COVID-19:
WHAT VETERINARIANS NEED TO KNOW

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Health officials across the U.S. and all over the world are working hard to combat COVID-19. Veterinary professionals are receiving questions from their clients and their teams, and the AVMA is pleased to be able to provide credible information and resources to assist with responses to those questions.

To ensure the resources we provide you are as accurate and up-to-date as possible in this continuously evolving environment, the AVMA is in regular contact with CDC, FDA, and USDA; other state, national, and international veterinary and public health expert groups; and intergovernmental organizations (such as the WHO and OIE) to learn the latest developments and their potential impacts on veterinarians, patients, and clients.

Here's some key information about COVID-19:

• The betacoronavirus that causes COVID-19 is SARS-CoV-2 (formerly 2019-nCoV).
• Person-to-person and community spread has been reported in numerous countries, including the United States.
• Transmission primarily occurs when there is contact with an infected person's bodily secretions, such as saliva or mucus droplets in a cough or sneeze. Transmission via touching a contaminated surface or object (i.e., a fomite) and then touching the mouth, nose, or possibly eyes is also possible, but appears to be a secondary route. Smooth (non-porous) surfaces (e.g., countertops, door knobs) transmit viruses better than porous materials (e.g., paper money, pet fur) because porous, especially fibrous, materials absorb and trap the pathogen (virus), making it harder to contract through simple touch.
• There are currently no antiviral drugs recommended or licensed by FDA to treat COVID-19, and there is no immunization available.
• Cases of COVID-19 and community spread are being reported in most states.
• The best way to avoid becoming ill is to avoid exposure to the virus. Taking typical preventive actions is key.
• Infectious disease experts and multiple international and domestic human and animal health organizations agree there is no evidence at this point to indicate that pets become ill with COVID-19 or that they spread it to other animals, including people.
• If you are not ill with COVID-19, you can interact with your pet as you normally would, including walking, feeding, and playing. You should continue to practice good hygiene during those interactions (e.g., wash hands before and after interacting with your pet; ensure your pet is kept well-groomed; regularly clean your pet’s food and water bowls, bedding material, and toys).
• Out of an abundance of caution, it is recommended that those ill with COVID-19 limit contact with animals until more information is known about the virus. Have another member of your household take care of walking, feeding, and playing with your pet. If you have a service animal or you must care for your pet, then wear a facemask; don’t share food, kiss, or hug them; and wash your hands before and after any contact with them.
• As always, careful handwashing and other infection control practices can greatly reduce the chance of spreading any disease. The National Association of State Public Health Veterinarians’ (NASPHV) compendium of standard precautions is a good reference for appropriate infection control in veterinary practices.
COVID-19 ORIGIN AND SPREAD

Coronavirus Disease 2019 (COVID-19) was first detected in China and has now spread to more than 100 locations internationally, including throughout the United States. Helpful information providing a real-time look at case counts globally is available from the John Hopkins Center for Systems Science and Engineering.

The betacoronavirus that causes COVID-19 is SARS-CoV-2. Like MERS-CoV (the cause of Middle East Respiratory Syndrome) and SARS-CoV (the cause of Severe Acute Respiratory Syndrome), SARS-CoV-2 appears to have its origin in bats. Sequenced virus obtained from US patients is similar to that found in China originally, which suggests a single, recent emergence of this virus from an animal reservoir. Patients at the initial epicenter of the outbreak in Wuhan, Hubei Province, China had a link to a large seafood and live animal market, suggesting animal-to-person spread. Person-to-person spread within Wuhan was next reported, followed by person-to-person spread outside of Hubei Province and in countries outside of China, including the United States. Popular international destinations, including the United States, now have community spread.

COVID-19 IN HUMANS

COVID-19 causes flu-like symptoms in people, including mild to severe respiratory illness with fever, cough, and difficulty breathing. Person-to-person spread has been indicated as the primary means of transmission and seems to occur when there is contact with an infected person's bodily secretions, such as saliva or mucus droplets in a cough or sneeze. Transmission via touching a contaminated surface or object (i.e., a fomite) and then touching the mouth, nose, or possibly eyes is also possible, but appears to be a secondary route. Smooth (non-porous) surfaces (e.g., countertops, door knobs) transmit viruses better than porous materials (e.g., paper money, pet fur) because porous, especially fibrous, materials absorb and trap the pathogen (virus), making it harder to contract through simple touch.

