



DOG FLU FACTS

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What is Canine Influenza?

- H3N8¹
 - Detected in dogs in 2004 in the US
 - Jumped from horses to dogs in the US
- H3N2^{2,3}
 - Detected in 2015 in the US
 - Originally from South Korea
 - Jumped from birds to dogs in South Korea
- H & N refer to outer surface proteins



H3N2 Identified in the USA^{3,4}

- First detected in the US in Chicago, IL in March 2015
- Second major outbreak in Atlanta, GA in May 2015
- Circulating throughout the US since

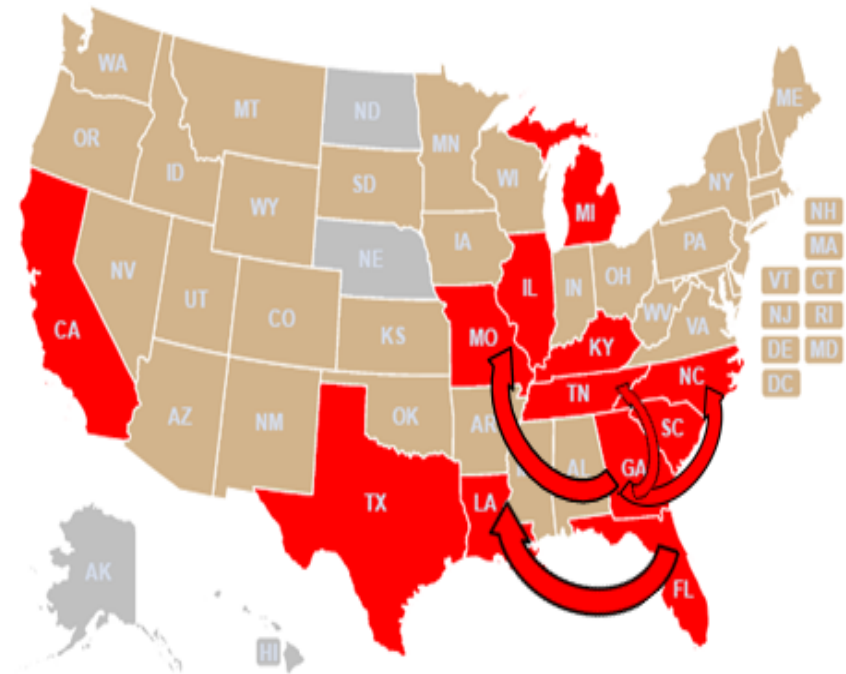


May 2017

- Dog show – Perry, Georgia
May 19th
- Dog show- Deland, Florida
May 25th

States with recently confirmed H3N2 are currently California, Florida, Georgia, Kentucky, Louisiana, Missouri, North Carolina, South Carolina, Louisiana, Tennessee, Illinois, and Texas.

CIV H3N2 Outbreak: May/June 2017



IDEXX Laboratories – May 2017; EJ Dubovi, NY State Diagnostic Lab - Personal communication

<http://www.akc.org/content/news/articles/canine-influenza-virus-notice/>

[Accessed May 31, 2017]

<https://vetmed-hospitals.sites.medinfo.ufl.edu/files/2017/05/UFCVM-Canine-Influenza-Statement-May-31.pdf> [Accessed May 31, 2017]

https://vetmed.tennessee.edu/News/Pages/current_news.aspx#news359

[Accessed June 14, 2017]



Which dogs are at risk?

- Dogs that are taken to venues where dogs interact/socialize
 - Boarding facilities
 - Doggie daycares
 - Shelters/rescues
 - Pet stores
 - Adoption groups
 - Breeding facilities
 - Groomers
 - Travel/shows/competition
 - Walking in the neighborhood/pet store



Transmission

- Aerosolization
 - Coughing, sneezing
- Direct contact
- Bowls/toys/bedding/cages
 - CIV- up to 48 hours
- Care-givers
 - CIV- 12-24 hours





Transmission/Disease^{3,5}

H3N8

- Shed for ~5 days after the onset of clinical signs
- Fewer viral particles shed
- Slower onset of disease

H3N2

- Shed for up to 24 days after the onset of clinical signs
- More viral particles shed
- Faster onset of disease



