ADDRESSING CIV IN YOUR FACILITY

Your guide to the prevention and management of canine influenza virus (CIV) and other infectious respiratory diseases

Tips and guidelines for your facility from Merck Animal Health, one of the leaders in infectious respiratory disease management

PERPETUAL INNOVATION
CONFRONTING CONTAMINATION

What contributes to CIV contamination?

- Poor ventilation
- Ineffective cleaning techniques
- Porous surfaces
- Lack of isolation and quarantine
- Prevalence of fomites
- Improper identification of the organism
- Accumulation of organic material
- Infrequent diagnostics (due to cost and staff time)

The four levels of decontamination

1. **Cleaning**
   Provides basic hygiene

2. **Sanitation**
   Decreases the number of infectious agents

3. **Disinfection**
   Destroys most harmful microorganisms

4. **Sterilization**
   Kills all life forms at all levels
HOW AND WHERE TO DECONTAMINATE

Ideal decontamination¹

- Remove organic debris
- Scrub area with an effective detergent/degreaser
- Rinse
- Apply appropriate disinfectant to area
- Let disinfectant stand for appropriate contact time
- Rinse
- Dry using clean towel or squeegee

Important areas to clean

- CAGES
- TOYS, BOWLS, BEDDING, ETC.
- FLOOR OUTSIDE THE CAGE
- FLOORS THROUGHOUT THE FACILITY
- WAITING ROOM
- DOG RUNS
- YARD
- CARRIERS
- OFFICES
- STORAGE AREAS
- VENTILATION AND HEATING DUCTS
- FREQUENTLY HANDLED ITEMS (DOORKNOBS, KEYS, CELL PHONES, KEYBOARDS, ETC.)

Remember, the most common sources of contamination are people’s hands, shoes, and clothing
ISOLATION AND QUARANTINE

How to properly isolate and quarantine

• Consider all exposed and sick dogs as potentially infected and shedding organisms
• Isolate exposed dogs on site—use physical barriers if an isolation room is not available
• Create separate ventilation
• Use separate entrances for sick and healthy dogs
• Wear single-use protective equipment that can be discarded
• Dedicate shoes solely for the sick room
• Gowns can be reused if left in the sick room
MAXIMIZE THE EFFECTIVENESS OF ISOLATION AND QUARANTINE

Wear personal protective equipment (PPE)
- Mask
- Gown
- Double gloves
- Hairnet
- Dedicated scrubs
- Dedicated shoes

Practice good sanitation¹,²
- Washing scrubs: use heat (hot cycle >130°F), bleach, and detergent
- Washing hands: scrub for at least 20 seconds and dry

Care and treatment priorities

First: Healthy dogs (young, senior, adult)
Second: Dogs who are ill due to noninfectious causes
Last: Dogs who are ill due to infectious causes
TESTING PROCEDURES FOR CIV

CIV is hard to diagnose

Since many other pathogens can cause similar clinical signs, CIV infection cannot be diagnosed by clinical signs alone. The best approach to diagnose cases of CIV and other infectious respiratory diseases is to submit nasal and oral-pharyngeal swabs to a veterinary diagnostic laboratory. Requesting a canine respiratory polymerase chain reaction (PCR) panel will provide the greatest chance for a positive diagnosis.

Dogs sick for 5 days or less

- Collection of nasal and oral-pharyngeal swabs is recommended
- Dogs infected with CIV H3N2 may shed virus intermittently for up to 24 days, but there is less of a chance of finding viruses if the sample is taken past 5 days
- Antibiotic administration may interfere with detection of bacterial respiratory pathogens

Dogs sick for more than 5 days

- CIV H3N2 may be detectable on a nasal swab in infected dogs for up to 24 days, but other viral pathogens may be detectable only for 3-5 days after clinical signs appear
- A single serum sample can be collected and submitted for influenza HAI. The laboratory performing the testing should be able to help with assay interpretation
- Serology procedure: Obtain 0.5 to 1 mL of serum in a red top tube

Did you know?

During the recent canine influenza outbreaks in Atlanta, GA, and Chicago, IL, more than 650 dogs were tested in the Merck Animal Health Diagnostic Support Program, which aided in the detection of canine influenza virus H3N2 in the United States.
ADDITIONAL TESTING PROCEDURES FOR CIV

Swab procedure

- After gently swabbing the nostrils or the pharyngeal area with a polyester or dacron sterile swab on a plastic shaft, the swab should be placed in a sterile red top tube with 0.5 mL of saline; the swab must remain in the tube
- One sample will be used to test for a variety of pathogenic viruses and bacteria
- The diagnostic labs usually use the PCR to identify genetic material that might be present on the swab
- Leave swabs in tubes and swirl to dislodge organic material

Note: collection of an acute phase serum sample should be done at the same time the nasal and pharyngeal swabs are collected. An additional blood (serum) sample collected 10 days to 2 weeks later can be used to identify a rising titer for several of the respiratory pathogens if the PCR assays do not detect virus in the samples.

