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Canine Infectious Respiratory Disease Complex (CIRDC) or Kennel Cough in Dogs

What is kennel cough?

Kennel cough is a term often used to describe any infectious or contagious condition in dogs where coughing is one of the major clinical signs. It is also referred to as canine infectious respiratory disease complex (CIRDC) and infectious tracheobronchitis. The term tracheobronchitis describes the location of the infection in the trachea (windpipe) and bronchial tubes.

Several viruses and bacteria can cause kennel cough, often simultaneously, which is why the technical term is canine infectious respiratory disease **complex**. These include adenovirus type-2 (distinct from the adenovirus type-1 that causes infectious hepatitis), parainfluenza virus, canine influenza virus, canine coronavirus, and the bacterium *Bordetella bronchiseptica*.

Because the infection spreads when dogs are together, especially indoors, it is often noticed soon after dogs spend time in kennels, hence the name kennel cough.

What are the clinical signs of CIRDC?

Clinical signs are variable. The disease is often mild, though the cough may be chronic, sometimes lasting several weeks. Common clinical signs include:

- a loud cough, often described as a “goose honk”
- runny eyes and nose
- swollen tonsils
- wheezing
- lack of appetite
- depressed behavior

The cough may look more like retching in some cases, and the dog may cough up froth that could be mistaken for vomit. Most dogs with CIRDC cough when the throat is rubbed or palpated, and also during and after exercise.

In most cases, a dog with CIRDC will recover within one to two weeks; however, pneumonia can occur, especially in immunocompromised pets, including puppies, senior dogs, and brachycephalic dogs (like French bulldogs and pugs). Signs of pneumonia include obvious lethargy, fever, a wet cough, and difficulty breathing.

How does a dog get CIRDC?

CIRDC is very contagious. Dogs are often contagious to other dogs before they show any signs of disease, and they may never show signs of disease. CIRDC is spread through respiratory droplets (from a cough or sneeze), so dogs readily transmit it through casual contact, such as sniffing each other when on a walk, playing, or sharing water dishes.

Some of the infectious organisms can survive for a long time in the environment, making transmission possible even without dog-to-dog contact, such as contact with people's hands or other contaminated surfaces. Certain factors increase the likelihood of your dog contracting CIRDC, including stress, poor ventilation, and crowded conditions.



How is CIRDC diagnosed?

Your veterinarian will review your pet's history and clinical signs with you before recommending diagnostic tests. If your veterinarian recommends a hospital visit, they will likely ask you to follow certain procedures to reduce the chances of spreading the illness to other pets in the hospital. For example, they may ask you to keep your dog outside the office until the veterinarian is ready to see them.

If signs are mild, your veterinarian may make a presumptive diagnosis of kennel cough without additional diagnostic tests. If signs are severe, getting worse, or if there is an outbreak of kennel cough, your veterinarian may take samples from your dog's nose, throat, or eyes to try to identify the infecting organisms. Depending on your dog's signs and physical exam findings, your veterinarian may also recommend blood and urine testing.

How is CIRDC treated?

In mild cases, antibiotics are generally not needed or recommended. More severe cases may reflect secondary bacterial infection or pneumonia that would benefit from treatment with an antibiotic. Rare cases may require more intensive care, including hospitalization and oxygen support.

"Mild clinical signs may linger for several weeks, even when the bacteria have been eliminated."

Some cases require prolonged treatment, but most infections resolve within one to three weeks and antibiotics may not be needed for more than a week. Mild clinical signs may linger for several weeks, even when the bacteria have been eliminated. Cough suppressants and anti-inflammatory medications may sometimes provide relief, though they are not often necessary. Your veterinarian will determine the best treatment methods for your dog.

Do not allow your dog to associate with other dogs and try to keep them rested, as excitement and increased activity can cause coughing and worsen airway inflammation.

How can I protect my dog from CIRDC?

- Make sure your dog is up-to-date with their recommended vaccines. Most vaccination programs your veterinarian will recommend include adenovirus and parainfluenza. For dogs that are boarded, groomed, or interact with other dogs in areas such as dog parks, it is also important to give them a parainfluenza vaccination at **least yearly**. *Bordetella* vaccination is also highly recommended for these higher risk dogs. Your veterinarian may also recommend vaccination for canine influenza, depending on your dog's lifestyle and environment. Follow your veterinarian's specific vaccination recommendations for your dog.
- Keep informed of any outbreaks of canine disease in your community. Your veterinarian is often the best resource for this. Other resources include veterinary school websites and your state or provincial animal health departments/ministries.
- Avoid dog group contact, including dog parks, daycare, and boarding facilities, if possible.
- Wash your hands after petting someone else's dog.
- If you are traveling with your dog, check the state or provincial animal health departments/ministries to see if that community is experiencing any CIRDC outbreaks.

How effective are these vaccines?

Immunity, even if the dog has experienced a natural infection, is neither solid nor long-lasting. We cannot expect vaccines to do much better. Since immunity varies with the circumstances, consult your veterinarian regarding specific vaccination recommendations for your dog. Some kennel facilities require a booster vaccination before boarding, and some veterinarians recommend a booster vaccine every six months to ensure maximum protection against this troublesome infection.

How are *Bordetella* vaccines administered?

Bordetella vaccines are given orally, intra-nasally, or by injection. The oral vaccine is administered directly into the cheek pouch. The intra-nasal vaccine is administered as nose drops, allowing local immunity to develop on the mucous membranes of the nose, throat, and windpipe where the infectious agents first attack, and providing more rapid protection against infection than the injectable vaccine. Some *Bordetella* vaccines also contain a parainfluenza vaccine.

CIRDC Outbreaks

Outbreaks of CIRDC are not a new phenomenon. The infectious organisms responsible for this disease constantly circulate through the environment in North America. Social media allows us to spread information about our pets' health much further and faster than ever before, prompting a heightened awareness and increased anxiety in pet-owner communities. Contact your veterinary team to ensure your dog's vaccinations are up-to-date and report any concerns.

Is CIRDC contagious to humans?

Bordetella bronchiseptica can uncommonly affect people, most often those who are immunocompromised. Contact your doctor if you don't feel well.

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