



PREVALENCE



RISK &
SEVERITY



COST OF
OUTBREAK



ABOUT



EFFICACY
& SAFETY

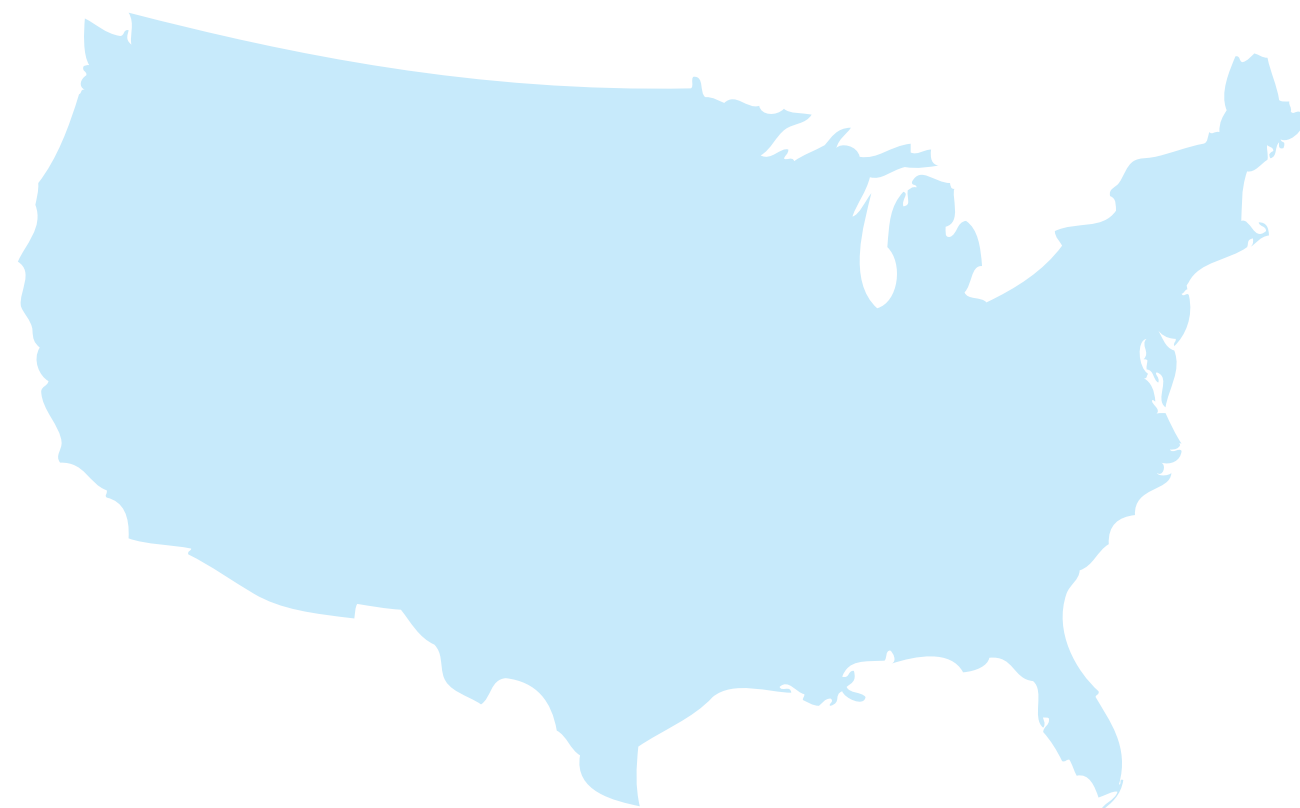


ADOPTING
VANGUARD[®] CIV



HOME

CIV PREVALENCE



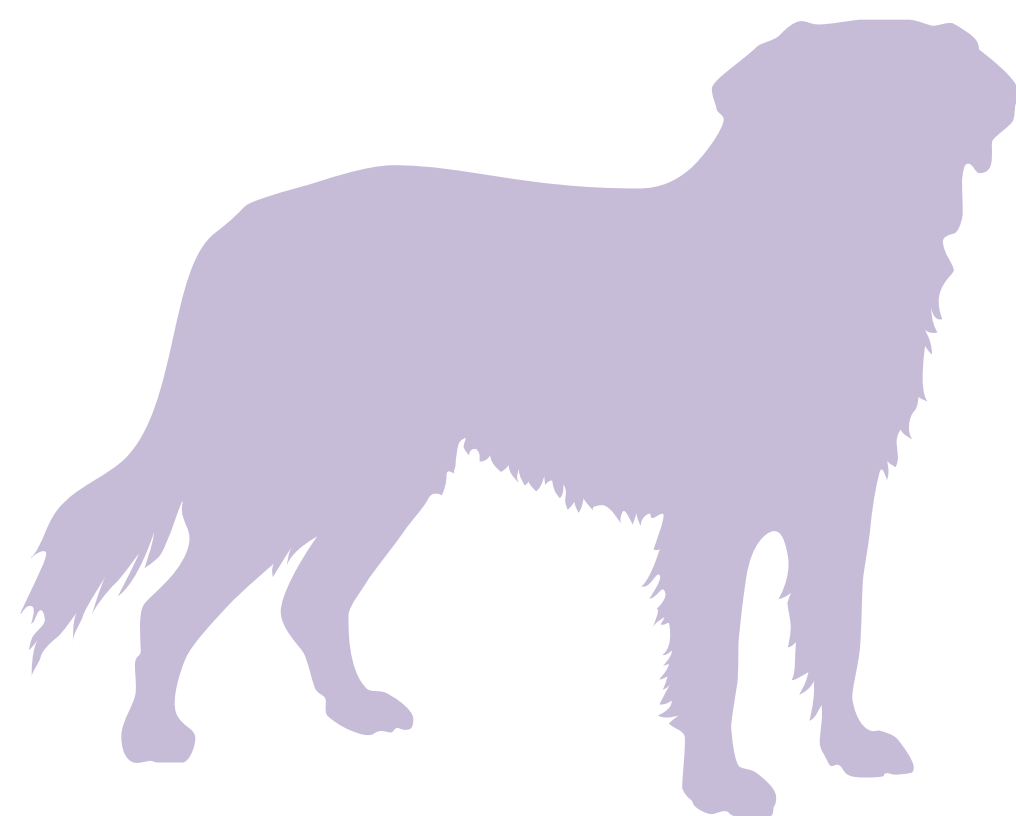
CIV RISK & SEVERITY



THE COST OF A CIV OUTBREAK



ABOUT VANGUARD[®] CIV



VACCINE EFFICACY & SAFETY



ADOPTING VANGUARD[®] CIV IN YOUR PRACTICE





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CIV IS SPREADING RAPIDLY

- Outbreaks of both known strains, CIV H3N2 and CIV H3N8, have been reported across the United States.

[SEE THE LATEST RISK MAPS »](#)

- CIV type H3N2 has impacted dogs in over half the country since March 2015 — and new cases are being diagnosed every week.
- Unlike human flu, dog flu isn't seasonal. Outbreaks can happen any time of year.

DON'T WAIT & SEE

Waiting to vaccinate until CIV comes to your neighborhood is the opposite of preventive medicine. Get ahead of an outbreak by vaccinating now.

CONSIDER THIS

Dogs are constantly moving from CIV endemic areas into other parts of the country, making it impossible to predict where the next outbreak will happen. You may not see CIV in your area today, but that doesn't mean you won't.



