

Proven safe in  
**OVER  
1 MILLION  
dogs<sup>1</sup>**



# Keep flu from coming between friends

Protect them with the first fully licensed canine flu vaccine.

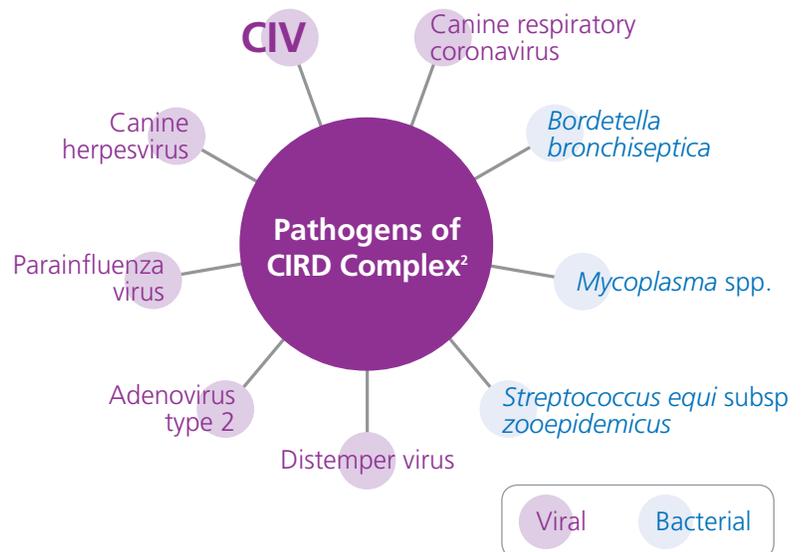
**Nobivac: Canine Flu**  
*Don't wait...vaccinate.* **H3N8**

# Nobivac<sup>®</sup> Canine Flu H3N8

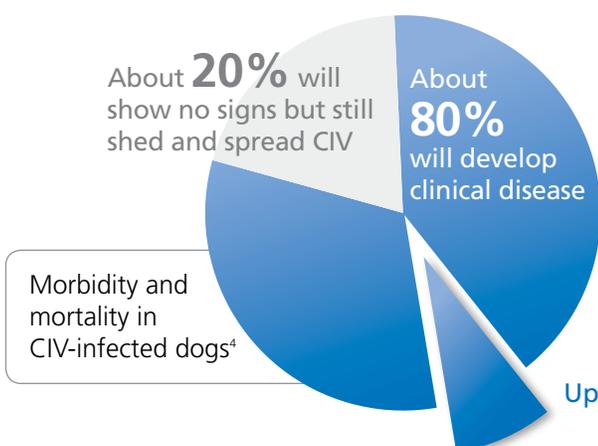
Protect your patients from canine influenza virus (CIV)—  
a major pathogen in the CIRDC complex.<sup>2,3</sup>

**CIV may be implicated in more canine respiratory infections than generally realized.**

- Canine infectious respiratory disease (CIRD) complex may be caused by the presence of several pathogens, including CIV
- All pathogens involved in CIRD complex can cause a similar clinical presentation
  - Coughing
  - Sneezing
  - Fever
  - Nasal discharge
  - Ocular discharge
- Multiple-dog environments, such as doggie daycares, kennels, and shelters, can contribute to the development of CIRD complex



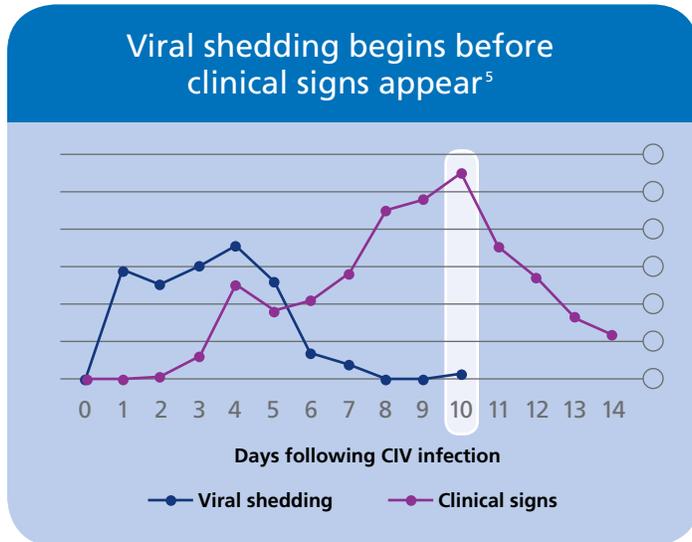
**CIV is one of the most contagious pathogens in the CIRDC complex.**



