

Canine Influenza Update (October 2005)

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MEDICAL INFORMATION

PLEASE DO NOT PANIC, and do NOT assume that every dog's cough is Canine Influenza. "Kennel cough" from parainfluenza, Bordetella, or mycoplasma, is more common. However, the Animal Health Diagnostic Center at Cornell is interested in receiving samples from dogs that appear to have kennel cough.

Clinical signs are described below. The incubation period is two to five days and dogs may shed virus for seven to 10 days. The disease can spread rapidly throughout a boarding kennel or at events where dogs are in close proximity to each other.

Coughing dogs SHOULD NOT BE BROUGHT TO SHOWS or PERFORMANCE EVENTS.

The Animal Health Diagnostic Center at Cornell has serologic evidence that canine influenza virus is now present in non-greyhounds in 13 states including New York, Massachusetts, Connecticut, New Jersey, Washington DC, Florida, Georgia, North Carolina, Ohio, Pennsylvania, Arizona, California, Oregon, and Washington state. Reports have been received indicating that an unusual form of "kennel cough" has

been seen in a number of veterinary practices. Animals recovering from this clinical presentation that have been tested are all serologically positive for canine influenza virus. Acute and convalescent sera from several dogs showed a positive response to canine influenza virus over the course of the illness. Tests of selected New York State dogs last year were all negative.

Canine influenza virus is a relatively new pathogen of dogs. It was first identified in racing greyhounds in 2004 and this virus appears to have been involved with significant respiratory problems on the dog tracks throughout the U.S. for the last 2-3 years. The Virology Lab at Cornell isolated the first influenza virus from an animal that died during one of these clinical episodes. Evidence of infection of non-greyhounds by influenza virus was found in Florida this spring as part of the ongoing research efforts by Dr. Cynda Crawford at the University of Florida on respiratory disease in dogs. We confirmed this finding using samples from an animal shelter in the Miami area.

As this virus is a new

pathogen of dogs, all dogs are potentially susceptible to infection. As with any disease, there is variability in the clinical signs and the eventual outcome of the infection. The most common sign is a cough that can persist for up to three weeks regardless of treatment. Dogs may have a purulent nasal discharge that seems to resolve with antibiotic treatment. This suggests that secondary bacterial infections are a common component of the clinical presentation. More severely affected dogs exhibit a high fever (104-106) with increased respiratory rates and other clinical signs of pneumonia. Again antibiotic therapy seems essential for recovery. Some fatal cases of pneumonia have been reported but the rate is probably below 5%.

While it may be difficult to differentiate canine influenza virus infections from traditional kennel cough agents for an individual dog, the situation in groups of dogs is more distinct. As mentioned earlier, virtually all dogs are susceptible regardless of age or vaccination history. Infection rates in kennels may reach 100% with clinical signs in

75% of dogs. The incubation period is relatively short, in the 2-5 day range.

The diagnosis of a canine influenza infection at this time is most reliably done by detecting antibodies to the virus. Since this is a new infection in dogs, there are no background titers due to vaccines or previous exposures. Acute and convalescent serum samples should be collected and submitted to the AHDC. A single serum sample on dogs that have recovered from a respiratory infection can also be submitted, but in this case the test results will only determine previous exposure to canine influenza. Commercial antigen-capture ELISA tests have not been useful in detecting the virus. Virus detection either by virus isolation or PCR using pharyngeal swabs has also been unsuccessful. The reason for this is unclear, but could be due to the time and location of collection, which in most instances are several days after clinical signs have appeared. Tissues from dogs that have died with acute respiratory signs should be submitted for virus isolation (ship overnight on cold packs).

One should not lose sight of the fact that all respiratory infections in dogs are not due to canine influenza virus. Adhering to the "band wagon" approach could result in the failure to appropriately treat dogs with infections previously known to cause respiratory problems in dogs. A comprehensive diagnos-

tic and treatment protocol should be applied in all cases, which would include cultures for bacteria and mycoplasma.

Appropriate Samples for Detecting the Presence of Canine Influenza Virus

As with most viral diseases, there are several ways to determine the role of a virus in a clinical event. While there is a tendency to want a single sample type that will work in all cases, the reality is that this is not possible. The list of possible tests is:

1. **At present the most reliable way to diagnose canine influenza virus infections is by serological tests.** The direct link between canine influenza virus and a clinical event is through the collection of acute and convalescent serum samples. First sample is collected at the first presentation of the patient and then 2-3 weeks later. Serum can be separated from the clot and held in the refrigerator until collection of the second sample. Samples can be shipped overnight without cold packs or 2-day delivery with cold packs. **For animals that have recovered from a case of "kennel cough", a single serum sample can determine whether the animal has been infected with canine influenza virus at some point in the past. Accurate history of the kennel cough episode should be submitted with the sample.** As this is a relatively new pathogen of dogs, we do not expect to find a high seroprevalence in unaffected dogs.

Canine influenza virus HI test: \$20.00 per sample

2. Isolation of canine influenza virus is a relatively unreliable way to confirm the infection. The reason for this is not clear. Pharyngeal swabs collected several days after the onset of clinical signs are **not** useful for

canine influenza either for virus isolation or antigen-capture ELISA tests. All virus isolates to date have been obtained from lung tissue from dogs that have died acutely, within 2-3 days of onset of clinical signs (hemorrhagic pneumonia). **We are especially interested in getting lung tissue from these dogs in order to attempt an isolation.** Until further notice we will do testing on tissue samples for canine influenza virus at no cost **only if** a complete history of the case is provided and the onset date falls within the timeframe listed above. We will not routinely test these samples for other viruses unless specifically requested, and this will incur the \$50. virus isolation fee.

All dogs that cough are not infected with canine influenza virus. The standard respiratory pathogens of dogs have not gone away. One should always consider a complete diagnostic work-up that would include cultures for bacteria and mycoplasma. Check our fee manual for sample submission information and fees.

The latest updates on canine influenza can be found on the Animal Health Diagnostic Center's web site (printable in PDF format), along with submission information, forms, and test fees. Go to diaglab.vet.cornell.edu and click on "Testing Services" in the box on the left, then on "Sample Submission Requirements."

Please note: This update may be distributed

Parent Club Health Conference Version

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