

Control of Canine Influenza in Dogs—Questions, Answers, and Interim Guidelines

October 17, 2005

The following document has been developed via consultation among the American Veterinary Medical Association, the University of Florida, Cornell University, and the U.S. Centers for Disease Control and Prevention, and is advisory in nature. It is intended to answer common questions and to provide guidance on managing affected dogs and for persons working with or handling affected dogs. This document reflects what is known as of October 17, 2005, and may be updated as more information becomes available.

What is canine influenza?

Canine influenza is a highly contagious respiratory infection of dogs that is caused by a virus. The canine influenza virus is closely related to the virus that causes equine influenza and it is thought that the equine influenza virus mutated to produce the canine influenza virus.

Two clinical syndromes have been seen in dogs infected with the canine influenza virus—a mild form of the disease and a more severe form that is accompanied by pneumonia.

- *About the mild form*—Dogs suffering with the mild form of canine influenza develop a soft, moist cough that persists for 10 to 30 days. Some dogs have a dry cough similar to the “kennel cough” caused by *Bordetella bronchiseptica*/parainfluenza virus complex. For this reason, canine influenza virus infections are frequently mistaken for “kennel cough.” Dogs with the mild form of influenza may also have a thick nasal discharge, which is usually caused by a secondary bacterial infection.

- *About the severe form*—Dogs with the severe form of canine influenza develop high fevers (104°F to 106°F) and have clinical signs of pneumonia, such as increased respiratory rates and effort. Pneumonia may be due to a secondary bacterial infection.

Because this is a newly emerging disease, almost all dogs, regardless of breed or age, are susceptible to infection and have no immunity. Virtually all dogs that are exposed to the virus become infected and nearly 80% show clinical signs of disease. Fortunately, most affected dogs have the mild form.

Do dogs die from canine influenza?

Fatal cases of pneumonia resulting from infection with canine influenza virus have been reported in dogs, but the fatality rate (5% to 8%) has been low so far.

How widespread is the disease?

The first recognized outbreak of canine influenza in the world is believed to have occurred in racing greyhounds in January 2004 at a track in Florida. From June to August of 2004, outbreaks of respiratory disease were reported at 14 tracks in 6 states (Alabama, Arkansas, Florida, Kansas, Texas, and West Virginia). Between January and May of 2005, outbreaks occurred at 20 tracks in 11 states (Arizona, Arkansas, Colorado, Florida, Iowa, Kansas, Massachusetts, Rhode Island, Texas, West Virginia, and Wisconsin). Infection has also been confirmed in pet dogs in California, Connecticut, Florida, Georgia, Massachusetts, North Carolina, New Jersey, New York, Ohio, Oregon, Pennsylvania, Washington State, and Washington, DC. These cases occurred in animal shelters, humane societies, rescue groups, pet stores, boarding kennels, and veterinary clinics.

How is a dog with canine influenza treated?

As with any disease caused by a virus, treatment is largely supportive. Good animal care practices and nutrition assist dogs in mounting an effective immune response. In the milder form of the disease, a thick green nasal discharge, which most likely represents a secondary bacterial infection, usually resolves quickly after treatment with a broad-spectrum bactericidal antimicrobial. In the more severe form of the disease, pneumonia is thought to often be caused by bacterial superinfection, and responds best to hydration (sometimes via intravenous administration of fluids) and a broad-spectrum bactericidal antimicrobial.

Is canine influenza virus transmissible from dogs to humans?

To date, there is no evidence of transmission of canine influenza virus from dogs to people.

Do I need to be concerned about putting my dog in day care or boarding it at a kennel?

Dog owners should be aware that any situation that brings dogs together increases the risk of spread of communicable illnesses. Good infection control practices can reduce that risk, so dog owners involved in shows, sports, or other activities with their dogs or who board their dogs at kennels should ask whether respiratory disease has been a problem there, and whether the facility has a plan for isolating dogs that develop respiratory disease and for notifying owners if their dogs have been exposed to dogs with respiratory disease.

As long as good infection control practices are in place, pet owners should not be overly concerned about putting dogs in training facilities, dog parks, kennels, or other areas frequented by dogs.

My dog has a cough...what should I do?

Schedule an appointment with your veterinarian so that he or she can examine and evaluate your dog and recommend an appropriate course of treatment. If canine influenza is suspected, treatment will usually focus on maximizing the ability of your dog's immune system to combat the virus. A typical approach might include administration of fluids if your dog is becoming dehydrated and prescribing an antimicrobial if a secondary bacterial infection is suspected.

Canine influenza virus can be spread via direct contact with respiratory secretions from infected dogs, and by contact with contaminated inanimate objects. Therefore, dog owners whose dogs are coughing or exhibiting other signs of respiratory disease should not participate in activities or bring their dogs to facilities where other dogs can be exposed to them. Clothing, equipment, surfaces, and hands should be cleaned and disinfected after exposure to dogs showing signs of respiratory disease to prevent transmission of infection to susceptible dogs. Clothing can be adequately cleaned by using a detergent at normal laundry temperatures.

I manage a kennel/veterinary clinic/animal shelter/dog day care center. How do I keep canine influenza out of my facility, and if it does enter my facility, what should I do?