Time between infection and appearance of symptoms in people is not yet known with confidence, but initial estimates are approximately five to seven days. The COVID-19 quarantine period for people is 14 days.

Cases of COVID-19 and instances of community spread are being reported across the United States. People living in or traveling from places where ongoing community spread of SARS-CoV-2 is taking place appear to be at higher risk of exposure, with relative risk dependent on the location. Healthcare workers caring for patients with COVID-19 also have greater risk, as do close contacts of people with COVID-19.

There are currently no antiviral drugs recommended or licensed by FDA to treat COVID-19, and there is no immunization available.

Awareness and prevention are important to reducing the spread of COVID-19:

• Avoid people who are sick.
• Call your physician if you experience a fever and respiratory issues.
• If you are ill, stay at home except to get medical care and call ahead before visiting your doctor. Minimize your contact with other people, including separating yourself from other members of your household who are not ill.
• Cover your mouth and nose when you cough or sneeze.
• Avoid touching your face, especially your eyes, nose, and mouth.
• Wash your hands often. Use soap and water, and wash for at least 20 seconds. If soap and water are not available, use hand sanitizer that contains at least 60% alcohol.
• Practice social distancing
  o CDC recommends keeping a distance of six to 10 feet from other people.
  o Avoid gathering in public places, including attending or hosting large social gatherings. Postpone the latter, if at all possible. To reduce exposure, emergency orders on maximum sizes of gatherings have been issued and need to be followed.
If considering a small gathering of friends that does not exceed issued limits, be careful that no one is showing symptoms of disease and/or is a close contact of someone who has. Virtual gatherings should be seriously considered as an alternative.

Shop for necessities at off-hours when there are likely to be fewer people in the store.

As difficult as it may be, refrain from visiting people who are in assisted living and nursing facilities; they are among the most vulnerable population. Many facilities have already severely limited or disallowed visitors.

Consider virtual visits with friends and the elderly.

- Regularly clean and disinfect objects and surfaces in your home and workplace. A list of products determined by the EPA to be effective for combatting viral pathogens is available from the American Chemistry Council Center for Biocide Chemistries (CBC).
- Those living in households with a person ill with COVID-19 should closely monitor their health and call their healthcare provider right away if they develop symptoms suggestive of COVID-19.
- The use of facemasks is not recommended for healthy members of the general public as a means of protection from COVID-19. Facemasks should be used by people with symptoms of COVID-19 to avoid spreading the disease to others and facemasks are also important for healthcare workers and people who are taking care of someone at home or in a healthcare facility.

Guidance is available from the CDC to help your household get ready for COVID-19

**SARS-COV-2 AND DOMESTIC ANIMALS, INCLUDING PETS**

Dog in Hong Kong: On Thursday, February 27, Hong Kong's Agriculture, Fisheries, and Conservation Department (AFCD) reported that samples obtained on February 26 from the nasal and oral cavities of a pet dog (a 17-year-old Pomeranian whose owner had been diagnosed with COVID-19) had tested “weak positive” for SARS-CoV-2, using a real time reverse transcriptase polymerase chain reaction (RT PCR) test. A fecal sample was negative. The RT PCR test is sensitive, specific, and does not cross-react with other coronaviruses of dogs or cats. A “weak positive” result suggests a small quantity of SARS-CoV-2 RNA was present in the samples, but does not distinguish between RNA detected from intact virus and fragments of RNA. PCR testing was repeated on February 28, March 2, 3, 5, and 10 with continued “weak positive” results. In addition, gene sequencing of the SARS-CoV-2 virus from the dog and its close human contacts was completed on March 12 and the viral sequences were very similar. A virus isolation test conducted on March 12 was negative. Experts from the School of Public Health of the University of Hong Kong and the College of Veterinary Medicine and Life Sciences of the City University of Hong Kong believe the consistency and persistence of the results suggest the virus may have spread from the infected people to the dog in this particular case.