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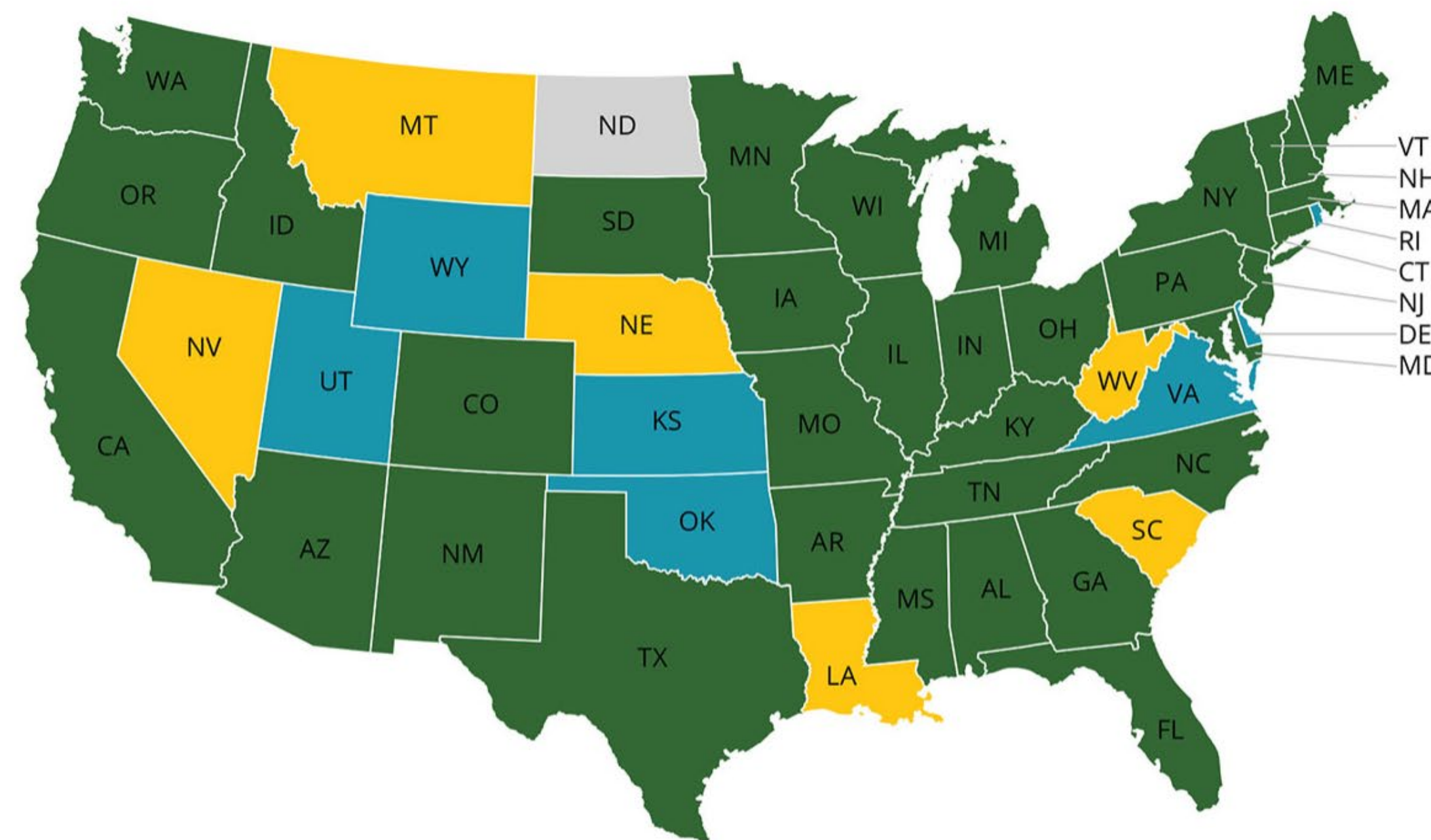


CIV RISK MAPS

Canine Influenza Virus by Virus Type

All Canine Influenza Cases

Canine Influenza Virus Positive Cases by Virus Type 2012–2018



- CIV H3N8 & H3N2 positive cases
- CIV H3N2 positive cases
- CIV H3N8 positive cases
- No positive tests reported

This data was compiled from publicly available information, state veterinary departments, IDEXX, Antech, WebMD and Cornell University, and from information collected in connection with the Zoetis Petcare Immunization Support Guarantee (ISG) program.

