

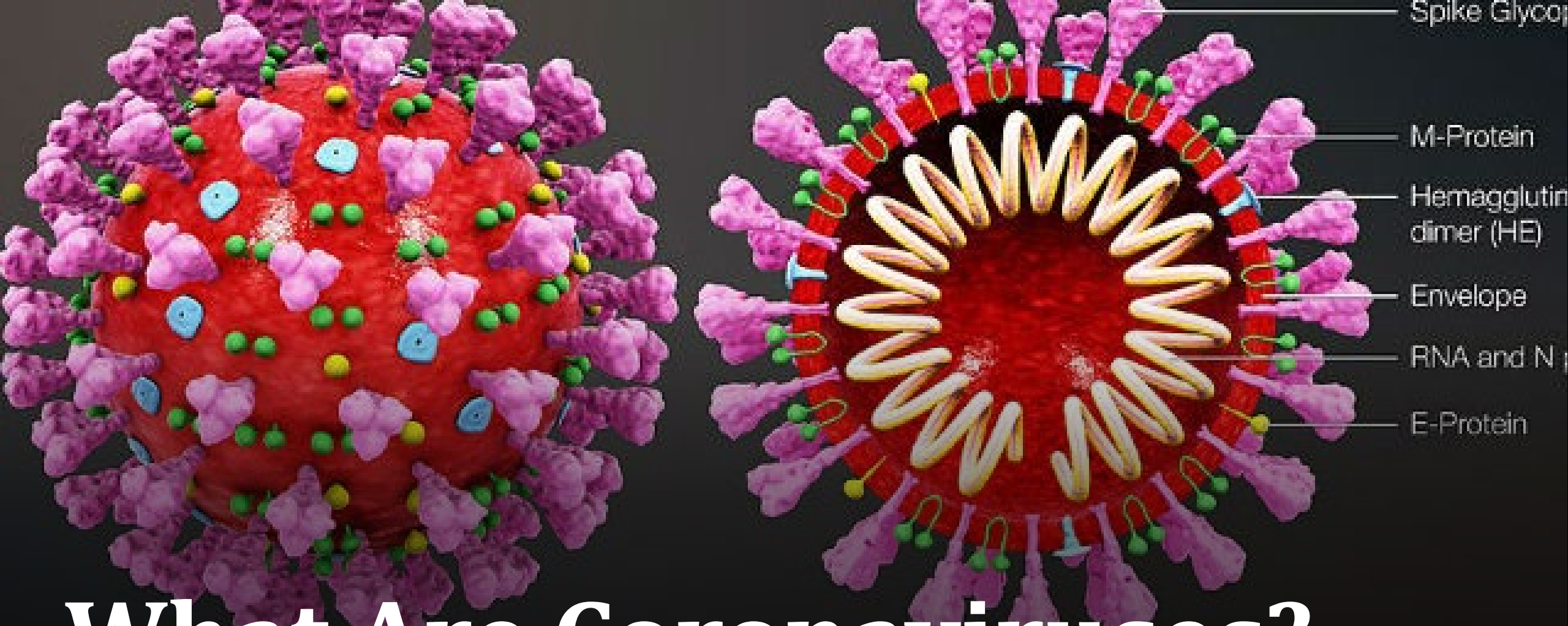
What Pet Owners Should Know About Covid-19?

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What Are Coronaviruses?

Named for the crown-like spikes on its surface



Can Coronaviruses Infect Animals?

Coronaviruses are
common in domestic
& wild mammals,
birds & amphibians



Genetic Group	Virus	Definitive Host	Disease/Infection Site		
			Respiratory	Enteric	Other
I	HCoV-229E	Human	X upper		
	TGEV	Pig	X upper	X SI	
	PRCV	Pig	X upper/lung		Viremia
	PEDV	Pig		X SI, colon	
	F1PV	Cat	X upper	X	Systemic
	FCoV	Cat		X SI	
	CCOV	Dog		X SI	
	RaCoV	Rabbit			Systemic
II	HCoV-OC43	Human	X upper		
	NUN	Mouse		X	Hepatitis, CNS, systemic
	RCoV (sialodocry-adenitis)	Rat	X		Eye, salivary glands
		Pig	X		CNS
	BEV	Cattle	X upper/lung	X SI, colon	
	BCoV				
III	IBV	Chicken	X upper	X	Kidney, oviduct
	TCoV (TECoV)	Turkey		X SI	
IV	SARS (MERS, CoV-1, CoV-2)	Human	X lung	X	Viremia, kidney