Testing was conducted by the laboratories of the AFCD and the School of Public Health of the University of Hong Kong. The latter is an accredited reference laboratory for the WHO for the testing of SARS-COV-2. This pet dog was one of two pet dogs under quarantine. The second pet dog had negative results of tests for the virus. Neither dog showed any signs of being ill with COVID-19. Unfortunately, the dog that tested positive passed away on March 16. The dog was 17 years old and had ongoing health issues that were likely responsible for the death of this dog, rather than COVID-19. We are told the second pet dog has been released from quarantine. On March 19, the AFCD reported that a third dog, a German Shepherd Dog living with an owner testing positive for COVID-19, had also tested positive. Another mixed-breed dog from the same residence tested negative. Neither dog has shown signs of disease. Both dogs are in quarantine and are continuing to be monitored and tested.

Testing of companion animals: To date, there have not been any reports of pets or other animals becoming ill, and there is no evidence that domestic animals, including pets, can spread SARS-CoV-2. Because the situation is ever-evolving, public and animal health officials may decide to test certain animals out of an abundance of caution. The decision to test will be made collaboratively between local, state, and federal animal and public health officials.

After the decision is made to test, state animal health officials will designate a state-appointed veterinarian, USDA-accredited veterinarian, or foreign animal disease diagnostician to collect the sample using appropriate personal protective equipment (PPE) and sample collection methods.

Again, current expert understanding is that COVID-19 is primarily transmitted person-to-person. This supports a recommendation against testing of pets for SARS-CoV-2, except by official order. If dogs or cats present with respiratory signs, veterinarians should test for more common respiratory pathogens.
Pets in homes with owners with COVID-19: Although there have not been reports of pets becoming sick with COVID-19, out of an abundance of caution, it is recommended that those ill with COVID-19 limit contact with animals until more information is known about the virus. If you are ill with COVID-19 have another member of your household take care of walking, feeding, and playing with your pet. If you have a service animal or you must care for your pet, then wear a facemask; don't share food, kiss, or hug them; and wash your hands before and after any contact with your pet or service animal. You should not share dishes, drinking glasses, cups, eating utensils, towels, or bedding with other people or pets in your home. Additional guidance on managing pets in homes where people are sick with COVID-19 is available from the CDC.

Keeping pets safe: For responsible pet owners, preparing in advance is key. Make sure you have an emergency kit prepared, with at least two weeks’ worth of your pet’s food and any needed medications. Usually we think about emergency kits like this in terms of what might be needed for an evacuation, but it’s also good to have one prepared in the case of quarantine or self-isolation when you cannot leave your home.

While we are recommending these as good practices, it is important to remember that, to date, there have not been any reports of pets or other animals becoming ill with SARS-CoV-2, and there is currently no evidence that pets can spread COVID-19 to other animals, including people.

**KEEPING VETERINARY TEAMS HEALTHY**

Stay informed about the local COVID-19 situation and know where to turn for reliable, up-to-date information in your local community. Monitor the [CDC’s COVID-19 website](https://www.cdc.gov/coronavirus/2019-ncov/) and your state and local health department websites. The International Association of Emergency Managers’ [Novel Coronavirus Hotspot Illness Radar](https://www.emanet.org) may also provide helpful information.

Coordination with state and local health officials is strongly encouraged for all businesses so that timely and accurate information can guide appropriate responses in each location where their operations reside. Since the intensity of an outbreak may differ according to geographic location, local health officials will be issuing guidance specific to their communities.

Because there is currently no vaccine available to prevent COVID-19, the best way to avoid becoming ill is to avoid exposure to the virus. Taking typical [preventive actions](https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/ residency.html) is key: team members should avoid close contact (defined as being within approximately 6 feet [2 meters] of an individual ill with COVID-19) with other people who are ill; avoid touching their eyes, nose, and mouth; cover their coughs or sneezes with a tissue, then throw the tissue in the trash; wash their hands often with soap and water for at least 20 seconds, especially after blowing their nose, coughing, or sneezing, going to the bathroom, and before eating (if soap and water are not readily available, use an alcohol-based hand sanitizer with at least 60% alcohol); and stay at home when they are sick.

Surfaces in the veterinary clinic/hospital that are touched frequently, such as workstations, keyboards, doorknobs, countertops, and stethoscopes, should be cleaned often and wiped down by employees with disposable wipes between cleanings. Provide no-touch disposal receptacles. Place hand sanitizers in multiple locations, including in exam rooms, offices, and conference rooms to encourage hand hygiene.