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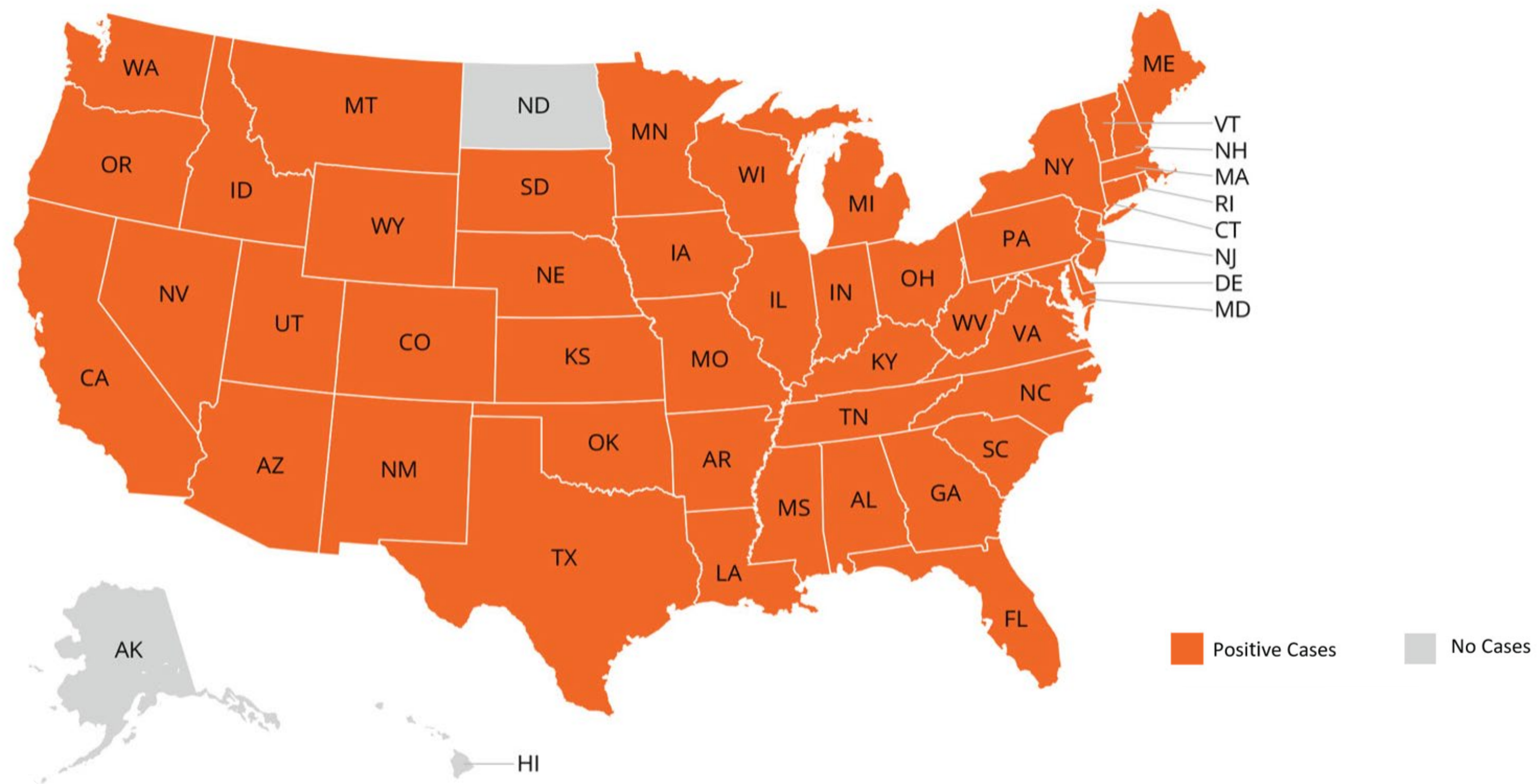


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CIV IS HIGHLY CONTAGIOUS & POTENTIALLY FATAL

WHO IS AT RISK »

HOW CIV SPREADS »

HOW BAD IS IT, REALLY? »

WHO IS AT RISK

DOG FLU INFECTS NEARLY ALL DOGS EXPOSED, REGARDLESS OF BREED, AGE OR HEALTH STATUS.¹



DEVELOP CLINICAL SIGNS



MAY BE CARRIERS

- Dogs who frequently interact with other dogs — at daycare, dog park, grooming salon or boarding facilities — are at a high risk for CIV.
- Pet grooming and boarding has nearly doubled over the past decade.
- There is a common misconception that only shelter dogs are affected by CIV. But keep in mind that infected dogs adopted out of shelters integrate into the general population, potentially spreading the disease.
- CIV H3N2 has also been shown to be contagious to cats who may, in turn, transmit infection to other cats.^{2,3,4}

¹ Canine Influenza. avma.org/kb/resources/references/pages/canine-influenza-backgrounder. Accessed August, 2019.

² Jeoung, H., et al. (2013). A novel canine influenza H3N2 virus isolated from cats in an animal shelter. *Veterinary Microbiology*, 165, 281-286.

³ Song, D.S., et al (2011) Interspecies transmission of canine influenza H3N2 virus to domestic cats in South Korea 2010. *J. of General Virology*, 92 (10), 2350-2355.

⁴ Gutman, S., et al (2019) Serological investigation of exposure to influenza A virus H3N2 infection in dogs and cats in the United States. *J Vet Diagnostic Investigation*, 31, 250-254.



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WHO IS AT RISK »

HOW CIV SPREADS »

HOW BAD IS IT, REALLY? »

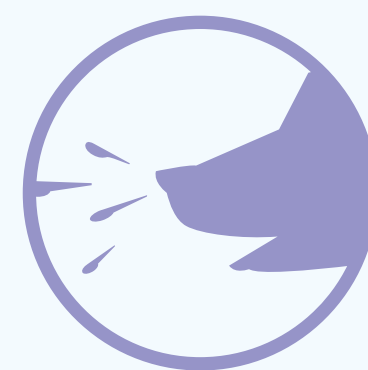
HOW CIV SPREADS

CIV has proven to be incredibly contagious.