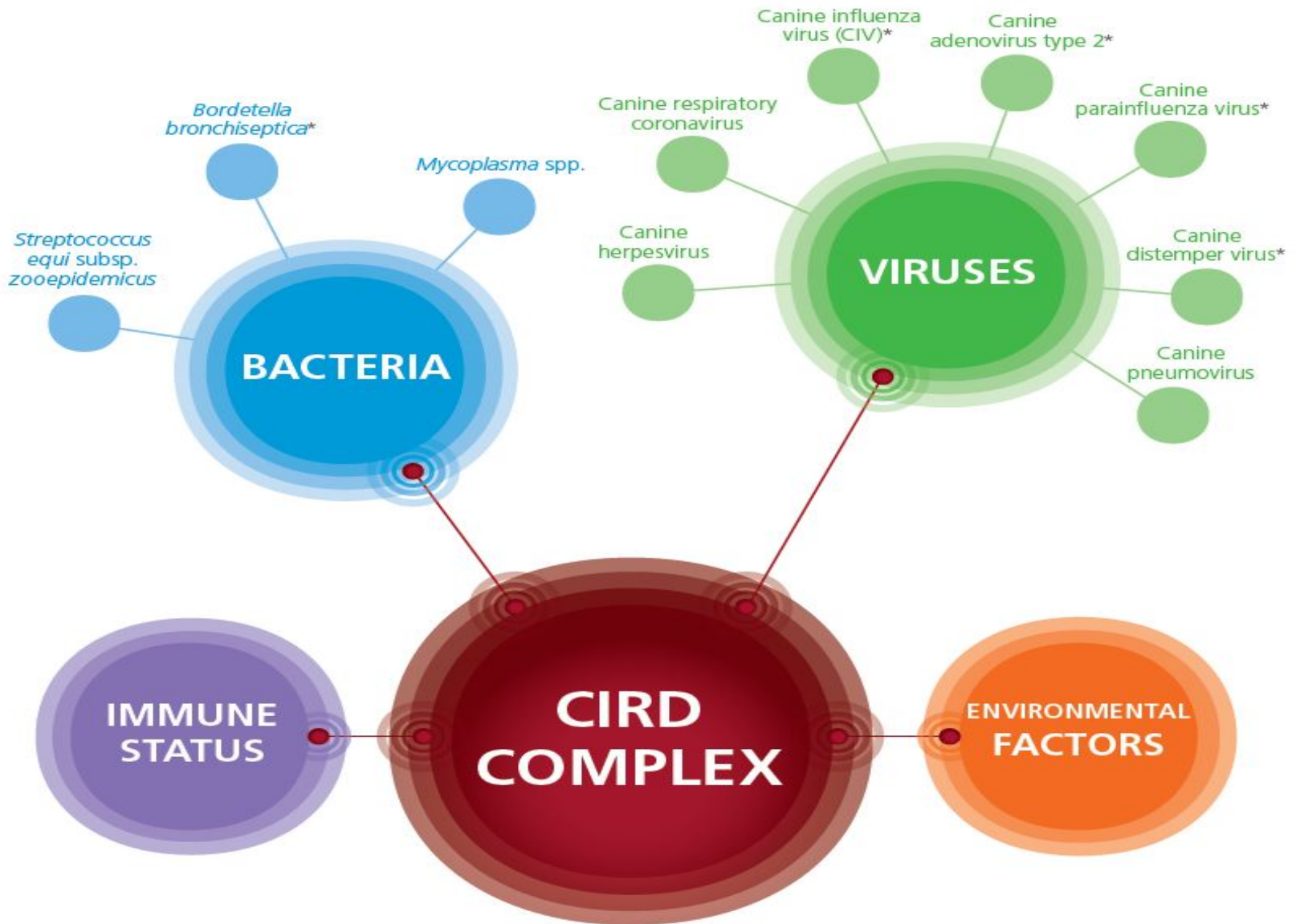
Clinical Signs⁶

- Non-specific
 - Coughing
 - Sneezing
 - Discharge from the nose and eyes
 - Fever
 - Lethargy
 - Loss of appetite
 - Pneumonia
 - Death
- Bring the dog to the vet!!





It is not just Influenza





Common Canine Pathogens⁷

Pathogen	Incubation Period	Survival in Environment	Post-infective Shedding
Bordetella	3-5 days	7-14 days	3 months
Parainfluenza, Pneumovirus, Coronavirus	3-10 days	Hours	8 days
Adenovirus-2	3-10 days	>2 months	Up to 1 year
Mycoplasma	?	<24 hours	?
Distemper	7-14 days	Hours	60-90 days
H3N8	5-7 days	12-24 hours	5 days
H3N2	3-7 days	12-24 hours	21 days



“How to”- Decontamination⁸

- Ideal
 - **Remove** organic debris
 - **Clean** (scrub) with a detergent/degreaser
 - Rinse
 - **Disinfect** by applying appropriate disinfectant
 - Scrub and let disinfectant stand for appropriate contact time
 - Rinse
 - **Dry** either by hand or squeegee





Mopping vs. Spraying

Mopping/Wiping

- Not ideal
- Advantageous where there is no drainage
- Use separate rags
- Use a two bucket system