Veterinary healthcare team members who have symptoms of acute respiratory illness should stay at home and should not return to work until they are free of fever (fever is defined as a temperature of 100.4F or higher, using an oral thermometer), signs of a fever, and any other symptoms for at least 24 hours without the use of fever-reducing or other symptom-altering medicine (e.g., cough suppressants). Communicate about COVID-19 with your team. Flexible sick leave policies are important and team members should be made aware of these policies. Team members who appear to have symptoms of acute respiratory illness upon arrival at work or who become sick during the day should be separated from other team members and sent home immediately.

If a team member is confirmed to have COVID-19, the veterinary practice owner should inform other team members of their possible exposure to COVID-19, but maintain confidentiality as required by law. Team members who are exposed to another employee with confirmed COVID-19 should contact their physician or local health department to determine how best to proceed. It is possible that public health officials may ask that the veterinary practice be temporarily closed for personnel isolation and disinfection.
CARING FOR VETERINARY PATIENTS AND INTERACTIONS WITH CLIENTS

Consultation with state and local health officials is strongly encouraged so that timely and accurate information can guide appropriate responses in each location where their operations reside. Since the intensity of an outbreak may differ according to geographic location, local health officials will be issuing guidance specific to their communities.

If you are in an area with active COVID-19 cases, and depending on practice type and your ability to maintain appropriate distance (six to 10 feet per CDC) from other people accordingly, considering limiting in-person patient care to acutely ill animals and/or emergencies. Veterinary practices should be aware that limits on statewide gatherings (e.g., 10 people) could apply to activity in their clinics. In most cases these will not apply to employees in the clinic, but they may apply to clients in waiting rooms. Local authorities should be consulted for clarification.

Consider rescheduling elective procedures and all nonessential appointments so as to limit staff and public exposure. Questions regarding vaccinations for rabies should be addressed with local authorities. Typically, this will be the local animal control agency, but in some cases may be the local health department. In some states there has been coordination on protocols between state departments of agriculture, public health, and veterinary medical boards. Animals that are sick or injured should receive veterinary attention. Be strategic in the use of personal protective equipment (PPE), including masks, gowns, and gloves (see links to conservation strategies below under “Potential supply chain impacts”). Actively seek to utilize telemedicine and emergency teletriage. Guidance is available on the AVMA website at avma.org/Telemedicine. Conducting pre-visit triage can help protect you and your staff as you prioritize and determine which patients need to be seen at the clinic. It can also help you manage personnel resources.

If an animal owner is ill with COVID-19, and a veterinarian-client-patient relationship (VCPR) exists, telemedicine can be used to help assess the animal's condition and needs. Note that, in the midst of this emergency, some states—not all—have applied regulatory discretion to temporarily not require an in-person examination to establish a VCPR. Please check with your state veterinary board to ensure you are familiar with the situation in your particular state. Please also note that requirements for the federal VCPR for extralabel use, issuing Veterinary Feed Directives (VFD), and the creation and use of certain biologics, remain in place. If the animal must be seen in-person, because of these requirements or because the case presentation is not appropriate for the use of telemedicine, the ill owner should have a healthy family member or friend bring their sick animal to a veterinary hospital or clinic.

Consider meeting clients with ill animals at their cars, rather than having them bring those animals into your waiting room. When meeting clients, as a precaution, veterinary team members should maintain appropriate distance as possible and wear appropriate PPE. Consider the use of telephone to gather information on history and clinical signs and to conduct follow-up consultations. This should reduce risk for both veterinary team members and clients, as human-to-human contact is still believed to be the primary mode of transmission.

Mobile and house call veterinarians can consider examining animals in their vehicle, outside, or seek the assistance of a local clinic. If a mobile or house call veterinarian must examine an animal in a home where someone is ill with COVID-19 and no other options are available, they should consult with local public health officials for guidance. Appropriate PPE should be considered in all cases, and mobile and house call veterinarians should ensure they have access to handwashing and disinfection materials.

