

CANINE INFLUENZA

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The announcement in September 2005 that a new strain of influenza had been identified as a cause of respiratory disease in dogs stimulated a great deal of concern among veterinarians and pet owners. Though many scientific studies are still in progress, we want to provide an update on the latest information available.

Where did it come from?

The H3N8 influenza strain emerged as a canine pathogen two years ago when it was identified as the cause of a respiratory disease outbreak at a Florida greyhound track in January 2004. Previously associated with only equine influenza, the H3N8 strain jumped the species barrier and has adapted to the canine host. Initial studies indicate that there are 8-10 amino acid changes in the hemagglutinin gene sequence between the equine and canine strains. Other small genetic changes probably contributed to the interspecies transmission. There is no indication that canine influenza (CI) poses a human-health risk.

How widespread is canine influenza?

Since its discovery in racing Greyhounds, influenza infection has been confirmed in pet dogs from at least 14 states, from New York to California and Georgia to Wisconsin. Most of these cases have occurred in places where dogs congregate and have a history of movement, such as animal shelters, pet stores, boarding kennels and veterinary clinics.

What is the prevalence of canine influenza in Wisconsin?

Only one of 28 serum samples submitted to the WVDL had a significant antibody titer detected using the hemagglutination inhibition (HI) test. The dog with a titer had a history of recent travel outside of Wisconsin. Of the 25 dogs sampled (tissues or swabs) for virus isolation and PCR in 2005, no canine influenza virus was identified. However, we did isolate canine distemper and parainfluenza viruses from two dogs with clinical respiratory disease. With the exception of the greyhounds at the Dairyland Racetrack, it appears that CI has yet to show its ugly head in Wisconsin.

Testing for canine influenza

Canine influenza should be added to the differential diagnosis list for dogs with clinical signs consistent with "kennel cough". Often the cause of "kennel cough" is never confirmed, but there are diagnostic tests available to veterinarians and their clients who want to know

whether CI is playing a role in the patient's respiratory illness. Unfortunately there is no rapid test for CI currently available. Canine influenza cases can be diagnosed in one of three ways.

1) Hemagglutination inhibition (HI) test on a single serum sample: Because there is no vaccine for CI, any antibody titer > 1:4 would be considered positive for exposure to the field virus.

2) HI test on paired sera: This is the best option for confirming the diagnosis of CI. A four-fold titer increase between acute and convalescent serum samples would be most diagnostic for CI. The convalescent sample should be collected at least 14 days after collection of the acute sample, and both samples submitted together. A low-cost in-house HI test performed at the UW-SVM is available with a 4 week turn-around time. We can send the sample out to another referral laboratory if you require a more timely result (10-14 days). Please indicate your desire for the referral testing on the submission form and expect a testing fee of \$20/sample in addition to the \$15 referral fee.

3) Virus isolation (VI): Virus isolation (VI) and PCR are diagnostic options available to those clinicians that are presented with a canine patient suffering from an *acute respiratory illness of <48 hour duration*. The keys to collecting and submitting the best samples from live dogs are: **1.** Use Dacron swabs and viral transport media (available from WVDL); **2.** Collect pharyngeal swabs, and; **3.** Collect samples within 48 hours of first clinical signs. Fresh lung and tonsil tissue (not formalin-fixed) from dogs which have died from an acute respiratory infection can also be submitted for VI. Though often unrewarding for CI diagnosis, the isolation of other viruses linked to canine respiratory disease is possible and may provide valuable diagnostic information.

The WVDL offers complete diagnostic workups for any illness in animals. Full necropsy services will provide an added value over simply testing for one etiologic agent. The thorough necropsy (history, gross and histopathologic examinations and ancillary testing) often provides a more comprehensive picture than a positive/negative result for one test. We encourage you to cast a wider diagnostic net than search for the presence or absence of a single agent.

The WVDL, with your assistance, will continue to track the emergence of canine influenza in Wisconsin. Please direct your diagnostic questions to any of our pathologists or Dr. Kathy Kurth, Head of Virology.