation period. Given that the parasite is already present in Canada (albeit at a much lower level than many other regions) with no control program, it would be difficult to impose national import requirements.

Tick-borne diseases: “Adventitious” ticks on imported dogs are of limited concern as they will generally not result in establishment of new tick populations (with possible exceptions of the brown dog tick (*R. sanguineus*), and the East Asian / longhorned / bush tick (*Haemaphysalis longicornis*)). Dogs are dead-end hosts for most tick-borne diseases of concern and therefore low risk for spreading infection to local tick populations. Examination of all dogs for tick infestations on arrival would be very time consuming, insensitive and impractical based on this risk. Testing of imported dogs for tick-borne diseases is problematic due to reliance on serology which does not differentiate infection from exposure.

Proposed actions

Action is needed to help mitigate disease risks from animals being imported into Canada or moved from high-risk areas within Canada, as well as to address concerns regarding the welfare of companion animals during transportation, particularly if they are clinically ill. Key industries involved include transportation companies (particularly airlines), the veterinary profession, and Canadian animal shelters. The pet rescue “industry” plays one of the largest roles, but unfortunately is not regulated or even sufficiently organized or defined at this time to be a useful conduit for action in and of itself.

Action could ultimately be regulatory (either federal or provincial) or non-regulatory (voluntary) in nature, and in either case could be government or industry led, or a combination thereof. Each of these routes has its own advantages and limitations to consider. In any case, measures must be practical and (if applicable) enforceable.

Education of stakeholders, including the public, canine rescue organizations, transportation companies, veterinarians and animal shelters is considered a priority. Education alone will not be sufficient to achieve the necessary behaviour change, but other interventions for management and surveillance are likely to be far more successful if the reasoning behind these measures is better understood. There are no regulatory barriers to educational measures, so these options can essentially be actioned immediately.

Initially, the most feasible and effective option for applying some degree of monitoring and/or control to canine importation is expansion of the existing permitting system for importation of commercial dogs less than 8 months of age to include all dogs (commercial and non-commercial, regardless of age). This would facilitate collection of more detailed information on canine importation in order to better target future interventions, provide a flexible means of applying additional import restrictions as policies are developed, and may help discourage international importation of dogs overall.

Some disease-specific import requirements could significantly help reduce the further spread of certain diseases to and within Canadian domestic animal and wildlife populations. However, due to international trade rules most of these cannot be implemented without first establishing control programs for these diseases within Canada.

The [Canadian Veterinary Medical Association \(CVMA\) recently released a helpful checklist of items for veterinarians](#) to consider discussing with clients before and after importing a dog. The checklist is available in both [English](#) and [French](#). The CVMA also released its position

statement on importation of dogs into Canada in 2017. These and other resources can be found on the CVMA website (see references below).

Ideally, from a disease and risk management standpoint, dog importation would simply be halted altogether. The majority of dog importers are trying to “do the right thing” but are often simply unaware of the problems these animals can have and cause going forward. Realistically, dog importation (both international and domestic) will not be stopped, but the goal is to manage the process without encouraging it. Any system employed also needs to be flexible enough to adjust to changing disease patterns and risks.

Portions of these proceedings are drawn from:

Report of the Canadian National Canine Importation Working Group, June 2016 (M. Anderson, chair). Available at: <http://www.canadianveterinarians.net/documents/canadian-canine-importation-working-group-report>

Other References

American Veterinary Medical Association. Relocation of Dogs & Cats for Adoption: Best Practices. August 2014. Available at: https://www.avma.org/KB/Resources/Reference/AnimalWelfare/Documents/AVMA_BestPracticesAdoption_Brochure.pdf

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Curry PS et al. (2016). Translocated dogs from Nunavut and the spread of rabies. *Can Comm Dis Rep*. 42:121-4. <https://doi.org/10.14745/ccdr.v42i06a02>

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Import reference documents (as referenced in the Health of Animals regulations): <http://www.inspection.gc.ca/animals/terrestrial-animals/imports/policies/live-animals/2002-3/eng/1321037138426/1321037471380>

Importing or travelling with domestic dogs: <http://www.inspection.gc.ca/animals/terrestrial-animals/imports/policies/live-animals/pets/dogs/eng/1331876172009/1331876307796>

Sinclair et al. (2015). Rabies in a Dog Imported from Egypt with a Falsified Rabies Vaccination Certificate — Virginia, 2015. *MMWR*. 64(49);1359-62. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6449a2.htm>