



Questions and Answers on COVID-19

(last updated: 31 January 2022)

- **What causes COVID-19?**

COVID-19 is the disease caused by a coronavirus (CoV) named SARS-CoV-2. They are called coronaviruses because of their characteristic ‘corona’ (crown) of spike proteins which surround their lipid envelope. Coronavirus infections are common in both animals and humans, and some strains of coronaviruses are zoonotic, meaning they can be transmitted between animals and humans.

In humans, coronaviruses can cause illness ranging from the common cold to more severe diseases such as [Middle East Respiratory Syndrome](#) (caused by MERS-CoV), and Severe Acute Respiratory Syndrome (caused by SARS-CoV). Detailed investigations have demonstrated that MERS-CoV was transmitted from dromedary camels to humans and SARS-CoV from civets to humans.

In 2019, a new coronavirus was identified as the causative agent of human cases of pneumonia by Chinese Authorities. Rapid international spread of human cases led to COVID-19 being declared a pandemic by the World Health Organization (WHO). Investigations have not yet identified the origin of the virus. For up-to-date information on the human health situation consult the [WHO website](#).

- **Are animals responsible for COVID-19 cases in people?**

The current pandemic is being sustained through human-to-human transmission of SARS-CoV-2. Current evidence suggests that SARS-CoV-2 emerged from an animal source. Genetic sequence data reveals that the closest known relatives of SARS-CoV-2 are coronaviruses circulating in *Rhinolophus* bat (Horseshoe Bat) populations. However, to date, there is not enough scientific evidence to identify the source of SARS-CoV-2 or to explain the original route of transmission to humans, which may have involved an intermediate host.

Animal infections with SARS-CoV-2 have been reported in a range of species by a number of countries. Evidence suggests that these infections have been introduced following contact with infected humans see XXX for further information.

There is little evidence that animals have infected humans, with the exception of isolated incidents on mink farms where farm workers were in close contact with infected mink.

- **Can animals be infected with SARS-CoV-2?**

Yes, a broad range of mammalian species have demonstrated susceptibility to the virus through experimental infection, and in natural settings when in contact with infected humans. There is also evidence that infected animals can transmit the virus to other animals in natural settings through contact, such as mink to mink transmission, mink to cat transmission, and transmission among populations of white-tailed deer including vertical transmission to their offspring.

Infection of animals with SARS-CoV-2 has implications for animal and human health, animal welfare, wildlife conservation, and biomedical research. However, not all species appear to be susceptible to SARS-CoV-2. To date, findings from experimental infection studies show that poultry, swine and cattle are resistant to infection and do not shed the virus.

It is possible that we may see changes in the susceptibility of different animal species to SARS-CoV-2 infection and disease as the virus continues to evolve and new variants emerge.

Up to date information on the susceptibility of different animal species can be found [here](#).

- **What are the implications of animal infections with SARS-CoV-2?**

Although a broad range of animal species have been infected with SARS-CoV-2 with varying clinical manifestations, these infections are not the driver of the current COVID-19 pandemic, which is human-to-human transmission.

There is no evidence that SARS-CoV-2 infections in animals has a significant impact on human health, animal health, or biodiversity. However, it is sensible to continue to monitor the potential impacts of SARS-CoV-2 at the human-animal-environment interface.

There are concerns about the establishment of SARS-CoV-2 reservoirs in wild or domestic animals, which could pose risks to animal and public health. Although mink and white-tailed deer have been infected at the population level there is no evidence that an animal reservoir has been established. Further studies will be required to assess the possibility for establishment of an animal reservoir and to assess implications for human and animal health.

There is also a possibility for the virus to evolve through animal infections, leading to the emergence of new variants which may behave differently from existing strains.

By monitoring animals for SARS-CoV-2 infections and working closely with other sectors (e.g., the public health sector, wildlife sector, environmental sector) it will be possible to assess implications of animal infections for human and animal health.

More information about the SARS-CoV-2 events in animals reported by countries to the OIE can be found [here](#).

- **What do we know about COVID-19 and mink?**

Farmed mink are highly susceptible to SARS-CoV-2 infection and, in some cases, they have transmitted the virus back to humans. Surveillance findings in Denmark and the Netherlands show that SARS-CoV-2 introduced into mink populations continues to evolve through viral mutation. Viral mutation also happens in human infections, but new mutations may be seen as the virus adapts to a new species. Scientific investigations have confirmed that SARS-CoV-2 infection has been reintroduced from mink to humans.