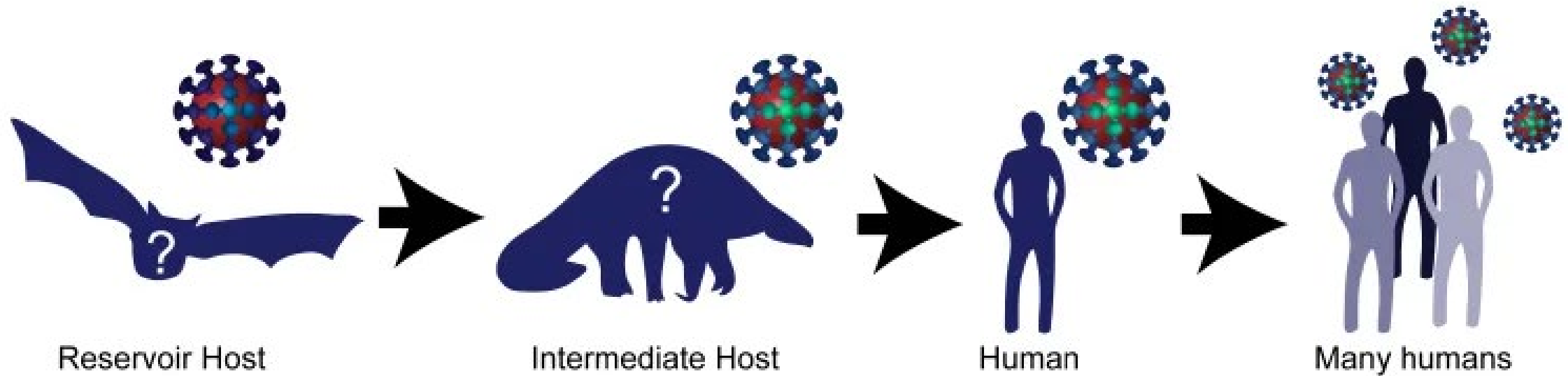
Are Coronaviruses Zoonotic ?

- Although not common, coronaviruses can be transmitted from animals to humans
- Bats can be reservoir hosts for viruses which can cross species barriers to infect humans & other domestic & wild mammals



- The last two major coronavirus outbreaks were transmitted to humans through intermediate hosts
 - Masked palm civet (SARS)
 - Dromedary camels (MERS)

Coronavirus Transmission Cycle



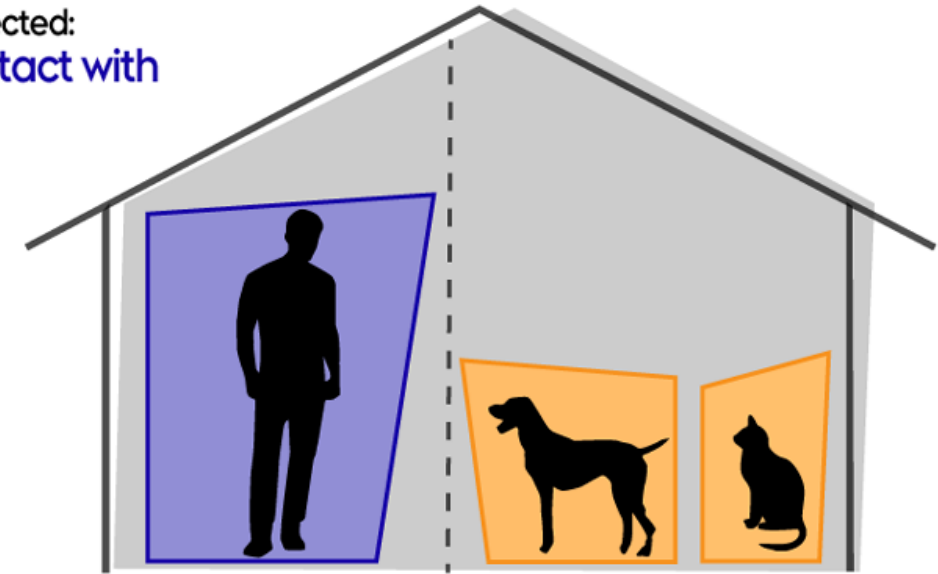
Can My Pet Contract COVID-19?