Spraying

- Does not contaminate the disinfectant
- Faster
- Aerosolization of infectious agent and disinfectant



Disinfectant Types⁸⁻¹²

Name	Common Name	Pros	Cons	Naked Viruses?
Sodium Hypochlorite	Household Bleach	<ul style="list-style-type: none"> Inexpensive (1/2 cup per gallon water) 	<ul style="list-style-type: none"> Inactivated with organic material Irritating fumes Corrosive to metal Light sensitive 	<ul style="list-style-type: none"> Yes
Potassium Peroxy-monosulfate	Trifectant®, Virkon®	<ul style="list-style-type: none"> Some detergent activity Less inactivation with organic material Low tissue toxicity 	<ul style="list-style-type: none"> More expensive 	<ul style="list-style-type: none"> Yes
Hydrogen Peroxide	Accel®	<ul style="list-style-type: none"> Shorter contact time Some detergent activity Less inactivation with organic material Low tissue toxicity No toxic fumes 	<ul style="list-style-type: none"> Expensive 	<ul style="list-style-type: none"> Yes
Quaternary Ammonium	Roccal®, Kennelsol®, A-33®	<ul style="list-style-type: none"> Some detergent activity 	<ul style="list-style-type: none"> Inactivated by soaps 	<ul style="list-style-type: none"> No



Important Bleach Facts

- Degrades quickly





Rules about Disinfection⁸

- Ambient conditions matter (UV, temperature, humidity)
- Concentration of disinfectants
- Adequate contact time
- Use detergent
- Storage containers
- Clean, non-porous surface
- NEVER mix



Areas to be Cleaned

- Cages
- Toys, bowls, bedding, etc
- Floor outside the cage
- Floor throughout the facility
- Tools
- Waiting room
- Dog runs
- Yard
- Carriers
- Offices
- Storage areas
- Ventilation and heating ducts
- Frequently handled items (door knobs, keys, cell phones, keyboards...)



Proper Containment

- The most common spreaders are peoples' hands, shoes, and clothing



Isolation and Quarantine

- All exposed and sick dogs should be considered infected and potentially shedding
- Use physical barriers if an isolation room is not available
- Preferred separate ventilation
- Separate entrances for respiratory cases



Personal Protective Equipment (PPE)

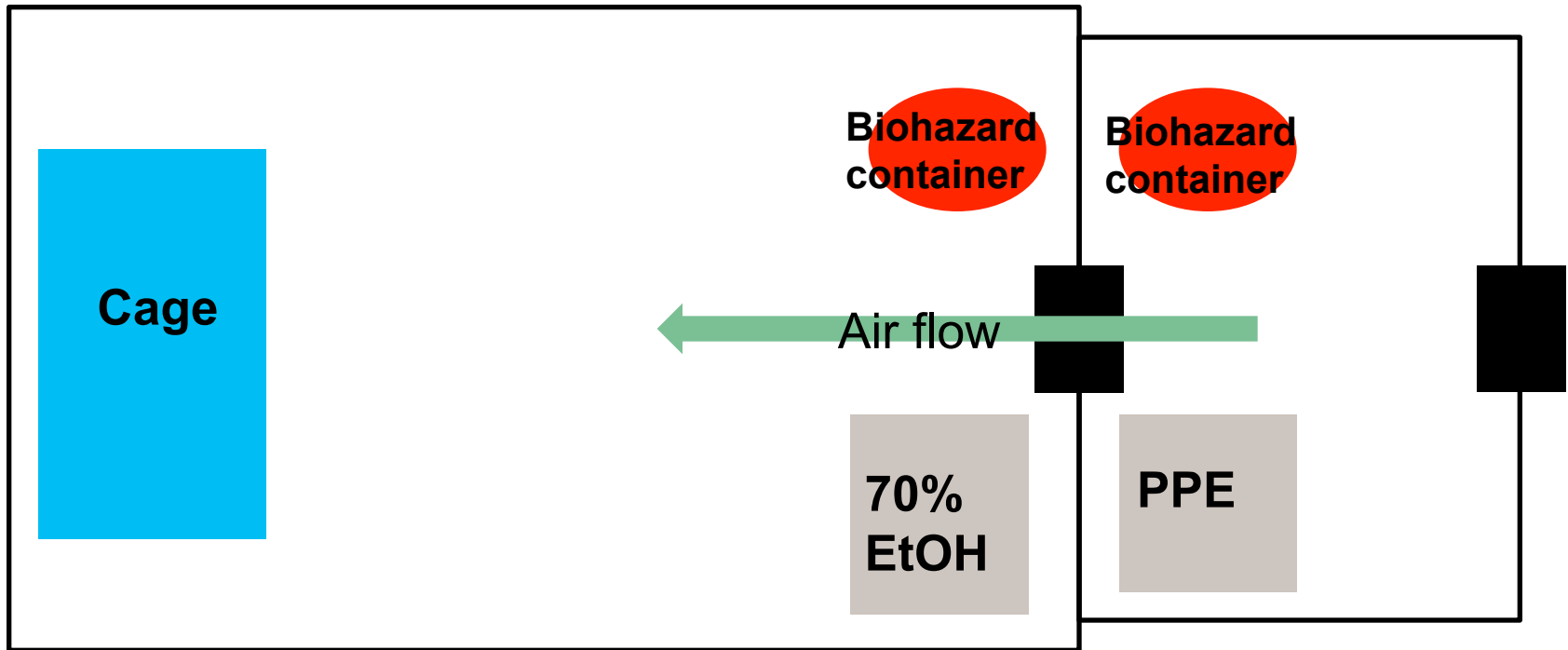
- Mask
- Gown
- Double gloves
- Booties
- +/- hairnet
- Dedicated scrubs
- Dedicated shoes