The OIE acknowledges that such events could have important public health implications. There are concerns that the introduction and circulation of new virus strains in humans could result in modifications of transmissibility or virulence and in decreased treatment and vaccine efficacy. Yet, the full consequences remain unknown, and further investigation is needed to fully

understand the impact of these mutations. Read more in the [OIE Statement on COVID-19 and mink](#).

- **What precautionary measures should be taken when humans suspected or confirmed to be infected with SARS-CoV-2 are in contact with animals?**

As a general good practice, appropriate and effective biosecurity measures should always be applied when people have contact with groups of animals, e.g. on farms, at zoos, in animal shelters, and when handling wildlife.

People who are suspected or confirmed to be infected with the COVID-19 virus should avoid close direct contact with animals, including farm, zoo or other captive animals, and wildlife.

Companion animals

There is no evidence that companion animals are playing an epidemiological role in the spread of human infections of SARS-CoV-2. However, as animals and people can both be affected by this virus, it is recommended that people who are suspected or confirmed to be infected with COVID-19 virus avoid close contact with their companion animals and have another member of their household care for them. If they must look after their companion animals, they should maintain good hygiene practices and wear a face mask, if possible. Animals belonging to owners infected with COVID-19 virus should be kept indoors in line with similar lockdown recommendations for humans applicable in the country or area. There is no justification in taking measures which may compromise the welfare of companion animals.

As a general good practice, basic hygiene measures should always be implemented when handling and caring for animals. This includes hand washing before and after being around or handling animals, their food, or supplies, as well as avoiding kissing, being licked by animals, or sharing food.

Farmed animals

Handling farmed animals susceptible to infection with SARS-CoV-2 can carry additional risks when large numbers of animals are kept in close contact. Risk management strategies depend on the species and the circumstances under which the animals live and are cared for. Refer to the specific [OIE guidance](#) for further recommendations.

Wildlife

A wide range of mammalian species may be susceptible to SARS-CoV-2 infection. The OIE has developed [guidelines](#) for people engaged in wildlife work in the field to minimize the risk of SARS-CoV-2 transmission.

Recent scientific research has shown a high prevalence of SARS-CoV-2 infection within white-tailed deer populations in North America. This was the first time that the virus has been detected at population levels in wildlife. This discovery requires further research to determine if white-tailed deer could become a reservoir of SARS-CoV-2 and to assess other animal or public health implications. While there is currently no evidence of transmission of SARS-CoV-2 from white

tailed-deer to humans, there appears to have been multiple introductions of the virus into white-tailed deer populations by humans. People should avoid leaving any human waste or objects in forested areas that may be ingested or touched by wild animals.

- **What precautionary measures should be taken when visiting markets selling live animals, raw meat and/or animal products?**

Although there is uncertainty about the origin of SARS-CoV-2, in line with WHO recommendations, general hygiene measures should be applied when visiting markets selling live animals, raw meat and/or animal products. These measures include regular hand washing with soap and potable water after touching animals and animal products, as well as avoiding touching eyes, nose or mouth. Precautions should be taken to avoid contact with sick animals, spoiled animal products, other animals present in the market (e.g., stray cats and dogs, rodents, birds, bats) and animal waste or fluids on the soil or surfaces of market facilities. Standard recommendations issued by WHO to prevent spread of the infection amongst humans include regular hand washing, covering mouth and nose with the elbow when coughing and sneezing and avoiding close contact with any person showing symptoms of respiratory illness such as coughing and sneezing. Further recommendations from WHO can be consulted [here](#).

As per general good food hygiene practices, raw meat, milk, or animal products should be handled with care, in particular to avoid potential cross-contamination from uncooked foods to foods which are ready to eat. Meat and meat products, and milk and milk products from healthy livestock that are prepared and served in accordance with good hygiene and food safety principles remain safe to eat.

The Codex Alimentarius Commission has adopted several practical guidelines on how to apply and implement best practices to ensure food safety, which can be consulted on the [Codex website](#).

- **What can national Veterinary Services do?**

Veterinary Services should work closely with Public Health authorities and those responsible for wildlife using a One Health approach to share information and cooperate in the response to COVID-19. Close collaboration between animal and public health authorities is imperative to better identify and reduce the impact of this disease.

Close collaboration between several sectors including animal health, public health, wildlife authorities, environment, and academia will be required to better understand the short, mid, and long term implications of SARS-CoV-2 at the human-animal-environment interface.