- **Yes!!!!**
 - A small number of pets worldwide have been infected after close contact with COVID-19 positive people
- Physical distancing applies to the entire household, not just the human members
 - Keep cats indoors when possible & do not let them roam freely outside
 - Walk dogs on a leash at least 6 feet away from others
- Do not let other people outside of your household handle your pets unless they need veterinary care

Tips on how to lower person-to-pet transmission of COVID-19

Physical distancing and handwashing guidelines also apply to our pets

If you're infected:
Limit contact with animals



If someone in your house is infected:
Keep your animals away from other animals and people



Physical distancing includes your pets:
Keep your pets away from other people and animals outside your household.

What If I Am Sick With COVID-19?

- Try to restrict your contact with your pets just as you would with other people during this time
 - Avoid petting, snuggling, being kissed or licked & sharing food
- If possible, have another member of your household care for your animals while you are sick
- If you must care for your pet or be around animals while you are sick, wash your hands before & after you interact with pets & wear a facemask



Detection of SARS-CoV-2 in pets living with COVID-19 owners diagnosed during the COVID-19 lockdown in Spain: A case of an asymptomatic cat with SARS-CoV-2 in Europe

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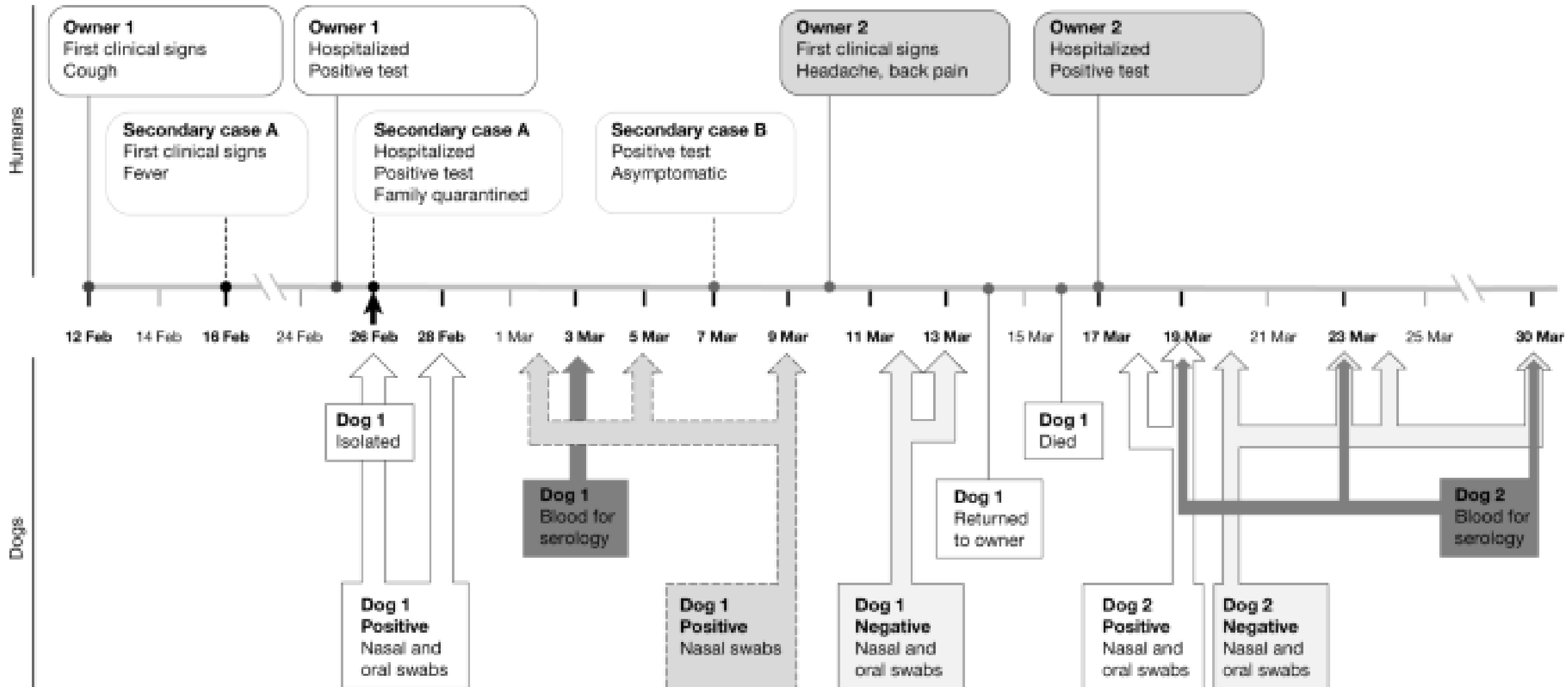
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Abstract

