

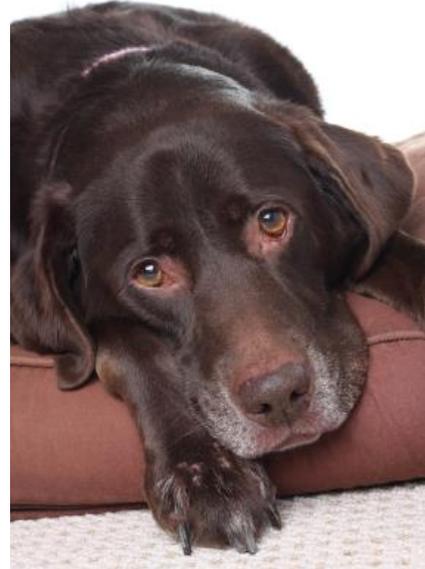
Canine Influenza: The Dog Flu

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What is canine influenza?

Canine influenza virus (CIV) is primarily the result of two influenza strains: H3N8 from an equine origin and H3N2 from an avian origin. Both of these strains were previously known to infect species other than dogs, but are now able to 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 canine influenza virus (CIV) that is highly infective for dogs. At first, veterinarians thought the H3N8 canine flu would be quite lethal. Fortunately, like the human flu virus, it kills very few healthy individuals. Since its detection in 2004, H3N8 canine influenza has been detected in most states. The disease was discovered by Dr. Cynda Crawford from the University of Florida and she estimated that the H3N8 strain kills between 1% and 5% of dogs that contract it, with most of the deaths being in dogs that have serious concurrent illnesses. That's nothing to sneeze at. The 1918 Spanish flu had a mortality rate of only 2%.



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In March of 2015, a new strain of influenza in the United States was identified (H3N2) in Chicago during an outbreak of respiratory illness. Prior to 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. A more recent outbreak was reported by the University of Florida's College of Veterinary Medicine 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 higher risk of infection. Similar to H3N8 infection, the risk of mortality with H3N2 infection is low.

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 extensive contact with other dogs (e.g., those that are boarded).

What are the signs of canine influenza? When should I suspect canine influenza rather than kennel cough, and when should I take my dog to the veterinarian?

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The symptoms of canine influenza are similar to the human flu: cough, runny nose, and fever. The most common clinical sign associated with 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. The majority of dogs infected with canine influenza will display mild clinical signs. Dogs infected with the H3N2 strain of canine influenza appear to be at greater risk of developing more severe clinical signs.

The CI virus is virtually identical to other respiratory infections such as kennel cough. In fact, many cases of CIV may be mistaken as kennel cough or other infections in the canine infectious respiratory disease (CIRD) complex because of these similarities. 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 and respiratory conditions are at particular risk for CIV. Dogs with short, flat faces (brachycephalic breeds), such as Boston Terriers, Boxers, Pekingese, Pugs, and Shih Tzus, are also at higher risk.

How is canine flu spread?

The canine influenza virus is easy to transmit. CIV is spread through respiratory secretions (e.g., sneezing, coughing, nasal discharge) and contaminated objects such as kennel walls and floors, food and water bowls, collars and leashes, and on the 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 on surfaces for up to 48 hours. There is no 'season' for the canine influenza virus, and infections may occur year round.

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It takes about 2 to 4 days (incubation period) for clinical signs to develop after contact with the virus. Infected dogs are most contagious during this incubation period before symptoms occur, making rapid transmission likely. Infected dogs continue to spread the virus for up to 20 days.

Because canine influenza is a new disease for dogs, 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 it 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 will spread the virus. 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.

What tests will my veterinarian run to determine whether my dog has influenza? What factors would influence the vet's decision to test?

Due to its similarities to other respiratory infections, canine influenza cannot be diagnosed on clinical signs 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 diagnostic lab. If the PCR test is positive, the dog most likely has CIV. After 4 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 2 to 3 weeks apart. If antibody levels rise significantly over this period, it indicates active CIV infection. Your veterinarian may also wish to run other diagnostics such as blood work and radiographs to assess the severity of infection.

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

What are the benefits and risks of the canine influenza vaccine? Which dogs should get it?

The decision to use any vaccine is based on each individual's risk and lifestyle. Indoor dogs with little exposure to other dogs are at less risk than show dogs that travel, or dogs that are kenneled or encounter other dogs frequently. Owners that live in areas where outbreaks are occurring should also consider vaccinating their dogs against canine influenza. Cases have been identified in most states and the District of Columbia and in 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 higher risk for 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 to help reduce the spread of outbreaks.

Talk to your veterinarian to determine if vaccinating against canine influenza is right for your dog.

What is the treatment for canine influenza?

As with nearly all viral infections, treatment is largely supportive. It is important that your pet 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 is crucial in ensuring that dogs mount an adequate immune response and can 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 2 to 3 weeks. It is important to consult with your veterinarian to determine the best course of treatment. Dogs exposed to the virus should be isolated for 4 weeks to prevent further spread.

What can I do to care for my dog with canine influenza, and how severe is the infection in most cases?

Virtually 100% of dogs exposed to CIV will become infected. For this reason, it is important that owners of dogs diagnosed with the virus keep them away from other dogs. This includes trips to the groomer's 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.

"Virtually 100% of dogs exposed to the canine influenza virus will contract the disease, so it is important that owners of infected dogs keep them away from any unvaccinated dogs."

About 80% of infected dogs will develop respiratory signs, while the other 20% will remain healthy but continue to spread the infection. Most infected dogs will develop clinical signs within 2 days of exposure to the virus. Current research indicates that an infected dog stops shedding the virus up to 20 days after the start of clinical signs. Just like the human flu virus, CIV is most infectious before a dog shows signs of illness. Because many dog owners won't know when their dog contracted CIV, infected dogs should be quarantined at home (and away from other dogs in the household) for 4 weeks after diagnosis.

A small percentage of dogs, especially those that are older or have pre-existing conditions or short, flat faces, will develop potentially life-threatening pneumonia. These dogs are at risk for serious complications, including death, and must be treated promptly and aggressively.

How is canine influenza different from human seasonal flu and the H1N1 virus? Are dogs at risk for an epidemic of canine flu?

In many ways, H1N1 in people and H3N8 and H3N2 in dogs are similar. All are viruses that mutated from one species to another and are new infections that neither humans nor dogs have been exposed to before. These viruses cause fever, runny nose, and coughing that last for a week or two and make you feel crummy. Because the immune systems, of both people and dogs, have no defense against these new viruses, quarantine and vaccination are our best strategies for preventing widespread infection.

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

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