AVMA has produced a flow chart that may assist in managing cases. The National Association of State and Public Health Veterinarians’ Compendium of Veterinary Standards Precautions for Zoonotic Disease Prevention in Veterinary Personnel outlines general infection control and prevention guidelines.
USE TELEMEDICINE TO HELP CARE FOR VETERINARY PATIENTS

With intensifying concern around COVID-19, use of telemedicine has become an important way to protect and monitor the health of veterinary patients and veterinary teams. Using telemedicine can help prevent the spread of COVID-19, because it allows veterinary patients to be appropriately triaged and monitored with only those veterinary patients that really need to be seen making the trip to the clinic along with their owners. Certain things are required for the use of telemedicine: an already established veterinarian-client-patient relationship (associated requirements at both the state and federal levels) and an appropriate patient presentation. AVMA has resources to support your use of telemedicine at avma.org/Telemedicine. Please note that guidance around telemedicine may be different in different states, particularly as states adjust to respond to the COVID-19 crisis. In the midst of this emergency, some states—not all—have applied regulatory discretion to temporarily not require an in-person examination to establish a VCPR. But please also note that requirements for the federal VCPR for extralabel use, issuing Veterinary Feed Directives (VFD), and the creation and use of certain biologics, remain in place. Please consult your board of veterinary medicine for your state for the most current information.

POTENTIAL SUPPLY CHAIN IMPACTS

The COVID-19 outbreak has raised concern about potential medical supply issues, including both pharmaceuticals and medical products such as personal protective equipment (PPE, e.g., gloves, masks, gowns), surgical drapes, and—more recently—ventilators.

No current shortages are reported by any of the 32 animal drug companies that make finished drugs or source active pharmaceutical ingredients in China for the U.S. market, according to the U.S. Food and Drug Administration (FDA). However, six of the firms have indicated that they see supply chain disruptions that soon could lead to shortages.

The FDA is working with these firms to identify interventions to mitigate potential shortages; this has also been done for human medical products. The agency is sharing information on its website about the availability of drugs and medical supplies.

Limits on filling orders or shortages of some medical supplies (e.g., masks, gloves) have been reported to AVMA by some members. And, on March 4, the governor of Ohio asked all healthcare professionals, including veterinarians, to delay elective procedures to conserve PPE and medical supplies. Others may follow suit. FDA has shared surgical mask and gown conservation strategies. While FDA’s recommendations are primarily directed toward human healthcare providers, some of these strategies might be considered in veterinary practice (e.g., extended use of masks; reusable, rather than disposable, gowns) and AVMA has compiled related guidance.

The AVMA is in close communication with the FDA and is supporting FDA’s efforts to gather information about shortages of drugs (including both animal and human drugs used in veterinary medicine), food/feed additives, and other products needed by veterinarians from independent practices, practice groups, and veterinary distributors.

Veterinary professionals and distributors should email the AVMA at coronavirus@avma.org to report any supply chain issues of concern. Include detailed information about the product of concern and its manufacturer/distributor, if possible.

Also, regarding ventilators and PPE, federal, state, and local officials and our human medical colleagues have begun reaching out requesting donations. Our veterinary medical teaching hospitals, in collaboration with the Association of American Veterinary Medical Colleges have already stepped up. On campuses where there are both veterinary teaching hospitals and human medical teaching hospitals, our veterinary teaching hospital staff are reaching out to see how they can collaborate with their human medical colleagues to help fill gaps in equipment, sharing available PPE, needles, syringes, and medication, as well as sharing ventilators and repurposing anesthetic machines that might be used as ventilators. In addition, veterinary teaching hospitals (large and small animal) have oxygen supplies and can be converted into facilities for human healthcare if needed. In addition, the American College of Veterinary Emergency and Critical Care is spearheading collection of information regarding ventilator availability from veterinary emergency and critical care facilities around the country.
AVMA is working hard to ensure that veterinary medicine is classified as an essential business. With various jurisdictions limiting provision of goods and services to those that are “essential,” AVMA has been advocating strongly on behalf of veterinary practices to be considered “essential” so that we can continue to provide critical services in our communities. The National Association of Veterinary Technicians in America (NAVTA) has been actively supporting this as well. This is important in cases where non-essential retail facilities are asked to close or repurpose personal protective equipment (PPE) due to COVID-19. Veterinary teams provide essential care for ill and injured animals, play a critical role in protecting the health of animals that enter the food supply, and serve as trusted members of the local community in disaster situations. On March 19, the US Department of Homeland Security issued Guidance on the Essential Critical Infrastructure Workforce. Animal health and veterinary services are included. While this is not a federal mandate, it is a recommendation to state and local jurisdictions.