Dog flu spreads through:



Barking



Sneezing



Coughing



Contact with contaminated
dog toys, bowls and blankets



People moving between
infected and uninfected dogs



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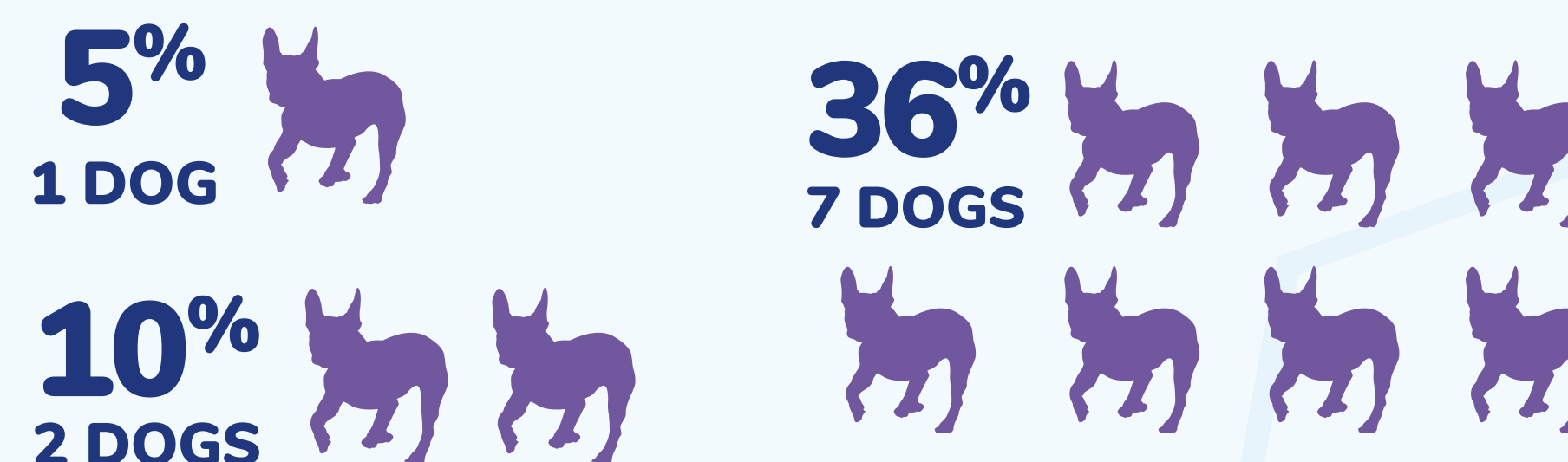
HOW BAD IS IT, REALLY?

- Most dogs recover in 2-3 weeks. However, some dogs may develop secondary bacterial infections which may lead to more severe illness and pneumonia.
- CIV infects the lower and upper respiratory tract during an infection. CIV infected dogs have been shown to develop severe, long persistent bronchopneumonia.¹
- Dogs that survive CIV may have chronic respiratory tract issues due to inflammatory damage that occurs during CIV infection.

CONSIDER THIS

Estimated mortality rates vary from **5%-10%**,² but have been as high as **36%**³ in some CIV H3N8 outbreaks.

So, if you see 20 dogs with the flu, how many may die?



READ THE LATEST TECHNICAL BULLETIN »

¹ Jung K, Lee CS, Kang BK, Park BK, Oh JS, Song DS. Pathology in dogs with experimental canine H3N2 influenza virus infection. *Res Vet Sci.* 2010;88(3):523-527.
² Canine Influenza. avma.org/kb/resources/references/pages/canine-influenza-backgrounder. Accessed August, 2019.
³ Spickler, A.R.(2016). Canine Influenza. Center for Food Security and Public Health. 1-10. http://www.cfsph.iastate.edu/Factsheets/pdfs/canine_influenza.pdf



KEY POINTS

From The Technical Bulletin, “Lessons From The Characterization Of Canine Immunity To Influenza.” [Read It in Its Entirety.](#) »

The Virulence Factors of CIV

“The difference between dogs that develop mild clinical disease and those that progress to severe disease or mortality has often been attributed to co-infection with secondary bacterial pathogens.”

“CIV contains virulence factors that promote neutrophilic infiltrates into the lung and are similar to the virulence factors in known severe avian and human influenzas.”

