

Coronavirus update



Emerging coronavirus strains and veterinary patients

An emerging coronavirus causing an outbreak of respiratory disease in humans has led to questions about the importance of this newly discovered virus, if any, to our veterinary patients. This guide provides summary information intended to answer some of the more frequently asked questions about coronavirus. Understanding of coronaviruses and their transmission is rapidly evolving, and for the most up-to-date information, we suggest you check the reference sources provided at the end of this update.

Coronavirus disease 2019 (COVID-19) was first detected in China with an initial outbreak in the city of Wuhan. This disease is caused by a novel coronavirus named SARS-CoV-2 and is believed to have originated from bats. Since its emergence in late 2019, COVID-19 has spread to locations around the globe.¹⁻³

The SARS-CoV-2 virus, which causes COVID-19, is a unique coronavirus that infects the human respiratory tract and is different from previously identified coronaviruses infecting humans or veterinary patients. Coronaviruses are a large family of viruses consisting of multiple subgroups of viruses that are commonly found in humans as well as other mammals, birds, and reptiles.

Alpha and beta coronaviruses (including coronaviruses such as those responsible for the common cold in humans) usually infect mammals, while gamma and delta coronaviruses usually infect birds and fish. Common coronaviruses causing respiratory or gastrointestinal disease in our veterinary patients are alpha coronaviruses. SARS-CoV-2, responsible for the recent COVID-19 respiratory outbreaks in humans, is a beta coronavirus.

Transmission of COVID-19 and pets

As of today's date, we are not aware of any reports of respiratory disease in pets caused by the SARS-CoV-2 virus. The current understanding is that COVID-19 is a human-specific disease and is not expected to result in reverse zoonotic disease (transmission from humans to animals) in pets as a result of exposure to their infected owners.¹⁻⁴

According to the U.S. Centers for Disease Control and Prevention (CDC), it is not believed that pets play a role in the transmission of the SARS-CoV-2 virus to humans or other animals,¹ nor are we aware of any reports of infection or clinical disease in pets in the United States to date.^{1,2} One dog living in a household with infected humans in Hong Kong has been reported to have tested weak positive by PCR for the SARS-CoV-2 virus. At the time of the positive test and as of today's date, the dog had no clinical signs. This dog has remained weak positive despite being quarantined outside of the household. A second dog from the same household has consistently tested negative. This appears to be the first case of nonclinical human-to-pet transmission of the SARS-CoV-2 virus.^{1-3,5} If a pet owner has been diagnosed with COVID-19, the CDC recommends limiting contact with any pets as a precautionary animal health measure until there is a better understanding of the virus.¹

At this time, experts do not recommend screening of asymptomatic pets for the SARS-CoV-2 virus.² Dogs, cats, or horses presenting with respiratory signs are unlikely to have COVID-19.¹⁻⁴ An IDEXX Comprehensive Respiratory RealPCR™ panel is recommended in these cases to evaluate for more common respiratory pathogens such as influenza.

Understanding of SARS-CoV-2 transmission and COVID-19 disease is rapidly evolving. For the most up-to-date information on the risk of SARS-CoV-2 transmission to animals, please visit the CDC COVID-19 website.

Monitoring for emergence

IDEXX Reference Laboratories has developed a real-time PCR test to detect SARS-CoV-2 based on the published genetic sequences of the virus from the human outbreak. This test is not commercially available to order at this time. IDEXX is actively monitoring for emergence of COVID-19 infection in canine, feline, and equine specimens submitted to us for respiratory RealPCR™ panels. To date, we have seen no evidence of SARS-CoV-2 virus in these clinical specimens, even in those specimens positive for canine respiratory coronavirus.

Coronaviruses in companion animals

Although SARS-CoV-2 does not seem to play a significant role in causing disease in pets, there are other coronaviruses that do. IDEXX RealPCR™ tests are available for these common coronavirus infections in dogs, cats, ferrets, and horses. These tests are specific to various veterinary coronaviruses and *do not detect SARS-CoV-2*.⁶ The coronaviruses detected by these tests are species-specific and do not infect humans.