AVMA is also advocating diligently with Congress on behalf of the profession to address the needs of veterinarians related to COVID-19, whether as owners or employees of veterinary practices. On March 19, the President signed into law the Families First Coronavirus Response Act, which includes provisions to support individuals in light of the COVID-19 outbreak and also includes new paid leave requirements for employers, with tax credits intended to mitigate impacts of the expanded leave. Throughout the deliberations, AVMA advocated for a workable solution that would support individuals in need of paid time off without overly burdening small businesses and risking their financial liability. Further legislative measures are expected as Congress responds to the ripple effects and financial impacts of the outbreak.

In addition, the IRS has issued guidance allowing all individuals and other non-corporate tax filers to defer up to $1 million of federal income tax (including self-employment tax) payments due on April 15, 2020 until July 15, 2020 without penalties or interest. The guidance also allows corporate taxpayers a similar deferral of up to $10 million of federal income tax payments that would be due on April 15, 2020 until July 15, 2020 without penalties or interest. This guidance does not change the April 15, 2020 filing deadline.

With respect to practice operations, coordination with state and local health officials is strongly encouraged for all businesses so that timely and accurate information can guide appropriate responses in each location where their operations reside. Since the intensity of an outbreak may differ according to geographic location, local health officials will be issuing guidance specific to their communities.

Other resources include:

- The coronavirus response business toolkit: The U.S. Chamber of Commerce put together a toolkit to help businesses and citizens alike understand how to navigate the coronavirus. There are guidelines on how small business owners can ensure they are keeping their customers and employees safe. The toolkit also includes a business preparedness checklist. This checklist can help you figure out what to prioritize and create a plan of communication for your employees.

- Disaster assistance loans from the SBA: The Small Business Association (SBA) announced it would offer disaster assistance loans for up to $2 million for small businesses affected by the coronavirus. These low-interest loans are available to businesses that have sustained “substantial economic injury” due to the spread of the coronavirus. These loans can be used to pay off outstanding debts, payroll and any other bills they are unable to pay. While small businesses that have access to credit are not eligible, those small businesses with no available credit qualify for an interest rate of 3.75%, and nonprofits will have an interest rate of 2.75%.

- Disaster Help Desk for small businesses: The U.S. Chamber Foundation has a disaster help desk that acts as an information concierge to assist small businesses with disaster readiness, relief, and long-term recovery. They also have a business resiliency toolbox with resources to help guide companies to address preparedness issues while building in flexibility to handle potential business interruptions.
ADDITIONAL AVMA RESOURCES

Coronaviruses in domestic species
Coronavirus: Detailed taxonomy
Frequently asked questions for veterinarians
Frequently asked questions for pet owners

OTHER RESOURCES

Find more information about COVID-19 and its impacts by visiting the CDC, World Health Organization (WHO), and World Organisation for Animal Health (OIE) websites. The following pages may be of particular interest.

From the CDC:
• Symptoms of COVID-19
• How it spreads
• Prevention and treatment
• Frequently asked questions
• Situation-specific guidance documents:
  o Guidance intended to help household members plan for community transmission of coronavirus disease 2019 (COVID-19) in the United States.
  o Recommendations to reduce survival of SARC-CoV-2 in the environment include cleaning and disinfection of households where persons under investigation or those confirmed with COVID-19 reside or may be in self-isolation.
  o Interim guidance for public health professionals managing at-home care and isolation of people with COVID-19 who have pets or other animals (including service or working animals) in the same home. States may have their own specific requirements for these circumstances.
  o Interim guidance for businesses and employers.

From the WHO:
• Rolling updates
• Situation reports
• Questions and answers
• Update archive

From the OIE:
• Questions and answers

From the FDA:
• Frequently asked questions

From the USDA:
• General information

From others:
• U.S. State Department travel information
• Person-to-person transmission study
• National Association of State Public Health Veterinarians: Compendium of Veterinary Standards Precautions for Zoonotic Disease Prevention in Veterinary Personnel
• Coronavirus response business toolkit
• Small Business Association disaster assistance loans for small businesses impacted by COVID-19
• Disaster help desk for small businesses