

COVID-19 and Animals

FREQUENTLY ASKED QUESTIONS FOR VETERINARIANS

June 19, 2020

This document was developed by a working group consisting of Canadian public health and animal health experts, with representation from federal and provincial/territorial governments, the Canadian Veterinary Medical Association, and academia. It takes into consideration past and current research on coronaviruses and COVID-19, as well as expert opinion. The findings and conclusions represent the consensual, but not necessarily unanimous, opinions of the working group participants, and do not necessarily represent the views of the participants' respective organizations.

This information will be updated with any significant findings that might inform a change of practice.

1) Can animals become infected with SARS-CoV-2 (the virus that causes COVID-19 illness in humans) and develop illness?

Companion animals:

- The probability that companion animals in the household of a COVID-19 case will be exposed and become infected, is thought to be [low to moderate](#), depending on the species.
- At this time, there is evidence that dogs (1-4), cats (1,3,5-14), ferrets (15-17) and hamsters (18,19) have at least some level of susceptibility to infection with SARS-CoV-2.
- Cats (5,7,10,11,14), ferrets (15-17), and hamsters (18,19) have developed illness. Clinical signs are typically respiratory, although cats have also shown gastrointestinal signs.

Livestock:

- To date, there have not been any reports of livestock being infected by SARS-CoV-2 (1,17). The [Canadian Food Inspection Agency \(CFIA\)](#) is conducting research on pigs, chickens, and turkeys to determine their susceptibility to SARS-CoV-2 and the potential for transmission between animals.

Other animals:

- There is currently evidence that big cats (tigers and lions) (20,21), mink (22,23), non-human primates (24-29), and Egyptian fruit bats (17) can be infected with SARS-CoV-2.
- Tigers and lions (20,21), mink (22), and macaques (24,26-28) have been shown to develop illness.
- Wild type mice have not been shown to be susceptible to infection with SARS-CoV-2(30).

A summary of the current evidence for various animals is provided in the table below.

COVID-19 and Animals*

Species	Susceptible	Subclinical infection	Clinical signs	Seroconversion	Transmit to other animals	Transmit back to people	Evidence
Cat	yes	yes	yes	yes	yes	unknown	1,2,3
Ferret	yes	yes	yes	yes	yes	unknown	2
Hamster	yes	unknown	yes	yes	yes	unknown	2
Dog	yes, somewhat	yes	yes? ⁵	yes	no	unknown	1,2
Big cat (tiger, lion)	yes	yes	yes	unknown	yes	unknown	1
Mink	yes	yes	yes	yes?	yes	likely ⁴	1
Pig	no	n/a	n/a	n/a	n/a	n/a	2
Chicken	no	n/a	n/a	n/a	n/a	n/a	2
Duck	no	n/a	n/a	n/a	n/a	n/a	2
Bat¹	yes	yes	no	unknown	yes	unknown	2
Non-human primate²	yes	yes	yes/no	yes/unknown	unknown	unknown	2
Mouse³	no	n/a	n/a	n/a	n/a	n/a	2

***Based on limited information available as of June 19, 2020. Animal species not listed do not yet have any evidence available.**

¹Egyptian fruit bat

²Macaque, marmoset, and baboon (information may differ by species where noted)

³Wild type laboratory mice

⁴On May 19, 2020 it was [reported](#) by the Ministry of Agriculture, Nature and Food Quality, Government of the Netherlands that it was likely that one employee of a mink farm infected with SARS-CoV-2 was infected by the mink. On May 25, 2020 it was [reported](#) that another employee at a different mink farm was also likely infected by the mink.

⁵Limited evidence, may occur in rare circumstances

Evidence: 1 – Case report; 2 – Experimental finding; 3 – Observational study

2) If an animal becomes infected, what is the evidence that it can transmit the virus to other animals?

There is evidence that ferrets (15-17), cats (1,3,9), hamsters (18,19), big cats (tigers and lions) (31), and fruit bats (17) can spread the infection to other animals of the same species, under experimental conditions. Additionally, mink-to-mink transmission is suspected to have occurred on the infected mink farms in the Netherlands (22,31).

3) If an animal becomes infected, what is the evidence that it can transmit the virus to people?