- **Canine respiratory coronavirus** contributes to canine infectious respiratory disease complex (also known as infectious tracheobronchitis or "kennel cough"). It causes clinical signs similar to that of the common cold. The IDEXX RealPCR test for canine respiratory coronavirus is included in our Comprehensive Canine Respiratory Disease (CRD) RealPCR™ Panel.
- **Enteric coronaviruses** can cause intestinal infection leading to diarrhea, particularly in younger animals. Many infections may be asymptomatic. IDEXX RealPCR tests for canine, equine, feline, or ferret enteric coronavirus are included in our Comprehensive Diarrhea RealPCR™ panels. As noted above, these viruses are species-specific. For example, the canine enteric coronavirus does not infect felines and vice versa.
- **Feline infectious peritonitis (FIP)** is a mutated form of feline enteric coronavirus that results in severe, generally fatal, systemic inflammatory disease. IDEXX offers an FIP Virus RealPCR™ Biotype, which detects the most common mutations causing FIP.

Coronaviruses in livestock and poultry

IDEXX also offers tests for a number of coronaviruses that impact livestock and production animals. A gamma coronavirus, infectious bronchitis virus (IBV), is of significant economic importance in poultry. Alpha coronaviruses can cause mild gastrointestinal or respiratory disease in livestock, similar to the signs seen with canine and feline coronaviruses. As with the test above, these tests are specific to various veterinary coronaviruses and *do not detect SARS-CoV-2*, and the coronaviruses detected by these tests are species-specific and do not infect humans.

- **Infectious bronchitis virus (IBV)** causes rapidly spreading respiratory disease in young chicks. Reduced production and poor egg quality can be seen in infected adult hens. An IDEXX ELISA is available for IBV antibody detection.
- **Swine enteric coronaviruses** are several coronaviruses that infect swine and cause respiratory or gastrointestinal signs, including transmissible gastroenteritis virus (TGEV). Mild or asymptomatic infections may also occur. An IDEXX RealPCR™ test is available for TGEV.
- **Bovine coronaviruses** may cause diarrhea in calves. They can also cause winter dysentery, with bloody diarrhea, mild respiratory signs, and decreased production in adult cattle. An IDEXX ELISA is available for detection of coronavirus antigen in calf diarrhea

Prevention of COVID-19 infection

Recommendations for prevention of spread of COVID-19 are centered around preventing exposure. These include limiting person-to-person contact with sick individuals, limiting travel and attendance at gatherings of large numbers of people, regular hand washing, and covering mouth and nose when coughing or sneezing.^{1,2}

At this time, there are no antiviral medications proven to be effective in treating COVID-19. Likewise, there are currently no commercially available vaccines indicated for prevention of SARS-CoV-2 infection in humans or animals.

Additional resources

Visit these websites for the most updated information on the COVID-19 outbreak, as well as useful resources about prevention and control of COVID-19.

Centers for Disease Control and Prevention (CDC)

cdc.gov/covid19

American Veterinary Medical Association (AVMA)

avma.org/coronavirus

World Health Organization (WHO)

who.int/emergencies/diseases/novel-coronavirus-2019

References

1. Centers for Disease Control and Prevention. Coronavirus Disease 2019 (COVID-19) cdc.gov/COVID19. Accessed March 5, 2020.
2. World Health Organization. Coronavirus disease (COVID-19) outbreak. who.int/emergencies/diseases/novel-coronavirus-2019. Accessed March 5, 2020.
3. American Veterinary Medical Association. COVID-19: What veterinarians need to know. avma.org/coronavirus. Accessed March 5, 2020.
4. World Small Animal Veterinary Association (WSAVA). The new coronavirus and companion animals- advice for WSAVA members. wsava.org/news/highlighted-news/the-new-coronavirus-and-companion-animals-advice-for-wsava-members. Accessed March 5, 2020.
5. Low-level of infection with COVID-19 in pet dog [news release]. Hong Kong: Government of the Hong Kong Special Administrative Region; March 4, 2020. www.info.gov.hk/gia/general/202003/04/P20200304006658.htm?fontSize=1. Accessed March 5, 2020.
6. COVID-19 RealPCR Validation Studies: sequence blast analyses and cross-reactivity studies. March 2020. Data on file at IDEXX Laboratories, Inc. Westbrook, Maine USA.