

CORRESPONDENCE

Transmission of SARS-CoV-2 in Domestic Cats

TO THE EDITOR: Reports of human-to-feline transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)¹ and of limited airborne transmission among cats² prompted us to evaluate nasal shedding of SARS-CoV-2 from inoculated cats and the subsequent transmission of the virus by direct contact between virus-inoculated cats and cats with no previous infection

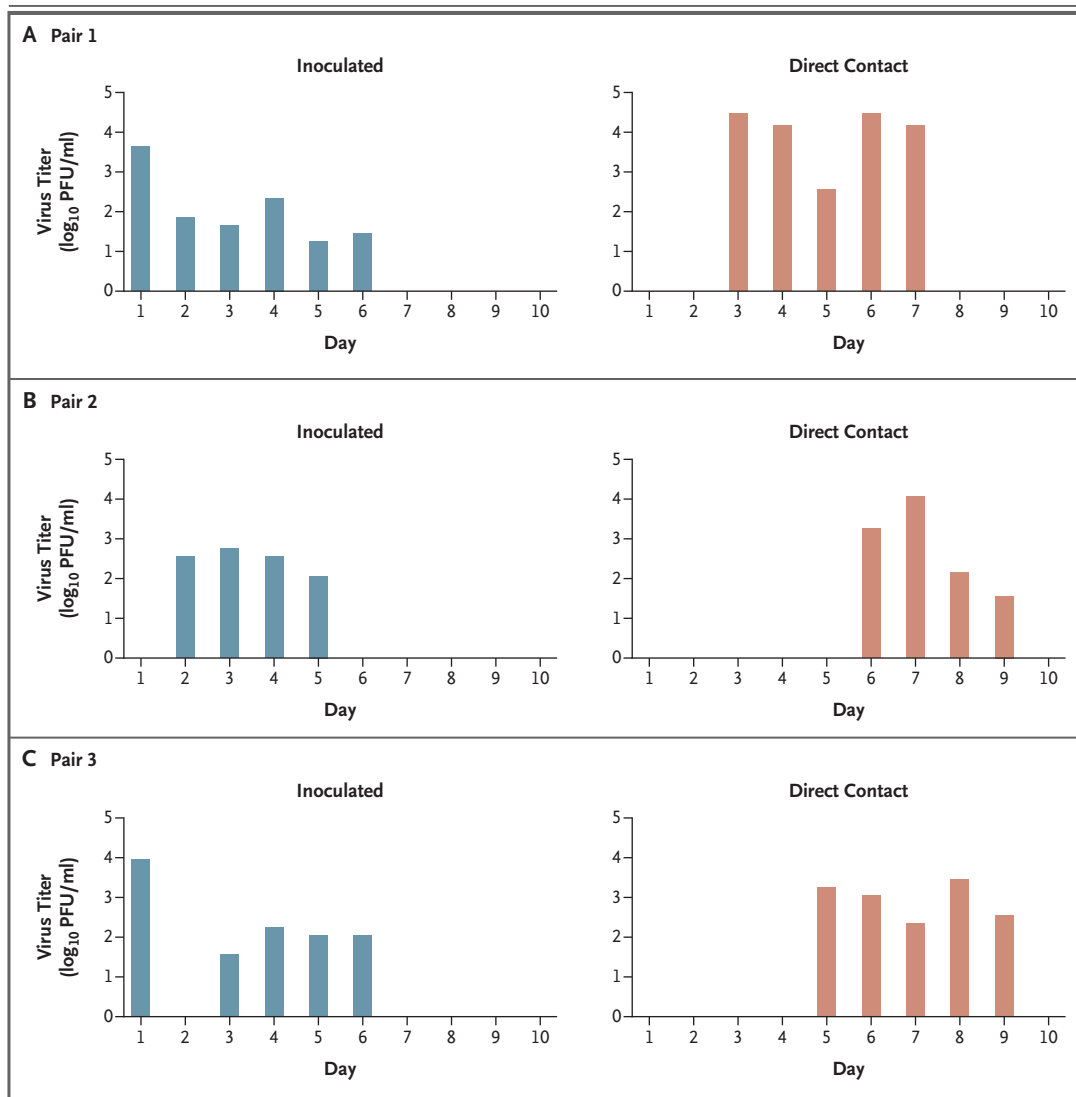


Figure 1. Virus Titers from Nasal Swab Specimens.