Sample storing information

- Storing and shipping the nasal swab samples appropriately is critical for accurate results
- Samples should be kept refrigerated until they are shipped later that day. If the samples are allowed to warm to room temperature, the results may be inconclusive
- Swab samples should be shipped with ice packs to make sure they are kept chilled during transport. Make sure to pack the samples securely to prevent damage during transit
- For samples that will not be shipped on the same day as they are collected, refrigerate and then ship with ice packs
**TIPS FOR CONTROLLING THE SPREAD OF CIV**

- Dogs with suspected CIV infection that enter the facility should be isolated immediately and evaluated in a separate room.
- After evaluation, the floors, walls, and tables used in the room should be thoroughly disinfected. Particular attention should be given to doorknobs and other objects that were touched by humans who were in contact with the dog.
- CIV is easily killed by commonly used disinfectants.
- Coughing and exposed dogs should be isolated for the protection of other dogs.
- The air supply should be separated ideally by a full wall and door, but at least as separate as possible; a designated area within a common air space may not be adequate to prevent transmission of the virus.
- At a minimum, gloves and a gown should be worn while handling dogs with CIV infection.
- Staff should wash their hands with soap and water or disinfect them with an alcohol-based hand sanitizer after handling the infected animal.
- Shoes or boots worn while working with infected dogs should be left in the isolation area and disinfected at the end of the day. Dedicated shoes are preferred.
- Dogs that are at greatest risk for infectious respiratory disease are those that comingle or are housed in kennels without a solid physical barrier between runs or cages.
- Respiratory disease is best prevented by effective vaccination.

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**Results from GA/NC CIRDC outbreak involving H3N2**

- Canine Influenza virus: 17
- Parainfluenza virus: 51
- Respiratory coronavirus: 33
- Pneumovirus: 38
- *Bordetella bronchiseptica*: 29
- Adenovirus type 2: 10
- Distemper: 4
- No results: 1

(n=183)

**Canine Respiratory Pathogen Prevalence**

- *Bordetella bronchiseptica*: 11.7%
- Parainfluenza virus: 32.6%
- Respiratory coronavirus: 8.7%
- Distemper: 7.6%
- Adenovirus type 2: 3.2%
- No results: 3.2%


Data includes samples submitted to Cornell Diagnostic Laboratory from Oct 1, 2011 — Oct 1, 2012. This chart includes data on preventable pathogens.
WHAT VOLUNTEERS, ADOPTERS, AND DOG FOSTER PARENTS SHOULD KNOW

• CIV is not the same as canine parainfluenza or *Bordetella*. Many different organisms can play a role in canine (kennel) cough
• Canine influenza is highly infectious and the virus spreads very quickly from dog to dog
• CIV can be spread by direct contact with respiratory discharge from infected dogs, through the air via a cough, bark, or sneeze, and by contact with contaminated objects such as dog bowls and clothing
• To prevent the spread of disease, individuals should wash their hands with soap and water or disinfect them with an alcohol-based hand sanitizer after contact with dogs
• If a dog is coughing or showing other signs of a respiratory disease, it should not participate in activities that expose other dogs to the virus
• Monitor dogs for the following clinical signs:
  — Coughing
  — Discharge from the nose or eyes
  — Loss of appetite
  — Lethargy/lack of energy

THE GROWING PREVALENCE OF CIV H3N2 AND H3N8*

Canine influenza H3N2 was first isolated in March 2015 and has since spread to 30 states
(March 2015 - April 2016)

*Syndromic surveillance data of Cynda Crawford, DVM, PhD, University of Florida; Edward Dubovi, PhD, Cornell University; Sanjay Kapill, DVM, PhD, ACVIM, Oklahoma State University; Rhode Island State Veterinarian’s office; and IDEXX Laboratories. February 2017.
A LIST OF FREQUENTLY ASKED QUESTIONS ABOUT CIV

What is canine influenza virus (CIV)?
Canine influenza virus (CIV) causes a respiratory infection in dogs that is also known as dog flu. The infection is very contagious to other dogs. Common signs are fever, lethargy, decreased appetite, cough, and runny nose. Most dogs have a mild form of the infection, but some dogs may develop pneumonia and have a more serious disease course that requires aggressive therapy.

How does CIV spread?
Canine influenza is very contagious, meaning that it is easily spread from dogs that are currently infected to other dogs. CIV can pass from dog to dog through virus particles in the air (eg, through coughing or sneezing) or by coming into physical contact with other dogs (eg, touching noses). It can also be picked up if a dog touches or plays with objects that were touched by infected dogs (eg, food bowls, toys). Humans can even transmit the virus between dogs. For example, they may spread the virus if they pet an infected dog, or even touch a toy or doorknob that an infected dog has had contact with, and then touch another dog before washing their hands.