During April-May 2020, the presence of respiratory syndrome coronavirus 2 (SARS-CoV-2) in pets living with coronavirus disease 2019 (COVID-19) owners was analyzed. From 23 pets, a cat without clinical symptoms showed positive results for SARS-CoV-2 in oropharyngeal swab using three RT-qPCR assays (negative rectal swab). SARS-CoV-2 was not detected in the remaining pets. Our finding suggests that cats may act as asymptomatic dispersers of SARS-CoV-2, although viral transmission from animals to humans seems unlikely.

Owner-Pet Covid-19 Transmission Timeline

Sit, T.H.C., Brackman, C.J., Ip, S.M. et al. Infection of dogs with SARS-CoV-2. Nature (2020). <https://doi.org/10.1038/s41586-020-2334-5>



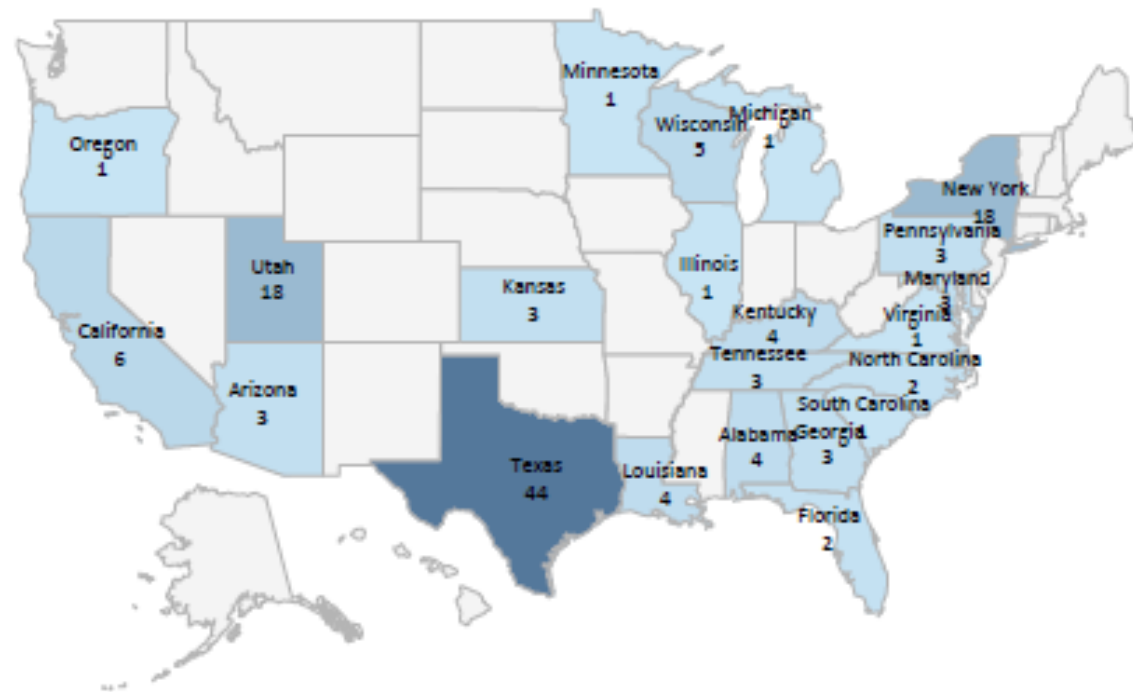


Cases of SARS-CoV-2 in Animals in the United States

	Method of Initial Diagnosis*		Grand Total
	PCR	Ab	
Tiger	7		7
Snow Leopard	3		3
Mink	16		16
Lion	3		3
Gorilla	3		3
Dog	16	25	41
Cat	29	29	58

Map

PCR: real-time reverse transcription polymerase chain reaction; Ab: virus neutralizing antibody



Last Updated: January 15, 2021

<https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/sa-one-health/sars-cov-2-animals-us>

What are Covid-19 Symptoms in Pets?