“CIV immune responses promote pulmonary neutrophilic infiltration. The virus is capable of deep penetration into the lower airways where pro-inflammatory cytokines and apoptosis can cause pathology. Additionally, viral interference with innate immunity contributes to successful infection, and CIV expresses virulence factors that may contribute to increased morbidity and mortality.”

Reassortment Risks

“Swine express both receptors and serve as the “mixing vessel” when co-infected with avian and human influenzas. Although dogs predominantly express $\alpha 2, 3$ sialic acid receptors, some foci of $\alpha 2, 6$ sialic acid receptors have been identified in the respiratory tract, which may allow the dog, like the pig, to serve as a “mixing vessel.” **This potential zoonotic risk is one of the greatest challenges that has emerged from the establishment of CIV in the pet population.**”

“The ability of CIV to reassort with other influenza A viruses, the demonstrated susceptibility of dogs to a variety of influenza viruses, and the close relationship between pet dogs and their owners poses risks for the development of zoonotic influenza.”

“Multiple reassortments of CIV, canine receptor capability to serve as a “mixing vessel,” and the susceptibility of the dog to multiple influenza A viruses could potentially lead to the development of canine-human zoonotic influenza.”

1 Jung K, Lee CS, Kang BK, Park BK, Oh JS, Song DS. Pathology in dogs with experimental canine H3N2 influenza virus infection. *Res Vet Sci.* 2010;88(3):523-527.

2 Canine Influenza. avma.org/kb/resources/references/pages/canine-influenza-backgrounder. Accessed August, 2019.

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OUTBREAK COSTS ARE HIGH, BEYOND TIME & MONEY

- Biocontainment training and implementation
- Lost revenue due to missed appointments, closed grooming, daycare and boarding
- Increased payroll expenses for additional staffing or overtime
- Increased time spent educating clients and clearing up misinformation
- Contamination could mean closing your hospital to uninfected pets or closing entirely

CONSIDER THIS

Some of the highest costs of a CIV outbreak go beyond wasted time and money. How your hospital handles the outbreak may deeply affect staff perceptions as well as your clinic's reputation in the community.

[READ A RECENT FINANCIAL IMPACT STUDY »](#)



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VANGUARD[®] CIV H3N2/H3N8 PROVIDES COMPLETE COVERAGE GUARANTEED

WHY VANGUARD CIV H3N2/H3N8 »

VACCINE ADMINISTRATION »

GUARANTEE & SUPPORT »

WHY VANGUARD CIV H3N2/H3N8

- One convenient bivalent vaccine helps protect dogs against both known CIV strains.
- Helping protect your canine patients can also help protect dogs in your community/build community immunity.
- The vaccine reduces or prevents clinical signs of CIV infection and attributed pathological lung lesions, decreasing the severity of the illness.
- You can be confident in your results¹ by using proven CIV protection from a trusted platform.



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WHY VANGUARD CIV H3N2/H3N8 »

VACCINE ADMINISTRATION »

GUARANTEE & SUPPORT »

VACCINE ADMINISTRATION

- For use in healthy dogs ≥ 8 weeks of age
- Initial Series: 2 doses, 3 weeks apart
- Availability: 25 x 1-dose packages

VANGUARD CIV H3N2 and VANGUARD CIV H3N8 monovalent vaccines are also available.





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GUARANTEE & SUPPORT

Zoetis keeps innovating to bring you vaccines like **VANGUARD CIV H3N2/H3N8** with demonstrated safety and efficacy for complete protection against canine influenza virus.

We were first to offer a vaccine to protect dogs against H3N2 when it first appeared in 2015, and we'll still be here, ready to adapt if the strains evolve or if new strains emerge.



**PETCARE IMMUNIZATION
SUPPORT GUARANTEE**



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EFFICACY & SAFETY OF VANGUARD CIV H3N2/H3N8