Sick Room

Clean Room





Clothing and Hand Washing^{8,13}

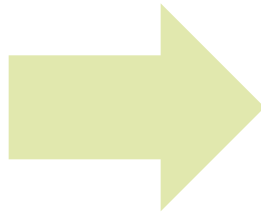
- Washing clothes
 - Use heat, bleach, and detergent (hot cycle >130°F with drying)
- Hand washing
 - Scrub at least 20 seconds and dry



Tools for Prevention of CIRDC complex: Vaccines

Vaccination is key to controlling CIRDC complex¹

Vaccination
protects



**THE DOG BEING
IMMUNIZED**
by reducing disease
signs and severity^{1,4,5}



**SURROUNDING
DOGS** by reducing
shedding and spread
of disease^{1,4,5}





The only prevention is vaccination!

- Vaccination is not a treatment option, it is preventative
- Vaccination must be performed BEFORE you see disease
 - 2 doses, 2-4 weeks apart
 - Immunity is achieved 2 weeks after the second dose



Nobivac® Canine Flu Bivalent

- 2 canine flu strains in 1.0 mL dose
 - H3N2
 - H3N8
- Inactivated virus vaccine
- For dogs 7 weeks of age or older
- 2 initial doses 2-4 weeks apart
- Annual booster with 1 dose recommended





Summary

- Two strains of influenza infect dogs (H3N2 and H3N8)
- H3N2 and/or H3N8 have been detected in 46 states
- All dogs who are exposed to other dogs are at risk
- Transmission is by direct or indirect contact
- Influenza can survive in the environment for up to 48 hours
- Clinical signs are non-specific for respiratory disease
- Practice good disinfection protocols
- Appropriate cleaning, disinfectant contact time
- Clean all areas where dog went
- Proper isolation and quarantine
- Vaccination is key for prevention



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QUESTIONS?

For questions about canine influenza, please contact:

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dog flu facts

The most important preventative measure to take against canine influenza *aka* dog flu?

Education.

Canine influenza has now been reported in over 30 states after an outbreak flared up in 2016. As media reports of dog flu continue to rise we know that pet boarding facilities, doggy daycares, petitters, pet salons, and dog walkers are increasingly concerned about what they need to know to help ensure the health and well-being of the pets in their care. The following information is offered to help break through the flu fog for pet care services providers and their client pet owners.

What is canine influenza?

Canine influenza is a highly contagious respiratory disease that is caused by canine influenza virus (CIV) Type A. There are 2 known strains in the United States:

1. CIV H3N8 - first reported in greyhounds in 2003. Since then, CIV H3N8 has spread to at least 41 states. This virus is of equine origin and can be difficult to diagnose.
2. CIV H3N2 - recently found in greyhounds in the United States. This virus is of avian origin and spread to 30 states by April 2016. This is the dog flu most of us are hearing about today. Unlike the human flu, canine influenza is not seasonal.

Can humans contract canine influenza?

No. Neither virus is infectious to humans.

Is canine influenza deadly?

Thankfully, most dogs who get the virus do not die. But it can lead to a more serious illness such as pneumonia. Puppies and senior dogs are more likely to become more seriously ill once they are infected.

What are the clinical signs of canine influenza?

Most cases of canine influenza are mild. However, up to 20% of infected dogs will have moderate to severe illness. The common clinical signs of canine influenza are:

- Coughing and retching
- Sneezing
- Nasal and/or ocular discharge
- Decreased appetite
- Lethargy

In some cases, dogs may run a fever and demonstrate signs of depression. High fever and pneumonia may be seen in more severe cases. These clinical signs can last from a few days to several weeks depending on the severity of the disease.

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