- Infected pets might get sick or they might not have any symptoms
 - Fever, coughing, difficulty breathing or shortness of breath, lethargy, sneezing, nose or eye discharge, vomiting, or diarrhea
 - Most pets who have gotten Covid-19 only had mild illness & fully recovered with supportive care





What Should I Do If I Think My Pet Has Covid-19?

- If your pet gets sick after contact with a person with Covid-19, call your veterinarian
 - Explain that your pet was exposed to a Covid-19 positive person & describe the symptoms
- Your veterinarian will examine your pet to determine the next steps in the diagnostic plan
 - Some veterinarians may offer telemedicine consultations or other plans for seeing Covid-19 suspect pets

Should My Pet Get A Covid-19 Test?



- Routine Covid-19 testing of pets is not recommended
 - Your veterinarian will rule out more common causes of illnesses first
- If Covid-19 testing is deemed appropriate, samples must be collected by a licensed veterinarian in consultation with a state public health veterinarian or state animal health official

Should My Pet Get A Covid-19 Test?

<https://ebusiness.avma.org/files/coronavirus/COVID-19-Testing-Flowchart.pdf>

Veterinary patient presents with clinical signs consistent with infection with SARS-CoV-2 (e.g., fever, lethargy, nasal/ocular discharge, sneezing, coughing, breathing difficulty, vomiting, diarrhea)

Have other causes (e.g., infectious, metabolic, tumor) for clinical signs been ruled out?

NO

Evaluate for other, more common causes of clinical signs and treat symptomatically as interim measure.

CAUSE IDENTIFIED
Do not test for SARS-CoV-2. Treat appropriately.

CAUSE NOT IDENTIFIED

YES

Are one or more of the following true?

- Close contact with a person with suspected or confirmed COVID-19
- Exposure to a known high-risk environment where a human outbreak occurred (e.g., nursing home, prison, cruise ship)
- Atypical pattern of disease in a shelter, boarding facility, animal feeding operation, zoo
- Atypical pattern of disease in recently imported animal

NO

DO NOT TEST FOR SARS-COV-2
Continue evaluation for other causes of clinical signs and treat symptomatically as interim measure.

DECISION MADE TO NOT TEST ANIMAL

YES

TESTING FOR SARS-COV-2 MAY BE WARRANTED
Contact state public health veterinarian and/or state animal health official for guidance.

DECISION MADE TO TEST ANIMAL

Follow state official's guidance for doing so.

What Is The Process For Covid-19 Testing Of Pets?

- The decision to test an animal must be authorized by the State Public Health Veterinarian or the State Veterinarian
- Once the decision is made to test, the veterinarian will be advised on how to collect samples with proper PPE (eye protection, mask, gown, and gloves in a closed room)
- All confirmed cases of Covid-19 in animals must be reported to USDA



Can My Pet Infect Me With Covid-19?

- Based on the limited information available to date, the risk of pets spreading Covid-19 to people is considered to be low
- According to the CDC, “At this time, there is no evidence that companion animals can spread Covid-19 or that they might be a source of infection in the United States.”
- There is no evidence that Covid-19 can spread to people from the skin, fur, or hair of pets
- Most importantly, there is no reason to surrender, abandon or euthanize pets that are Covid-19 positive



Don't Do This!



Can My Pet Infect Other Pets?

- Cats & ferrets are capable of direct contact transmission & air transmission to other conspecifics
- Keep cats indoors when possible & do not let them roam freely outside



Transmission of SARS-CoV-2 in Domestic Cats

August 6, 2020

N Engl J Med 2020; 383:592-594

DOI: 10.1056/NEJMc2013400

Rising evidence of COVID-19 transmission potential to and between animals: do we need to be concerned?