Volunteers, adopters, and foster parents can take important steps to minimize the spread of canine influenza:

- Keep the dog at home if he or she has signs of a respiratory infection, and contact a veterinarian regarding appropriate care and evaluation
- Routinely wash the dog’s food and water bowls and toys with soap and water
- Sanitize hands with soap and water or an alcohol-based hand sanitizer, and wash clothes after coming in contact with a dog that has signs of a respiratory infection
- Make sure any individual who provides care for dogs is knowledgeable about canine influenza and is taking appropriate precautions to minimize its spread
Can CIV infect humans?

To date, there is no evidence that CIV can infect humans, and there has not been a single reported case of an H3N2 or H3N8 CIV infection in a human. The Centers for Disease Control and Prevention (CDC) is closely monitoring the situation.\(^6\)

In general, the canine influenza virus infects dogs and spreads between dogs, but there is no evidence that this virus can infect humans. However, influenza viruses can change so that they can infect other animals, potentially including humans. For this reason, the CDC and its partners are monitoring CIV (as well as other animal influenza viruses).\(^6\)

CIV H3N8 was the first influenza virus to adapt to dogs and is thought to have originated from an equine H3N8 influenza virus strain. In contrast, CIV H3N2 is thought to have originated in birds and is closely related to the Asian strain of H3N2 in circulation in Chinese and South Korean dog populations. More information regarding influenza can be found on the CDC website.

How can I prevent my shelter from getting a CIV outbreak?

The most important step is to maintain a high level of biosecurity and sanitation. Of course, the next important step is to vaccinate each dog on entry. Viral disease is best prevented by effective vaccination.\(^5\) There are vaccines available to control the spread of canine influenza virus and minimize its impact. Just like human flu shots, canine influenza vaccines may not completely prevent canine influenza but may make it less likely to occur. And if a vaccinated dog does get the flu, the signs are likely to be milder.

Remember to routinely deworm dogs to keep migrating parasites from enhancing respiratory disease. Should a dog exhibit coughing, decreased appetite, runny nose, etc., institute treatment as quickly as possible.

You should also remain aware of any information related to outbreaks of canine influenza in your area. Knowledge and common sense are your best defenses against canine influenza.

For more information about CIV, please visit www.doginfluenza.com
A LIST OF FREQUENTLY ASKED QUESTIONS ABOUT CIV (CONT)

What are the signs of CIV infection?

Dogs with CIV infection often have a cough that may be dry or productive (coughing up sputum). They may act tired and lose their appetite. They may also have a clear nasal discharge that turns yellow or green.4,7 A small percentage of dogs do not show any signs of CIV but can still pass the infection to other dogs.4 Most dogs have a mild disease course, but 1% to 20% have a more serious course and may develop pneumonia.8 These dogs may need more aggressive care.8 Seeking appropriate care early may minimize this risk.

Increase biosecurity and protocol awareness among staff, foster individuals, and rescue groups. Avoid cross contamination and isolate the dog until it has fully recovered.

What do I do if my facility has a canine respiratory disease outbreak?

If a dog shows signs of a respiratory infection, such as coughing or runny nose, isolate the dog and monitor animals that may have had exposure for any clinical signs of respiratory disease. Medical treatment varies based on the type of cough and number of animals affected. In some cases, full building quarantine may be necessary.

What are the treatment options for CIV infection?

As with other viruses, there are no specific drugs to treat CIV infections. The illness must simply run its course. Treatment options are focused on providing supportive care and making sure the dog is as comfortable as possible, hydrated, and eating well; those things will help boost the dog’s immune system so it can fight the virus on its own. Dogs that have thick nasal discharge or signs of pneumonia are usually given an antibiotic because they are likely to have a secondary bacterial infection. Some dogs with more severe illness may require isolation and aggressive therapy with intravenous fluids and antibiotics.4 Contact your veterinarian if your dog has signs of a respiratory infection for recommendations regarding appropriate care and evaluation.

Merck Animal Health—one of the largest animal vaccine producers in the world—is committed to supporting veterinary communities during CIV outbreaks.

Contact Us

To learn more, contact your Merck Animal Health sales representative, your distributor representative, visit www.merck-animal-health-usa.com, or give us a call.

Customer Service 1-800-521-5767 (Monday-Friday, 9:00 AM – 6:00 PM EST)

Technical Service 1-800-224-5318 (Monday-Friday, 8:30 AM – 5:00 PM EST)

Vaccine Protocol Help Line 1-866-437-7955 (Monday-Friday, 8:00 AM – 5:00 PM EST)