There have **not** been any reports of transmission of SARS-CoV-2 from a companion animal to a person, despite a widespread international pandemic. However, it has been reported that two employees working at SARS-CoV-2-positive mink farms in the Netherlands were likely infected from the mink (22). The probability of transmission by an infected companion animal to a person is currently considered low in most cases, although this may be somewhat higher for people (such as veterinarians or veterinary technicians) who could have close contact with cats or ferrets from COVID-19 positive households. There is a high level of uncertainty regarding whether or not these animals would shed a sufficient amount of virus to result in transmission under natural conditions.

4) What is the evidence that animals can act as fomites to mechanically transmit SARS-CoV-2, after contamination by a human case, to another person?

Although there is a potential risk of exposure to SARS-CoV-2 through contact with a contaminated hair coat/fur, there is only a theoretical risk of transmission of the virus to a person through this route (32). It is considered unlikely that a sufficient amount of virus would remain on the hair coat/fur long enough to transmit infection in most cases. Practicing proper hygiene such as handwashing would further reduce any possible risk.

5) As a veterinarian or animal health professional, I am concerned about working with animals (pets/livestock) that have been exposed to people with COVID-19. Are there any extra precautions I should be taking?

This pandemic is being driven by person-to-person transmission. Therefore, the first priority within a veterinary clinic or other workplace should be to [decrease the risk](#) of transmission of COVID-19 between people (e.g. clients and staff).

Professional judgement should be utilized to assess and identify high-risk situations and determine the appropriate precautionary measures.

- Animals presenting from households with a history of recent (within the last 14 days) confirmed or suspected COVID-19 illness with no strict measures to minimize contact would be considered higher risk for being infected.
- The probability of transmission from an infected animal to a person is currently assessed as low in most cases, but this assessment has high uncertainty, given the limited information. Cats, ferrets, and hamsters in particular have been shown to be more susceptible to infection and able to transmit the virus to other animals, raising the possibility that they may be able to pass the infection back to people.

If an animal from a high-risk household requires urgent care, follow basic public health guidance for preventing zoonotic disease transmission, as well as additional precautions, if necessary:

- wear protective outerwear (e.g. lab coat, gown, coveralls) to prevent contamination of your clothes
- wear gloves (if possible) and wash your hands before and after touching a high-risk animal or their food/water/supplies, and after cleaning up after them; do not touch your face with unwashed hands
- frequently clean and disinfect any surfaces or objects the animal touches or may have contaminated with respiratory droplets or feces; see Health Canada's approved list of disinfectants [here](#)
- minimize the animal's contact with people and other animals

- if you need to be within 2 metres of the animal, especially if close contact is required (e.g. restraint, or any procedure that brings a person's face close to the animal's face or hair coat/fur), additional personal protective equipment (PPE) (e.g. mask, eye protection) should be utilized to further reduce risk, especially to protect from facial contact (eyes, nose, mouth) with the animal directly (hair coat/fur) or with respiratory droplets/aerosols

Follow any further COVID-19 related recommendations from your veterinary licencing authority or associations, or public health authority.

6) My clients heard about animals testing positive for COVID-19 (SARS-CoV-2), and are worried about their health and the health of their families. What advice should I be providing?

This pandemic is being driven by person-to-person transmission. It is considered very unlikely that the animal would be a source of infection for the household. To date, reports of animals becoming infected with SARS-CoV-2 are typically cases of human-to-animal transmission, usually from an infected owner to their pet cat or dog.

Advise your clients that if they have COVID-19 [symptoms](#) or are [self-isolating](#) due to contact with a COVID-19 case, they should follow similar recommendations around their animals, as they would around people in these circumstances:

- avoid close contact (petting, snuggling, being kissed or licked, sharing food) with their animals during their illness
 - practice good handwashing and avoid coughing and sneezing on animals
- if possible, have another member of their household care for their animals
 - if this is not possible, they should always wash their hands before and after touching their animals, their food and supplies
- restrict their animal's contact with other people and animals outside the household until their illness is resolved or they are no longer required by public health to self-isolate (approximately 14 days)
 - cats should remain indoors at all times

- dogs should be kept on a leash or within a private fenced area when taken outside for elimination activities, and kept away from other animals and people

Some additional considerations include:

- The greatest risk of infection by far is still from contact with infected people.
- Animals can be a great comfort and help make us happy during times of stress and there are many health benefits to owning a pet, particularly during periods when physical distancing or self-isolation are required.
- There is no reason at this time to think that surrendering an animal will significantly decrease a pet owner's risk.
- The probability of a person getting infected from contact with an infected companion animal is currently considered low in most cases. The probability may differ depending on the animal species, the type of contact the animal has with a person, any precautions taken and several other potential risk factors (e.g. age and health status of the person).
- Generally speaking, if a companion animal were to become infected from contact with an ill person in the household, once the person (or household) is able to come out of self-isolation (approximately 14 days), their animals can also be out in the community.