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Abstract: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)—the virus that causes coronavirus disease (COVID-19)—has been detected in domestic dogs and cats, raising concerns of transmission from, to, or between these animals. There is currently no indication that feline- or canine-to-human transmission can occur, though there is rising evidence of the reverse. To explore the extent of animal-related transmission, we aggregated 17 case reports on confirmed SARS-CoV-2 infections in animals as of 15 May 2020. All but two animals fully recovered and had only mild respiratory or digestive symptoms. Using data from probable cat-to-cat transmission in Wuhan, China, we estimated the basic reproduction number R_0 under this scenario at 1.09 (95% confidence interval: 1.05, 1.13). This value is much lower than the R_0 reported for humans and close to one, indicating that the sustained transmission between cats is unlikely to occur. Our results support the view that the pet owners and other persons with COVID-19 in close contact with animals should be cautious of the way they interact with them.

What Precautions Should I Take With A Covid-19 Positive Pet?

- If your pet is stable & you are able to safely provide care, it's best for your pet to remain at home
 - Separate your pet from other pets within your home & people (especially those at increased risk for Covid-19)
 - Limit interaction with the Covid-19 positive pet as much as possible, while still providing appropriate care
- The primary caretaker should be someone without conditions that would put them at increased risk of complications from Covid-19
 - Protect yourself when caring for your sick pet by wearing a face covering & gloves
 - Wash your hands before & after caring for the pet, as well as after handling food & water bowls, toys, bedding, & litter boxes &/or waste



When Can My Covid-19 Positive Pet Return To Normal Activities?

- End home isolation & additional precautions
 - When your veterinarian determines that your pet is free of Covid-19 symptoms for at least 72 hours AND it has been at least 14 days since the pet's symptoms first appeared OR it has been at least 14 days since the pet's last positive Covid-19 test
 - If the animal has been re-tested, the test results are negative AND the symptoms have resolved

What If I Am Unable To Provide Care At Home Or My Pet Is Not Improving?



Call your veterinarian



Tell them why you're concerned about your ability to provide home care or your pet's condition



Recheck examination and adjustments to the treatment plan are recommended



If providing the care for your pet at home is not possible, discuss the option of hospitalization

What Can I Do to Protect My Pets?

- There is no Covid-19 vaccine currently available for any species
 - Coronavirus vaccines for other species do not protect against Covid-19
- Protecting your pet against other respiratory diseases may reduce their chances of getting Covid-19
 - Dogs: vaccinate against kennel cough (Bordetella & parainfluenza) & canine influenza (both H3N8 & H3N2)
 - Cats: vaccinate against feline viral rhinotracheitis & calicivirus
 - Ferrets: vaccinate against canine distemper virus



What Can I Do to Protect My Pets?



Forbes

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Inside The Two Biotech Companies Working Together On A Covid-19 Vaccine For Cats

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<https://www.forbes.com/sites/giacomotognini/2021/01/06/inside-the-two-biotech-companies-working-together-on-a-covid-19-vaccine-for-cats/?sh=721e887a5b9b>

Take Home Messages

- Cats & ferrets are highly susceptible to subclinical infection, with a prolonged period of oral & nasal viral shedding that is not accompanied by clinical signs
- Cats & ferrets are capable of direct contact transmission & air transmission to other conspecifics
- Cats & ferrets develop a robust neutralizing antibody response that prevented re-infection to a second viral challenge performed in cats
- Dogs do not shed virus following infection but do mount an anti-viral neutralizing antibody response
- There is currently no evidence that cats, ferrets or dogs play a significant role in human exposure (but there is anecdotal evidence of human infection from farmed mink)
- Reverse zoonosis is possible if infected owners expose their domestic pets during acute infection

References

- <https://www.cdc.gov/coronavirus/2019-ncov/downloads/covid-19-pets-prevention.pdf?fbclid=IwAR2GZRVxCJbtl2107vWpgLDXYPns8QeaGD0grePAI9GgThabWqTMIY83mA>
- <https://www.avma.org/resources-tools/animal-health-and-welfare/covid-19>



WHAT FACE MASKS SAY ABOUT A PERSON:

RAESIDE
ARTS

Victoria Times Colonist ©Hairy Dog Productions, Inc. raesidecartoon.com



HEALTH CARE PROFESSIONAL



SEMI-PROFESSIONAL



THRIFTY



HANDY WITH NEEDLE
AND THREAD



PROBABLY A BANK
ROBBER



SHOULDN'T BE ALLOWED
OUT OF THE HOUSE