

SARS-CoV-2 infection in cats and dogs in infected mink farms

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Abstract

Animals like mink, cats and dogs are susceptible to SARS-CoV-2 infection. In the Netherlands, 69 out of 127 mink farms were infected with SARS-CoV-2 between April and November 2020 and all mink on infected farms were culled after SARS-CoV-2 infection to prevent further spread of the virus. On some farms, (feral) cats and dogs were present. This study provides insight into the prevalence of SARS-CoV-2 positive cats and dogs in ten infected mink farms and their possible role in transmission of the virus. Throat and rectal swabs of 101 cats (12 domestic and 89 feral cats) and 13 dogs of ten farms were tested for SARS-CoV-2 using PCR. Serological assays were performed on serum samples from 62 adult cats and all 13 dogs. Whole Genome Sequencing was performed on one cat sample. Cat-to-mink transmission parameters were estimated using data from all ten farms. This study shows evidence of SARS-CoV-2 infection in twelve feral cats and two dogs. Eleven cats (19%) and two dogs (15%) tested serologically positive. Three feral cats (3%) and one dog (8%) tested PCR-positive. The sequence generated from the cat throat swab clustered with mink sequences from the same farm. The calculated rate of mink-to-cat transmission showed that cats on average had a chance of 12% (95%CI 10% to 18%) of becoming infected by mink, assuming no cat-to-cat transmission. As only feral cats were infected it is most likely that infections in cats were initiated by mink, not by humans. Whether both dogs were infected by mink or humans remains inconclusive. This study presents one of the first reports of interspecies transmission of SARS-CoV-2 that does not involve humans, namely mink-to-cat transmission, which should also be considered as a potential risk for spread of SARS-CoV-2.

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