7) I have clients requesting testing for their animals for COVID-19 (SARS-CoV-2 virus). Is there a test and if so, what are the procedures for testing?

Testing of animals is generally not recommended, as the virus is primarily transmitted person-to-person and not through animal contact.

If you have a client with an animal that has signs of illness (see below) and the animal has been in contact with a suspected or confirmed COVID-19 case:

1. Confirm the epidemiologic link: verify that the pet was in close contact with a person suspected or confirmed to have COVID-19 within 14 days prior to the animal's illness.
2. Assess (over the phone) the severity of the illness. Using your professional judgement, determine if the animal can remain in the care of their owner or guardian. Discuss other possible pathogens or conditions that could be causing illness, and whether any of these differentials can be addressed via telemedicine (as per applicable local veterinary laws and guidance).

If the animal's signs are severe and they need direct veterinary care, manage the pet as a possible contagious case. Try to rule out other pathogens or conditions.

3. If you suspect SARS-CoV-2 infection in an animal and have concerns for animal or public health, follow the recommendations for testing in the [Council of Chief Veterinary Officers Position Statement: Testing of Animals for SARS-CoV-2](#) and contact the office of your provincial or territorial chief veterinarian. Some laboratories in Canada are now offering SARS-CoV-2 testing for animals. If the decision is made to test an animal, follow the [Canadian Food Inspection Agency's Interim Guidance for Laboratories Testing Animals](#).

Note: As an emerging disease, animals that test positive for SARS-CoV-2 must be reported to the World Organisation for Animal Health (OIE) through the Canadian Food Inspection Agency (CFIA). Non-negative test results must be confirmed by the National Centre for Foreign Animal Diseases, CFIA, before considered a positive result.

8) What are the clinical signs in animals infected with SARS-CoV-2?

Limited information is currently available on clinical signs of SARS-CoV-2 infection in animals. Animals known to be infected with SARS-CoV-2 have shown a range of clinical signs, but in general, appear to either not show any signs of illness or develop mild respiratory signs with or without gastrointestinal signs.

9) I followed the recommended testing procedure and have a patient that was confirmed positive. What precautions should be taken when caring for this animal and for how long?

If possible, animals that test positive for SARS-CoV-2 should be managed at home, in order to minimize contact with any new people, animals, or environments.

Instruct owners caring for SARS-CoV-2-positive animals **at home** to:

- ensure individuals at [high risk](#) for severe COVID-19 illness avoid caring for, or having contact with, SARS-CoV-2-positive animals
- confine the animal to one area in order to minimize contact with other people and animals
- avoid close contact with the animal
 - **do not:**
 - let them lick you
 - snuggle or kiss them
 - share food with them
 - let them sit on your lap
 - carry them in your arms
 - let them sleep in your bed
- practise good hygiene
 - [wash your hands often](#), especially before and after touching the animal, their food/water/supplies, and after cleaning up after them (if you wear gloves make sure to wash your hands well after removing them)
 - avoid touching your face with unwashed hands
- frequently [clean and disinfect](#) any surfaces or objects the animal touches or may have contaminated with respiratory droplets or feces; see Health Canada's approved list of disinfectants [here](#)
- restrict the animal's contact with other people and animals outside the household
 - keep cats indoors at all times
 - keep dogs on a leash or within a private fenced area when you take them outside to go to the bathroom
- if you need to be within 2 metres of the animal, follow precautions similar to those recommended for caring for a person with COVID-19:

- wear a medical mask (non-medical if medical not available)
- wear eye protection

If a SARS-CoV-2-positive animal needs to be cared for ***in a veterinary clinic***:

- Follow the recommendations for caring for an animal at home as well as general [infection prevention and control](#) recommendations for veterinary clinics
- Professional judgement should be used in determining when additional personal protective equipment (PPE) (e.g. medical mask, eye protection, gown, N95 mask) should be used, such as if close contact with the animal is required or aerosol generating procedures need to be performed
- These are similar to the recommendations for handling an animal from a high-risk household (see question 5)

In general, it is recommended to take precautions for 14 days from when the animal's clinical signs first appeared (as long as clinical signs have resolved) or the animal first tested positive (if subclinical infection).

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