- Close to 100% of dogs are naive to this new virus and have no natural immunity to it<sup>3</sup>
- Virtually all exposed dogs will be infected<sup>3</sup>
- Clinical signs may be severe, and the disease is potentially fatal<sup>3</sup>



**CIV is hard to diagnose because common laboratory tests like PCR, when performed after peak viral shedding, can fail to detect the virus.<sup>3,4</sup>**

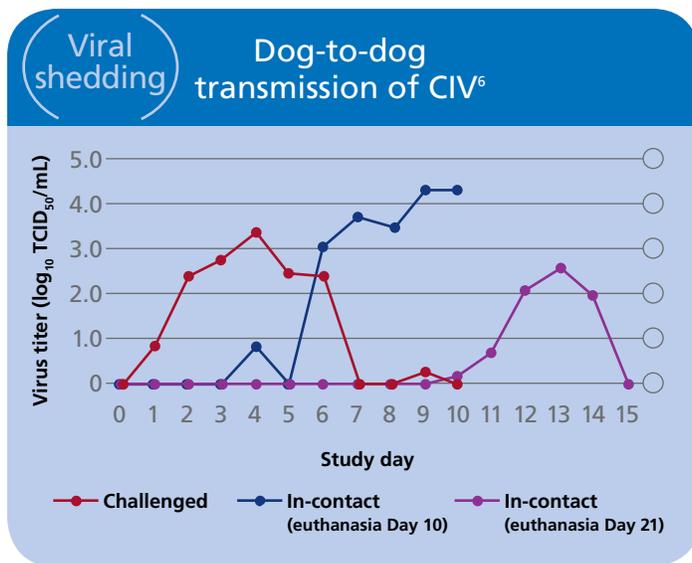


- PCR testing on nasal swabs should be done early, during the first 4 days of illness, to detect active infection<sup>4</sup>
- Serology to detect antibodies to the virus is the best diagnostic method for confirming infection once clinical signs are evident (at least 7 days following onset of signs)<sup>4</sup>

—●— Geometric mean virus titers (expressed as  $\log_{10}$  TCID<sub>50</sub>/mL)

—●— Average clinical score (daily average score for all clinical signs, such as ocular discharge, nasal discharge, coughing, sneezing, and depression)

**The rolling pattern of CIV infection shows how quickly a case can turn into an outbreak.<sup>6</sup>**



- Experimentally challenged dogs (red line) shed virus on Day 1 through Day 7, infecting in-contact dogs
- A few of the in-contact dogs (blue line) contracted infection from the experimentally challenged dogs; these dogs shed virus from Day 5 through Day 10
- The remainder of the in-contact dogs (purple line) possibly contracted infection from infected in-contact dogs (blue line); these dogs started shedding virus at Day 10

Four dogs were experimentally infected with CIV on Day 0, then co-mingled with 8 CIV-negative dogs on Day 1. On Day 10, 4 experimentally challenged dogs and 5 in-contact dogs were euthanized. On Day 21, the remaining 3 contact-exposed dogs were euthanized.

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H3N8  
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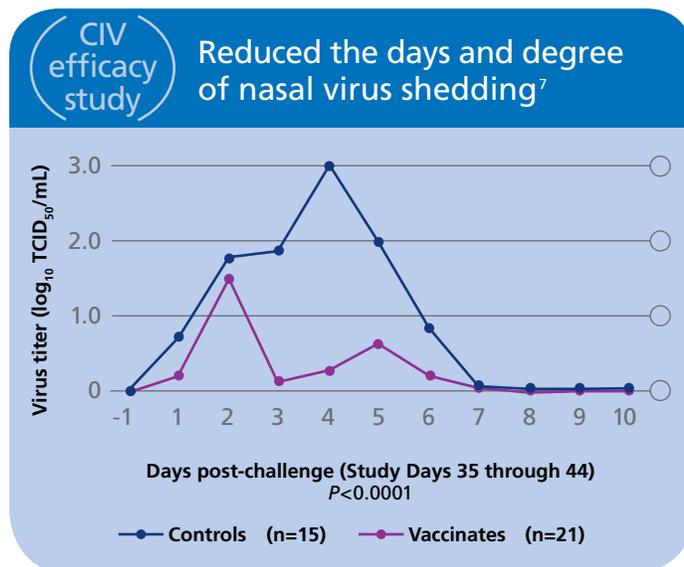
“ I would much prefer to prevent viral infections with the vaccine than treat a secondary infection with antibiotics.”

