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CORONAVIRUS DISEASE 2019 (260): ANIMAL, USA, WILD DEER, EXPOSURE, REQUEST FOR INFORMATION

A ProMED-mail post

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<http://www.isid.org>

Date: Wed 28 Jul 2021

Source: US Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) [edited]

<https://www.aphis.usda.gov/aphis/newsroom/stakeholder-info/stakeholder-messages/wildlife-damage-news/deer-sars>

The US Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) recently completed a study that analyzed serum samples from free-ranging white-tailed deer for antibodies to SARS-CoV-2 (the virus that causes COVID-19). Results of the study indicate that certain white-tailed deer populations in Illinois, Michigan, New York, and Pennsylvania were exposed to SARS-CoV-2.

Samples were obtained opportunistically as part of wildlife damage management activities conducted by APHIS Wildlife Services across 32 counties in the 4 states. These samples were tested at APHIS' National Wildlife Research Center and National Veterinary Services Laboratories. Antibodies to SARS-CoV-2 were detected in 33% of the 481 samples collected from January 2020 through 2021. None of the deer populations surveyed showed signs of clinical illness associated with SARS-CoV-2.

It is important to note that this surveillance was designed to determine exposure of deer to SARS-CoV-2 in their natural environment. It was not designed to determine whether the deer were replicating and shedding SARS-CoV-2.

APHIS supports a One Health approach to addressing animal diseases, including SARS-CoV-2. Widespread human infections with SARS-CoV-2 combined with human-wildlife interactions create the potential for spillover between people and animals. Studying the susceptibility of certain mammals, such as deer, to SARS-CoV-2 helps to identify species that may serve as reservoirs or hosts for the virus, as well as understand the origin of the virus, and predict its impacts on wildlife and the risks of cross-species transmission.

The finding that wild white-tailed deer have been exposed to SARS-CoV-2 is not unexpected given that white-tailed deer are susceptible to the virus, are abundant in the United States, often come into close contact with people, and that more than 114 million Americans are estimated to have been infected with COVID-19, according to the US Centers for Disease Control and Prevention (CDC).

APHIS is working closely with federal and state partners, including the Department of the Interior, the CDC, and the Association of Fish and Wildlife Agencies, to determine the next steps. Results from this surveillance effort are currently being prepared for publication in a peer-review journal.

APHIS is a multi-faceted agency with a broad mission that includes protecting and promoting US agricultural health, regulating genetically engineered organisms, administering the Animal Welfare Act, and carrying out wildlife damage management activities.

For more information, please see the Questions and Answers: Results of study on SARS-CoV-2 in white-tailed deer

<https://promedmail.org/promed-post/?id=8554149>

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[White-tailed deer (*Odocoileus virginianus*) is the cervid most widely distributed east of the Rocky Mountains. The ACE2 receptor (where SARS-CoV-2 binds to enter the cell) of white-tailed deer is very similar to that of humans. An experimental study (<https://doi.org/10.1128/JVI.00083-21>) showed that this species, after intranasal inoculation, becomes infected by SARS-CoV-2, sheds the virus, and transmits it to non-inoculated contact deer.

The above makes this surveillance effort by USDA highly relevant. It would be interesting to have more information about the serologic tests used and if they were validated for white-tailed deer. Validation provides information about the test sensitivity, specificity, and accuracy. If the tests were accurate and the true seroprevalence is around 30%, this would strongly suggest that transmission is occurring among deer, as it would be very unlikely that 30% of wild deer come in close contact with humans to acquire the infection. It is crucial that more research is conducted in this species, to prevent the virus finding in white-tailed deer a niche where it can be maintained and evolve as immunity in people builds up globally due to natural infection and vaccination. - Mod.PMB

HealthMap/ProMED map:
United States: <https://promedmail.org/promed-post?place=8554149,106>

See Also

COVID-19 update (20): animal, deer, experimental infection 20210116.8108967
2020

COVID-19 update (536): animal, USA (UT) wild mink, 1st case 20201213.8015608
.....pmb/mj/ml



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