Viral disease is usually best prevented through vaccination. Unfortunately, at this time no vaccine is available to protect dogs against canine influenza. Vaccination against other pathogens causing respiratory disease, however, may help prevent more common respiratory pathogens from becoming secondary infections in a respiratory tract already compromised by influenza infection. In addition, knowing that dogs are vaccinated against these pathogens may help facility managers distinguish canine influenza from other respiratory diseases. For these reasons, a veterinarian should determine which vaccinations are needed based on related risks and benefits and should administer these at least 2 weeks prior to planned visits to dog activity and care facilities (e.g., kennels, veterinary clinics, dog day care centers, training facilities, dog parks) Dogs admitted to shelters should be vaccinated on admission.

Routine infection control precautions are key to preventing spread of viral disease within facilities. The canine influenza virus appears to be easily killed by disinfectants (e.g., quaternary ammonium compounds and bleach solutions at a 1 to 30 dilution) in common use in veterinary clinics, boarding facilities, and animal shelters. Protocols should be established for thoroughly cleaning and disinfecting cages, bowls, and other surfaces between uses. Employees should wash their hands with soap and water (or use an alcohol-based hand cleaner if soap and water are unavailable) before and after handling each dog; after coming into contact with a dog's saliva, urine, feces, or blood; after cleaning cages; and upon arriving at and before leaving the facility (see "I work in a kennel/animal care facility. What should I do to prevent transmission of influenza virus from infected dogs to susceptible dogs?").

Animal care facility staff should be alerted to the possibility that a dog with a respiratory infection could be presented for care or boarding. If a dog with respiratory signs is presented, staff members should inquire whether the dog has recently been boarded or adopted from a shelter, has recently participated in dog-related group activities, or whether it has been exposed to other dogs known to have canine influenza or kennel cough. The dog should be brought directly into a separate examination/triage area that is reserved for dogs with respiratory signs and should not be allowed to enter the waiting room or other areas where susceptible dogs may be present.

Dogs with suspected canine influenza virus infection that is discovered after entry into the facility should be evaluated and treated by a veterinarian. Isolation protocols should be rigorously applied for dogs showing signs of respiratory disease, including the wearing of disposable gloves by persons handling infected dogs or cleaning contaminated cages. Respiratory disease beyond what is considered typical for a particular facility should be investigated, and the investigation should include submission of appropriate diagnostic samples (see “What diagnostic tests will tell me whether a dog has canine influenza?”).

What diagnostic tests will tell me whether a dog has canine influenza? What samples do I send? Where do I send the samples? How do I distinguish between canine influenza and kennel cough?

There is no rapid test for diagnosis of acute canine influenza virus infection. Diagnosis may be confirmed through serologic testing. Antibodies to canine influenza virus may be detected as early as seven days after onset of clinical signs. Convalescent-phase samples should be collected at least two weeks after collection of the acute-phase sample. If an acute-phase sample is not available, testing a convalescent-phase sample can reveal whether a dog has been infected at some point in the past.

Other diagnostic options applicable to dogs that have died from pneumonia are viral culture and polymerase chain reaction (PCR) analysis, using fresh (not formalin-preserved or frozen) lung and tracheal tissues. Virus detection in respiratory secretion specimens from acutely ill animals using these methods is possible but generally unrewarding. The Cornell Animal Health Diagnostic Center is currently accepting samples for analysis. For detailed information on sample submission, visit www.diaglab.vet.cornell.edu/issues/civ.asp.

I work in a kennel/animal care facility. What should I do to prevent transmission of influenza virus from infected dogs to susceptible dogs?

Canine influenza is not known to be transmissible from dogs to people. However, caretakers can inadvertently transmit canine influenza virus from infected dogs to susceptible dogs by not following good hygiene and infection control practices. To prevent spread of canine influenza virus, caretakers should take the following precautions:

- Wash hands with soap and water (if soap and water are unavailable, use an alcohol-based hand cleaner)
 - Before and after handling each animal
 - After coming into contact with animal saliva, urine, feces or blood
 - After cleaning cages
 - Before eating meals, taking breaks, smoking or leaving the facility
 - Before and after using the restroom
- Wear a barrier gown over your clothes and wear gloves when handling sick animals or cleaning cages. Discard gown and gloves before working with other animals
- Consider use of goggles or face protection if splashes from contaminated surfaces may occur
- Bring a change of clothes to wear home at the end of the day
- Thoroughly clean clothes worn at the animal facility
- Do not allow animals to “kiss” you or lick your face
- Do not eat in the animal care area
- Separate newly arriving animals from animals that have been housed one week or longer.
- Routinely monitor animals for signs of illness. Separate sick animals from healthy animals, especially animals with signs of respiratory disease.
- There is no evidence of transmission of canine influenza virus from dogs to people. However, because of concerns about diseases that are transmissible from dogs to people, in general, it may be prudent for young children, the elderly, pregnant women, and immunocompromised persons to limit or avoid contact with animals that are ill.

Is canine influenza transmissible to from dogs to horses or other animal species?

At this time, there is no evidence of transmission of canine influenza from dogs to horses, cats, ferrets, or other animal species. However, the infection control measures outlined in the section titled “I work in a kennel/animal care facility. What should I do to prevent transmission of influenza virus from infected dogs to susceptible dogs?” are recommended to prevent spread of the virus.