– Edward J. Dubovi, PhD  
Professor of Virology  
College of Veterinary Medicine, Cornell University

## Merck Animal Health, experts in veterinary flu vaccines, developed the first canine influenza vaccine.

- Fifteen viral isolates were tested to select the most virulent isolate for vaccine development<sup>1</sup>
- A different, highly virulent viral strain was used to test the vaccine in challenge studies<sup>1</sup>
- It was shown that the antigen in the vaccine is highly effective and produces good immunity

## Nobivac® Canine Flu H3N8 lessens the opportunity for CIV to infect other dogs.<sup>7</sup>



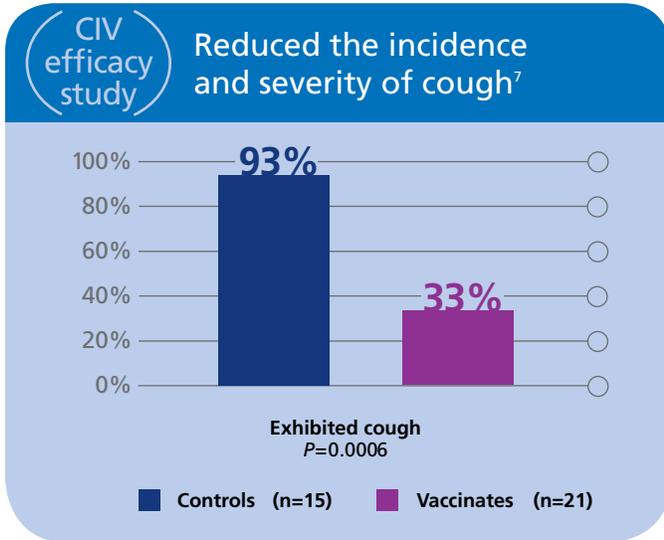
- On Day 4, controls shed 500 times more viral particles than vaccinates
- Mean viral shedding lasted only 2 days in vaccinates versus 5 days in controls\*
- Vaccinates also shed less virus overall than controls\*

Nasal virus shedding was monitored in all dogs by collecting and processing swabs on the day before challenge, and then daily from Day 1 through Day 10 post-challenge.

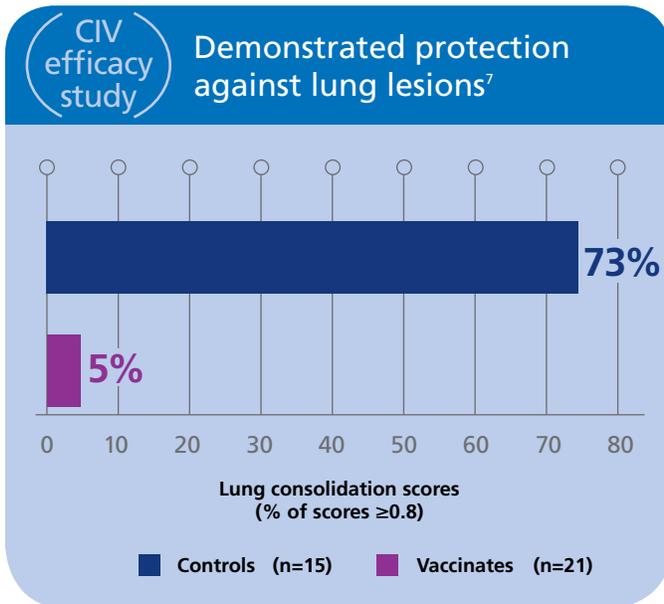
\*Both results were shown to be statistically significant ( $P < 0.0001$ ).



# Highly effective in decreasing the clinical signs of CIV infection and protecting the lungs.<sup>7</sup>



- 14 of 15 controls exhibited cough
- Only 7 of 21 vaccinates exhibited cough
- Cough was mild in vaccinates; severity of cough varied in controls



- Lung lesions were scored as a percent consolidation of each lung lobe, and weighted lung scores were calculated based on an accepted lung scoring system
- Scores  $\geq 0.8$  indicated dogs had sustained lung damage
- Lung scores ranged significantly higher in controls (0 to 27.9) versus vaccinates (0 to 2.9)

If you vaccinate a dog for *Bordetella*, it makes sense to vaccinate for canine influenza too.

**Canine influenza has the same clinical signs and risk factors as *Bordetella*, but is potentially more life-threatening.**

- Cough, the primary sign in both *Bordetella* and CIV infection, is usually more persistent and severe in dogs with flu and may progress to serious pneumonia
- Fever, coupled with ocular and nasal discharge, can occur in both illnesses, making differential diagnosis difficult
- Dogs at risk for both *Bordetella* and canine flu include:
  - Dogs in settings where multiple dogs interact and socialize, such as boarding facilities, doggie daycares, shelters, and kennels
  - Dogs that compete in shows or other events where many dogs are present
  - Dogs that travel
  - Dogs of veterinary clinic staff that may be exposed at home through contaminated fomites



