

First reported US transmission of COVID from a pet owner to pets documented

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For the first time in the U.S., the transmission of COVID-19 from pet parent to pet is documented genetically as part of a study by the Translational Genomics Research Institute (TGen), an affiliate of City of Hope.

The published findings from the [ongoing study](#) appear in the journal *One Health*. This is one of five pilot studies nationwide examining COVID in animals. The TGen study, however, is the only one to include genomic sequencing of the virus from both pet and human samples. This level of testing resulted from TGen's overall efforts to monitor the virus and its potentially more-dangerous variants by sequencing as many positive human samples of the virus as possible.

In the Arizona case study, the [pet owner](#), cat and dog all were infected with the identical strain of coronavirus: B.1.575, an early and unremarkable version of SARS-CoV-2, the virus that causes COVID. Fewer than 25 documented cases exist of Arizonans infected with this strain, according to information drawn from the COVID variant tracking dashboard that TGen maintains for the CDC and ADHS. To date, more than 46,000 positive samples of Arizonans with COVID have been sequenced.

"This case study was the first example we had from the project that demonstrated the likelihood of virus transmission from a pet owner to animals in the household," said Hayley Yaglom, a TGen Epidemiologist and lead author of the study.

Researchers deduced that the virus spread from the pet parent to either the dog or cat, or both. The animals were confined to an apartment and therefore had little-to-no opportunity to be exposed to the virus, and so it was highly unlikely that the pets infected their owner. Plus, in each case examined in the study, it was the pet parent who exhibited COVID first. Worldwide, there is no documented case of COVID transmission from a pet to its pet parent.

Researchers were unable to tell if the dog or cat were infected first, or if one infected the other, though that is a possibility. This particular dog and cat were buddies who had close contact with each other, researchers

said.

Steps owners should take to protect pets

Yaglom said pet owners should protect their pets by getting vaccinated. If they do get COVID, they should wear masks when they are around their pets. As difficult as it might be for many pet owners, they should avoid cuddling, kissing, allowing pets to lick their faces, or sleeping with them.

Owners don't have to completely isolate from their pets, Yaglom said, but they should minimize contact "as best they can" while they exhibit COVID symptoms.

In the case study, the pet parent was not yet vaccinated, took little precaution to protect his cat and dog, and entertained guests who were not vaccinated. The owner recovered from COVID, and both his pets were asymptomatic.

Including this [case study](#), Arizona researchers tested 61 pets—39 dogs and 22 cats—living in 24 households. There were 14 positive cases of COVID in pets among six of the households.

The study will continue through the rest of 2021, and would continue into 2022 if researchers obtain additional funding, which would allow them to continue education and outreach efforts, bolstering active surveillance of the virus.

"This is a great example of using genomics to gain intelligence about pathogens," said David Engelthaler, Ph.D., director of TGen's Pathogen and Microbiome Division, the branch of TGen studying infectious diseases. "This study shows that we can not only use genomics to help track COVID variants across the globe, but we can also use this

technology to track exact transmissions, and in this case transmission from pet owners to pets."

More information: Hayley D. Yaglom et al, Genomic investigation of a household SARS-CoV-2 disease cluster in Arizona involving a cat, dog, and pet owner, *One Health* (2021). [DOI: 10.1016/j.onehlt.2021.100333](https://doi.org/10.1016/j.onehlt.2021.100333)

COVID variant tracking dashboard: pathogen.tgen.org/covidseq-tracker/

Provided by The Translational Genomics Research Institute

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