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Canine Influenza: The Dog Flu

What is canine influenza?

Canine influenza virus (CIV) is primarily the result of two influenza strains: H3N8 from an equine origin; H3N2 from an avian source. Both strains were previously known to infect species other than dogs but can now infect and spread among dogs.

The H3N8 equine influenza virus has been recognized in horses for more than 40 years. In 2004, the H3N8 influenza virus, or 'flu', appears to have 'jumped' from horses to dogs. The virus had mutated into a form known as the canine influenza virus (CIV), which is highly infective for dogs. Canine influenza has been detected in most states. At first, veterinarians thought the H3N8 canine flu would be pretty lethal. Fortunately, like the human flu virus, it kills very few healthy individuals with a mortality rate between 1–5%, and most deaths are in dogs with concurrent severe illnesses. For comparison, the 1918 Spanish flu had a mortality rate of only 2%.



In March of 2015, a new strain of influenza was identified (H3N2) in Chicago during an outbreak of respiratory illness. Before this, the H3N2 strain of canine influenza had only been identified in Asia, after jumping from birds to dogs. After its initial detection, cases of H3N2 influenza were reported in many states and a few provinces in Canada. The strain was even detected in a group of shelter cats that were exposed to infected dogs. The University of Florida's College of Veterinary Medicine reported a recent outbreak in May 2017. By mid-June, H3N2 infections had been reported in many other states, including the Carolinas, Texas, and Illinois. The severity of H3N2 may be greater than other respiratory infections, especially in those dogs with a higher risk of infection. Similar to H3N8 infection, the risk of mortality with H3N2 infection is low.

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Currently, there are approved CIV vaccines in the United States and Canada. Vaccination against canine flu should be considered for any at-risk breed, dogs with heart or respiratory conditions, dogs that travel or show, and those that have frequent contact with other dogs (e.g., those that are boarded or go to dog parks).

What are the clinical signs of canine influenza?

The signs of canine influenza are similar to the human flu: cough, runny nose, and fever. The most common clinical sign of canine influenza is a cough that does not respond to antibiotic or cough suppressant therapy and lasts 10–21 days. This cough may be productive (moist) or non-productive (dry) and may be associated with reduced appetite and lethargy. Most dogs infected with canine influenza will display mild clinical signs. Dogs infected with the H3N2 strain of canine influenza appear to be at a greater risk of developing more severe clinical signs.

CIV is virtually identical to other respiratory infections, such as kennel cough. Because of these similarities, many cases of CIV may be mistaken as kennel cough or other infections in the canine infectious respiratory disease (CIRD) complex. Because of the difficulty in distinguishing canine influenza from CIRD, any dog with these clinical signs should be seen by a veterinarian.

Older dogs and dogs with heart or respiratory conditions are at particular risk for CIV. Brachycephalic (flat-faced) breeds, such as Boston Terriers, Boxers, Pekingese, Pugs, and Shih Tzus, are also at higher risk.

Although most infected dogs will only develop a mild form of canine influenza and recover without complications, some dogs may develop severe, life-threatening pneumonia.

How is canine influenza spread?

CIV is spread through respiratory secretions (e.g., sneezing, coughing, nasal discharge), contaminated objects such as kennel walls and floors, food and water bowls, collars and leashes, and clothing and skin of people who come in contact with infected dogs. CIV can survive on skin and hands for 12 hours, on clothing for 24 hours, and surfaces for up to 48 hours. Infections may occur year-round. It takes about two to four days (incubation period) for clinical signs to develop after contact with the virus. Infected dogs are most contagious during this incubation period, making rapid transmission likely. Infected dogs continue to spread the virus for up to 20 days.

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Because canine influenza is a new disease, all dogs are susceptible to infection. There is no naturally acquired or other immunity. This means that if your dog is exposed to the virus, there is a high probability that he will become infected and develop clinical signs. Approximately 20–25% of infected dogs may have a subclinical infection and show no signs of illness but remain contagious and can spread the virus.

How is canine influenza diagnosed?

Due to its similarities to other respiratory infections, canine influenza cannot be diagnosed on clinical signs or symptoms alone. If a veterinarian sees a dog within the first few days of the onset of clinical signs, a nasal swab for a polymerase chain reaction (PCR) test can be submitted to a veterinary laboratory. If the PCR test is positive, the dog most likely has CIV. After four days of illness, PCR results are less likely to be accurate (there may be false-negative results). At this stage, blood testing for CIV antibodies should be performed. This type of testing, called serology, involves comparing antibody levels two to three weeks apart. If antibody levels rise significantly over this period, it indicates active CIV infection. Your veterinarian may also wish to run other tests, such as blood work and radiographs (X-rays), to assess the severity of the infection.

Any dog suspected of having CIV should be tested to determine if the disease is spreading in your area. If there are confirmed CIV cases in your area, consult your veterinarian and consider vaccinating your dog.

What are the benefits and risks of the canine influenza vaccine?

The decision to use any vaccine is based on each dog's risk and lifestyle. Indoor dogs with little exposure to other dogs are at less risk than show dogs that travel, are kenneled, or encounter other dogs frequently. Owners living in areas where outbreaks occur should also consider vaccinating their dogs against canine influenza. Cases have been identified in most states, the District of Columbia, and some provinces in Canada. Owners of older dogs with respiratory or heart disease and breeds with short, flat faces should also consider vaccination due to the higher risk of infection and complications. There have been no reported issues with the CIV vaccination to date.

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It is important to note that the CIV vaccine cannot completely prevent the disease. It may, however, reduce the severity and duration of clinical signs associated with infection. This is especially important in at-risk dogs and helps reduce the spread of outbreaks. Talk to your veterinarian about whether vaccinating against canine influenza is suitable for your dog.

What is the treatment for canine influenza?

As with nearly all viral infections, treatment is largely supportive. Your pet must be kept in a warm, dry area away from other dogs, fed a high-quality diet, and kept well-hydrated during illness. Good nutrition and husbandry are crucial in ensuring that dogs mount an adequate immune response to help promote faster recovery.

Dogs affected with a mild form of canine influenza will often develop a secondary bacterial upper respiratory infection. These dogs typically have a thick green mucous discharge from their nose and benefit from broad-spectrum antibiotic therapy. Dogs that develop pneumonia may require hospitalization, intravenous fluids and medications, and potent broad-spectrum antibiotics.

Most dogs fully recover from canine influenza within two to three weeks. Dogs exposed to the virus should be isolated for four weeks to prevent further spread, even if they do not develop any respiratory signs. It is essential to consult with your veterinarian to determine the best course of treatment.

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What can I do to care for my dog with canine influenza?

Virtually 100% of dogs exposed to CIV will become infected. For this reason, owners of infected dogs must keep them away from other dogs. This includes trips to the groomer or dog parks and contact with other dogs during walks and in kennels. Clothing, equipment, floors, and hands should be thoroughly cleaned with soap and water after contact with any dog with signs of respiratory illness. Your veterinarian will recommend specific treatment based on your dog's physical examination and respiratory signs.

Can people or other pets get the flu from a dog with canine influenza?

CIV poses no threat to humans and is closely monitored by the Centers for Disease Control and Prevention (CDC), Health Canada, and their partners. If your dog contracts CIV, you can feel comfortable giving him plenty of TLC and your veterinarian's recommended treatments without worrying about acquiring the infection yourself.

Cats can contract the influenza virus from dogs and humans, so contact should be restricted as much as possible with any animal suspected to have flu. They rarely spread the virus to other animals, but it is best to keep them inside to prevent spreading the flu to other cats or dogs.

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