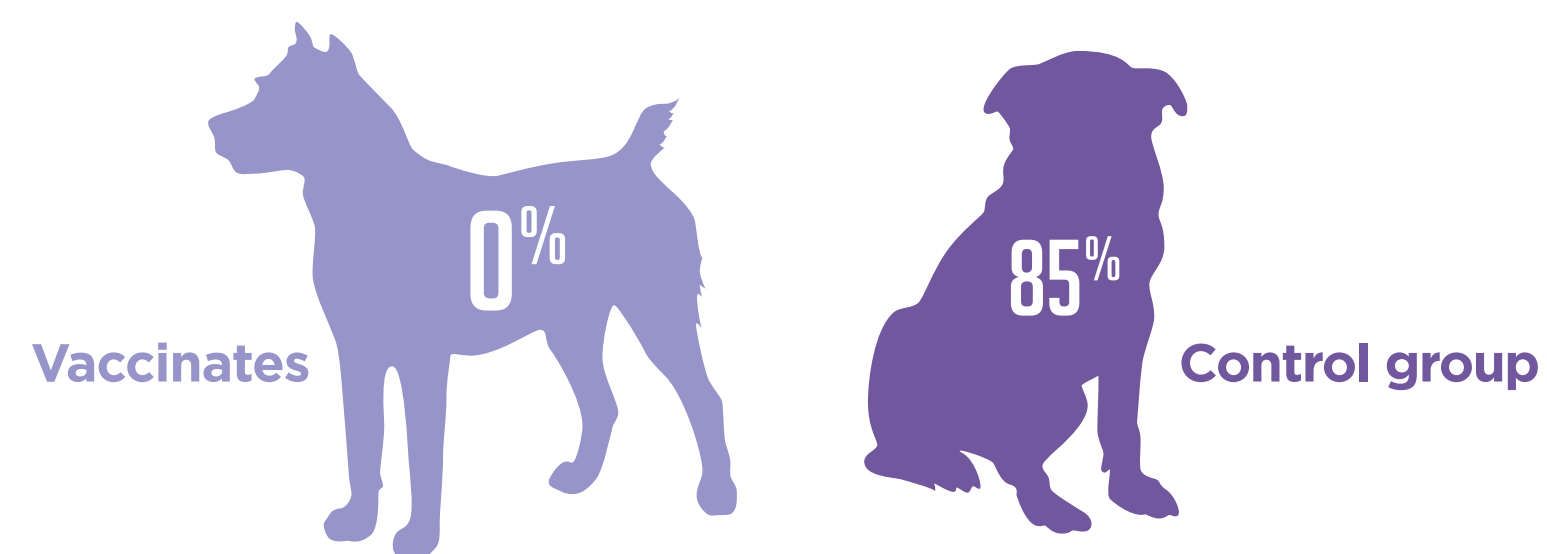
DEMONSTRATED EFFICACY »

PROVEN SAFETY »

DEMONSTRATED EFFICACY

VANGUARD CIV vaccines have demonstrated efficacy by mitigating clinical signs of disease as well as viral shedding!

Pathological lung lesions and disease*



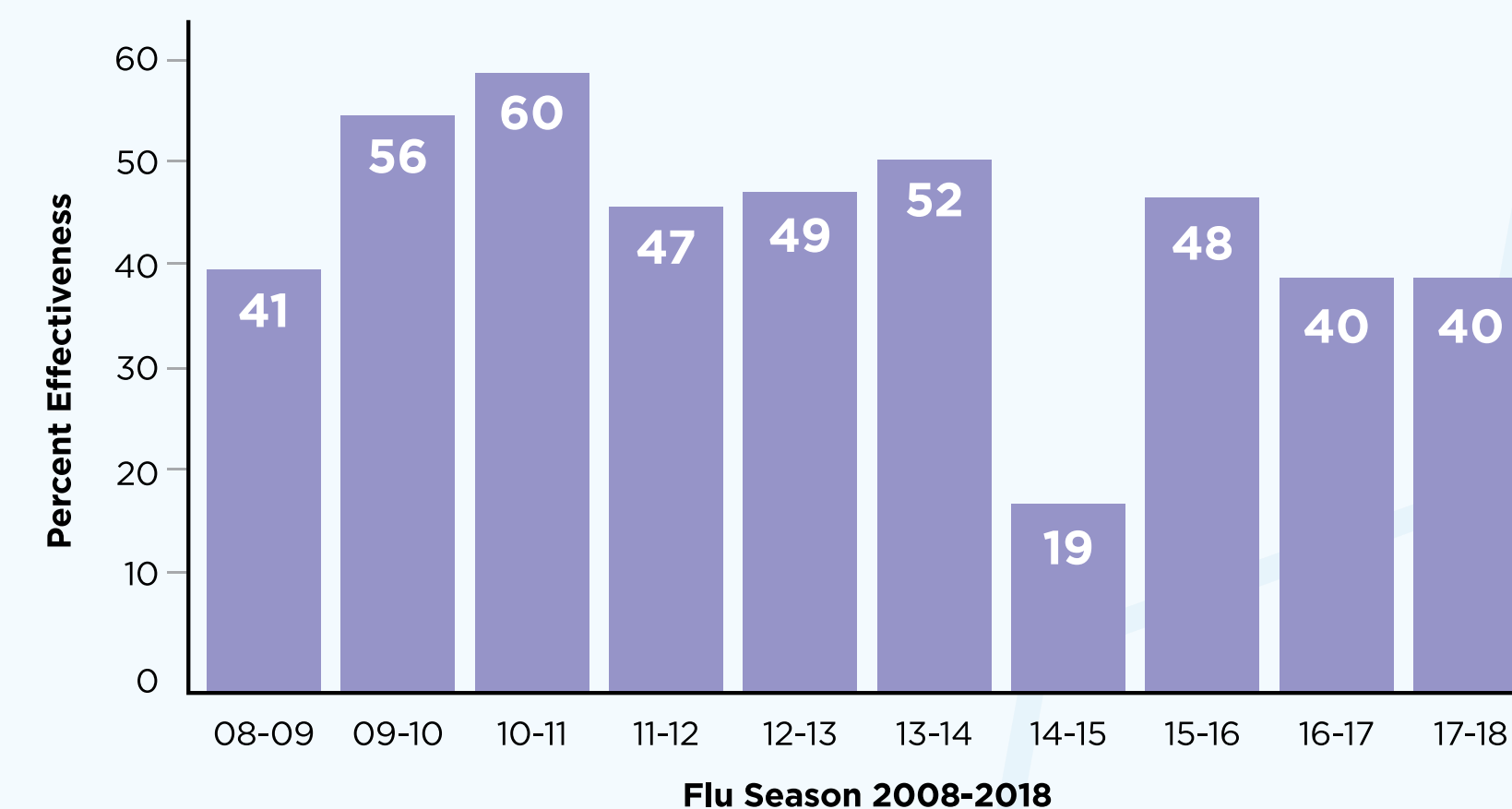
Microscopic lesions in lungs consistent with CIV H3N2 infection†