In some countries, Veterinary Services have supported core functions of the public health response, such as screening and testing of surveillance and diagnostic samples from humans. OIE Guidance on Veterinary Laboratory Support to the Public Health Response for COVID-19 is available [here](#). Veterinary clinics in some countries have also supported the public health response by donating essential materials such as personal protective equipment and ventilators.

Veterinary Services should be considered as [essential services](#). National authorities can advocate for this within COVID-19 response plans and operations, to ensure a continuum in the activities related to animal health, animal welfare and veterinary public health, under appropriate protocols.

- **What can Veterinary Services do to protect susceptible animals, such as mink and white-tailed deer?**

Veterinary Services should protect animal health and welfare, and consequently public health, by implementing effective risk management measures to prevent the transmission of SARS-CoV-2 between humans and susceptible animals.

Monitoring susceptible animals, such as mink, racoon dogs and white-tailed deer as well as humans in close contact with them, for SARS-CoV-2 infection is important. Active monitoring is recommended as it is difficult to detect early infections in these animals. More information can be found in the [OIE Statement on monitoring white-tailed deer for SARS-CoV-2](#).

When a person infected with COVID-19 virus reports being in contact with animals, a joint risk assessment should be conducted by Veterinary and Public Health Services. If a decision is made to test animals as a result of this risk assessment, it is recommended to use RT-PCR to test oral, nasal and/or fecal/rectal samples. The risk assessment may also recommend to carry out a full genome sequencing of the virus isolated from animals. Measures should be taken to avoid contamination of specimens from the environment or by humans.

Animals that have tested positive for SARS-CoV-2 should be kept away from unexposed susceptible animals. For further recommendations, refer to the OIE guidelines for people working with susceptible farmed animals, as well as with wild mammals in the era of the COVID-19 pandemic.

- **What are the Veterinary Services international responsibilities in the event of positive animal cases?**

The infection of animals with SARS-CoV-2 meets the OIE criteria of an [emerging disease](#). Consequently, any [case of] infection of animals with SARS-CoV-2 should be reported through the World Animal Health Information System ([WAHIS](#)) in accordance with the OIE *Terrestrial Animal Health Code*.

Countries are also encouraged to share genetic sequences of SARS-CoV-2 viruses isolated from animals and other research findings with the global health community.

- **Are there any recommendations related to international movement of live animals or animal products?**

Based on currently available information, and with the support of expert advisory groups, the OIE does not recommend the implementation of any COVID-19 related sanitary measure to the international movement of live animals or animal products without a justifying risk analysis. Evidence-based risk management principles should be applied to international movement of live animals and products from species susceptible to infection with SARS-CoV-2. Evaluation and implementation of risk management for safe trade should follow the OIE international Standards, notably for [risk analysis](#), [disease prevention and control](#), [trade measures](#), [import/export procedures and veterinary certification](#)). Precautions for packaging materials are not indicated

over and above the application of sound principles of environmental sanitation, personal hygiene, and established food hygiene practices.

The report of the OIE ad hoc Group on COVID-19 and Safe Trade in Animals and Animal Products can be consulted [here](#), and the OIE Considerations on the application of sanitary measures for international trade related to COVID-19 can be found [here](#).

- **What is the OIE doing?**

The OIE is in contact with its regional and sub regional offices, OIE Delegates of Member Countries, the [OIE Wildlife Working Group](#), as well as [FAO](#) and WHO, to gather and share the latest available information. The OIE is closely liaising with its network of experts involved in current investigations on the source of the disease. Rumours and unofficial information are also monitored daily.

The OIE has mobilized several expert groups (*'ad hoc groups'*) to provide scientific advice on research priorities, on-going research, and other implications of COVID-19 for animal health and veterinary public health, including risk assessment, management, and communication. Several guidance documents developed by the OIE and its network of experts are available [here](#).

Given the similarities between COVID-19 and the emergence of other zoonotic diseases at the human-animal interface, the OIE is working with its Wildlife Working Group and other partners to develop a longer term work programme which aims to better understand the dynamics and risks around wildlife trade and consumption, with a view to developing strategies to reduce the risk of future disease spillover events.

The OIE is also reviewing lessons learned from COVID-19 to fortify its institutional resilience to international crises. To this end, the OIE has undertaken two after action reviews and has initiated a work stream aimed at building institutional resilience to all threats (irrespective of the cause).