**1 OUT OF 4**  
pet care facilities  
requires CIV  
vaccination<sup>1</sup>



IT ONLY TAKES

**ONE**

**DOG** to infect a facility  
with influenza

“ [Canine influenza] is not just a disease of the individual dog; it’s a disease of the facility. If you have it at your facility... you’re going to lose business and it’s going to have a tremendous impact on your business. ”

– Dennis Fees, DVM  
Partner, Arcadia Animal Hospital and Hillcrest Pet Hospital

# Canine influenza in a community can have a significant impact on clinics.

## The social lifestyles of dogs and preclinical viral shedding allow canine influenza to spread quickly.

- If CIV is found at your clinic:
  - Every dog present at the time should be considered at risk for infection
  - Every dog that is exposed to the virus may be potentially shedding
- Aerosol transmission may play an important role in the spread of CIV<sup>8</sup>
- CIV can remain active for up to 12 hours on the hands and up to 24 hours on clothing of staff who have had contact with an infected dog<sup>4</sup>

## Administration of Nobivac® Canine Flu H3N8

- Subcutaneous injection
- Safe for use in dogs 6 weeks of age or older
- Two 1-mL doses given 2 to 4 weeks apart
- Annual revaccination with one dose is recommended
- Available in 25 x 1 mL

Safely administered  
in more than  
**1 MILLION DOGS<sup>1</sup>**

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“ There is a small...incidence of mortality associated with canine influenza. And if you happen to be a facility that experiences a mortality, that becomes a long-term liability. ”

– Paul Schwartz, DVM  
Center for Veterinary Care, New York, NY

\* A 2010 outbreak shut down Dr. Schwartz's clinic at a cost of about \$50,000 to \$60,000

“ We saw a lot of destruction from [canine influenza] at the commercial kennels locally around us, and we didn't want that to happen to us as well. ”

– Stacy Robertson, DVM  
Co-owner, South Wilton Veterinary Group, Wilton, CT



## Provide more complete respiratory protection with Nobivac® Canine Flu H3N8—so every day can be a great play day.

- Confirmed safe after real-world use in more than a million dogs<sup>1</sup>
- High-immunogenicity antigen proven to reduce the severity and spread of disease<sup>7</sup>
  - Reduces the duration and severity of coughing
  - Protects against the formation and severity of lung lesions
  - Significantly reduces the days and degree of viral shedding<sup>7</sup>
- Vaccination recommended for all dogs that have have lifestyle risk factors that warrant *Bordetella* vaccination
  - Including dogs that have close contact with other dogs in closed environments, such as kennels, doggie daycares, and other multi-dog settings

Let us help you spread the word about canine influenza at your clinic. Talk to your Merck Animal Health representative about ordering educational and promotional materials, including a brochure, waiting room DVD, signs, and more.



To learn more, contact your Merck Animal Health sales representative, visit [www.doginfluenza.com](http://www.doginfluenza.com), or give us a call.

### Customer Service

**1-800-521-5767**

(Monday – Friday, 8:00 am – 6:00 pm EST)

### Technical Services

**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)

#### References:

1. Data on file, Merck Animal Health. 2. Information sheet: Canine infectious tracheobronchitis. UC Davis Koret Shelter Medicine Program Website. Available at: [http://www.sheltermedicine.com/portal/is\\_infectious\\_tracheobronchitis\\_canine.shtml](http://www.sheltermedicine.com/portal/is_infectious_tracheobronchitis_canine.shtml). Accessed December 7, 2011. 3. Crawford C, Spindel M. Canine influenza. In: Miller L, Hurley K, eds. *Infectious Disease Management in Animal Shelters*. Ames, IA: Wiley-Blackwell; 2009:173–180. 4. Canine influenza background. AVMA Website. Available at: [http://www.avma.org/public\\_health/influenza/canine\\_bgnd.asp](http://www.avma.org/public_health/influenza/canine_bgnd.asp). Published February 14, 2007. Accessed December 7, 2011. 5. Deshpande MS, Abdelmagid O, Tubbs A, Jayappa H, Wasmoen T. Experimental reproduction of canine influenza virus H3N8 infection in young puppies. *Vet Ther*. 2009;10(1–2):29–39. 6. Jirjis FF, Deshpande MS, Tubbs AL, et al. Transmission of canine influenza virus (H3N8) among susceptible dogs. *Vet Microbiol*. In press. 7. Deshpande MS, Jirjis FF, Tubbs A, et al. Evaluation of the efficacy of a canine influenza virus (H3N8) vaccine in dogs following experimental challenge. *Vet Ther*. 2009;10(3):103–112. 8. Information sheet: Canine influenza. UC Davis Koret Shelter Medicine Program website. Available at: <http://www.sheltermedicine.com/shelter-health-portal/information-sheets/canine-influenza>. Accessed December 7, 2011.

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