CONSIDER THIS

What is the efficacy of the human flu vaccine?²

SEASONAL HUMAN FLU VACCINE EFFECTIVENESS



See the CDC's Seasonal Flu Vaccine Effectiveness Studies. »

* In order for a dog to be considered as diseased, two or more clinical signs of respiratory disease were required to be present on two or more consecutive days post-challenge. Observed clinical signs: fever, coughing, depression, excessive nasal discharge, increased respiratory noise, dyspnea, retching and sneezing.

† Observed lesions: alveolitis, bronchitis and/or epithelial alteration of bronchi, bronchioles and trachea (19/20 dogs).

¹ Data on file, Study Report No.B961R-US-16-225, Zoetis Inc.

² CDC seasonal flu vaccine effectiveness studies. <https://www.cdc.gov/flu/vaccines-work/effectiveness-studies.htm>. Accessed September 6, 2019.



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DEMONSTRATED EFFICACY »

PROVEN SAFETY »

PROVEN SAFETY

VANGUARD CIV vaccines have been field tested for safety.

VANGUARD CIV H3N2/H3N8 FIELD STUDY¹

Study group: 364 dogs*

Two hundred located at commercial breeding facilities and 164 client-owned dogs; 116 dogs 8 weeks of age or younger, 245 dogs 9 weeks of age or older.

- No significant adverse events (AEs) attributed to vaccination were observed
- Evaluation immediately after vaccination (725 doses): vocalization[†] (1.0%), paresthesia (0.4%), injection site edema (0.1%) and lethargy (0.1%)
- The most frequently observed AEs reported through 10 days after the second vaccination were vomiting (0.83%) and diarrhea[‡] (0.83%)

¹ Data on file, Study Report No. B961R-US-16-225, Zoetis Inc.

* Three dogs were removed from the study. Reasons for removal: two cares of non-compliance with the schedule; the other had a non-related adverse health event. No dogs were removed for reasons related to the vaccine.

[†] Vocalization was only seen in the dogs who were 8 weeks of age or younger at the time of first vaccination.

[‡] Majority of the late abnormal health events reported occurred in three dogs after the first vaccination and were deemed unrelated to vaccination; one dog was hit by a car, one dog had dietary indiscretion and one dog had an unrelated medical condition.



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ADOPTING VANGUARD CIV H3N2/H3N8 IN YOUR PRACTICE

- If you're vaccinating for Bordetella, you should be vaccinating for CIV.
- The consequence of CIV disease is serious and greater than the safety risk associated with VANGUARD[®] CIV H3N2/H3N8.
- Talk with your clients about putting together a vaccination plan tailored to their dogs' lifestyle and risk factors.