

Influenza Strains in Dogs

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Date Published: 04/17/2015

Date Reviewed/Revised: 11/24/2022

Just like people, dogs can be affected by different strains of influenza A, a highly contagious respiratory virus. While dogs can sporadically become infected with influenza strains from other species (including human influenza viruses), canine influenza viruses are strains of influenza A that are host-adapted for dogs and spread effectively between dogs.

There are two main strains of canine influenza known to affect dogs internationally. H3N8 was identified in the early 2000s but has rarely been identified in recent years. The main current concern is H3N2, a strain of influenza that originated in Asia and was introduced to North America multiple times through imported dogs. H3N2 canine influenza is different from human and swine H3N2 influenza viruses that are in circulation.

Where have cases been reported and how prevalent is it?

While the flu strain H3N2 has been identified sporadically in Canada and Europe, it persists in Asia and the US causing sporadic disease and some regional outbreaks. Influenza activity tends to be unpredictable, with few cases identified for prolonged periods of time, then numerous outbreaks in many regions. Outbreaks are most commonly associated with kennels, shows, and other situations where numerous dogs have close contact. H3N2 canine influenza has also been found in other countries. Overall, canine influenza is a rare cause of respiratory disease but is important because it can cause large outbreaks.

What are the signs?

Signs can range from inapparent infection (no clinical signs) to mild upper respiratory tract infection to pneumonia. Most often, infected dogs develop a cough. They may also be lethargic and have reduced appetite and a fever. Sneezing and discharge from the eyes and/or nose may also be observed. These signs are no different than those from other causes of canine respiratory disease complex, more commonly referred to as 'kennel cough'.

In a minority of infections, more severe disease can occur, either from more severe influenza infection or because of secondary bacterial pneumonia. These dogs can develop high fevers (104°F - 106°F, 40°C - 41°C; normal is 101°F - 102°F, 38° - 39°C) and have clinical signs of [pneumonia](#), such as increased respiratory rates and effort.

Fatal cases of pneumonia resulting from infection with influenza have been reported in dogs, but the fatality rate is less than 1-2 percent. Most dogs recover in two to three weeks.

How is canine influenza transmitted?

Influenza is transmitted mainly through direct contact between dogs and contact with respiratory secretions. Transmission via droplets and aerosols may also occur. Dogs can be infectious about one day before they seem sick. They are probably most contagious to other dogs shortly before and for the first



The risk of contracting canine influenza is greater at places where dogs gather, such as competitions, boarding, dog parks, and day care. Photo by Mary Buck.

couple of days of illness. Dogs with subclinical infections (dogs that are infected but don't get sick) can also transmit the virus.

When should I see the veterinarian and what are common treatments?

The need to seek veterinary care is most dependent on the severity of the disease, not whether or not influenza is the cause. There are no specific treatments for influenza, and most dogs do not need special diagnostic testing or treatment. Sometimes, medications to control cough are needed. In a small percentage of cases, antibiotics may be needed to treat secondary bacterial pneumonia or diagnostic testing might be required to evaluate more severe diseases.

While there are no specific treatments, knowing whether a dog has influenza can be important for infection control, identifying the cause of outbreaks, assessing vaccination requirements, and assisting with disease control measures. A dog living in an area where outbreaks are being reported should be considered to have canine flu until proven otherwise. Testing to confirm influenza may be most useful when trying to identify a group (e.g., kennel, show) problem rather than directing specific treatment for the dog.

Veterinary care should be sought if there are any signs of moderate to severe disease (e.g., difficulty breathing, uncontrollable coughing, severe lethargy, or anorexia). Canine flu is very contagious, so clinics might request that you come in through a separate entrance. Dogs with severe disease can require hospitalization with oxygen and fluid therapy, and testing such as chest radiographs (X-rays) to determine whether pneumonia is present.

The very young and seniors (who may have compromised respiratory systems or concurrent diseases associated with age) may be more likely to have severe signs of illness.

How is a diagnosis made?

Influenza is usually diagnosed by swabbing the nose or throat and PCR testing. Viral PCR tests (polymerase chain reaction tests) use technology to detect the genetic material of viruses. These can help your veterinarian to diagnose the cause of illness and determine the best treatment for your pet.

Should my dog be vaccinated against influenza?

There is now a vaccine that will protect against both H3N2 and H3N8 strains, as well as a vaccine that is just for H3N2. A booster is required two to four weeks later, and dogs should be revaccinated with one dose every year. It can be used in healthy dogs and puppies over 7 weeks of age. As with most infectious respiratory disease viruses, the vaccine does not protect completely against or eliminate the virus, but reduces how ill your dog can be with it as well as decreases your dog's ability to transmit the virus to other dogs.

As with human flu shots, a vaccine for one strain doesn't help prevent another strain. The existing vaccine for H3N8 does not prevent H3N2. The vaccine for H3N2 does not protect against H3N8.

A regular 'kennel cough' vaccination will not prevent influenza.

To decide whether or not your dog should be vaccinated for either strain or for both, talk to your veterinarian about the likelihood of any dog being exposed to influenza (both where you live and areas you might visit with your dog) and the risk of severe disease should they become infected (e.g. seniors, pregnant dogs, dogs with compromised immune systems or underlying respiratory or heart disease).

Can influenza be prevented?

The best preventative measures are to limit or prevent exposure as lifestyle plays a factor in the risk of getting either strain of flu. Dogs that go to daycare, dog parks, performance competitions, dog shows, training classes, or boarding kennels have a higher risk. Dogs that spend most of their time at home or rarely encounter other dogs have a lower risk. People with dogs that might have influenza (or any similar respiratory disease) should keep them away from other dogs. Don't let your dog socialize with coughing dogs.

Can people or cats be infected by dogs?

There is no evidence that people can get canine influenza. However, it is theoretically possible that dog-human transmission could occur or that canine influenza viruses could recombine with human or other species' flu viruses to create a novel strain. Overall, the risks are very low. Owners of infected dogs do not

need to isolate from their dogs.

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