Three inoculated cats were infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on day 0. Three cats with no previous SARS-CoV-2 infection (direct contact) were cohoused in pairs (pairs 1, 2, and 3) with the inoculated cats on day 1. Nasal and rectal swab specimens were obtained on days 1 through 10. PFU denotes plaque-forming units.

with the virus. Three domestic cats were inoculated with SARS-CoV-2 on day 0. One day after inoculation, a cat with no previous SARS-CoV-2 infection was cohoused with each of the inoculated cats to assess whether transmission of the virus by direct contact would occur between the cats in each of the three pairs (Table S1 in the Supplementary Appendix, available with the full text of this letter at NEJM.org). Nasal and rectal swab specimens were obtained daily and immediately assessed for infectious virus on VeroE6/TMPRSS2 cells.³

On day 1, we detected virus from two of the inoculated cats. By day 3, virus was detectable in all three inoculated cats, with continued detection of virus until day 5 in all cats and until day 6 in two of the three cats (Fig. 1).

The cats with no previous infection were cohoused with the inoculated cats on day 1. Two days later (day 3), one of the cats with no previous infection had infectious virus detected in a nasal swab specimen, and 5 days later, virus was detected in all three cats that were cohoused with the inoculated cats (Fig. 1). Virus titers in the cats that were cohoused with the inoculated cats peaked at 4.5 log₁₀ plaque-forming units per milliliter, and virus shedding lasted 4 to 5 days (Fig. 1). No virus was detected in any of the rectal swabs tested. Although there have been reports of symptomatic infected cats, none of the cats in our study showed any symptoms, including abnormal body temperature, substantial weight loss (Fig. S1), or conjunctivitis. All the animals had IgG antibody titers between 1:5120 and 1:20,480 on day 24 after the initial inoculation.

With reports of transmission of SARS-CoV-2 from humans to domestic cats¹ and to tigers and lions at the Bronx Zoo,⁴ coupled with our data showing the ease of transmission between domestic cats, there is a public health need to recognize and further investigate the potential chain of human–cat–human transmission. This is of particular importance given the potential for SARS-CoV-2 transmission between family members in households with cats while living under “shelter-in-place” orders. In 2016, an H7N2 influenza outbreak in New York City cat shelters⁵ highlighted the public health implications of cat-to-human transmission to workers in animal shelters. Moreover, cats may be a silent intermediate host of SARS-CoV-2, because infected cats may not show any appreciable symptoms that might be recognized by their owners. The Centers for Disease

Control and Prevention has issued guidelines for pet owners regarding SARS-CoV-2 (www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/animals.html). Given the need to stop the coronavirus disease 2019 pandemic through various mechanisms, including breaking transmission chains, a better understanding of the role cats may play in the transmission of SARS-CoV-2 to humans is needed.

Peter J. Halfmann, Ph.D.
Masato Hatta, D.V.M., Ph.D.
Shiho Chiba, Ph.D.
Tadashi Maemura, D.V.M., Ph.D.
Shufang Fan, Ph.D.

University of Wisconsin
Madison, WI

Makoto Takeda, M.D., Ph.D.
National Institute of Infectious Diseases
Tokyo, Japan

Noriko Kinoshita, M.D.
Shin-ichiro Hattori, Ph.D.
National Center for Global Health and Medicine
Tokyo, Japan

Yuko Sakai-Tagawa, Ph.D.
Kiyoko Iwatsuki-Horimoto, D.V.M., Ph.D.
Masaki Imai, D.V.M., Ph.D.
Yoshihiro Kawaoka, D.V.M., Ph.D.
University of Tokyo
Tokyo, Japan
yoshihiro.kawaoka@wisc.edu

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Disclosure forms provided by the authors are available with the full text of this letter at NEJM.org.

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