

29th Conference of the OIE Regional Commission for Europe

9 to 10 November 2020, 8:30 AM, Paris
via Zoom

INFECTION WITH SARS-COV-2 IN ANIMALS

MEETING OF THE OIE REGIONAL COMMISSION FOR EUROPE

9–10 NOVEMBER 2020

Dr Mariana Marrana

Preparedness and Resilience Department

OIE HQ

CONTENTS

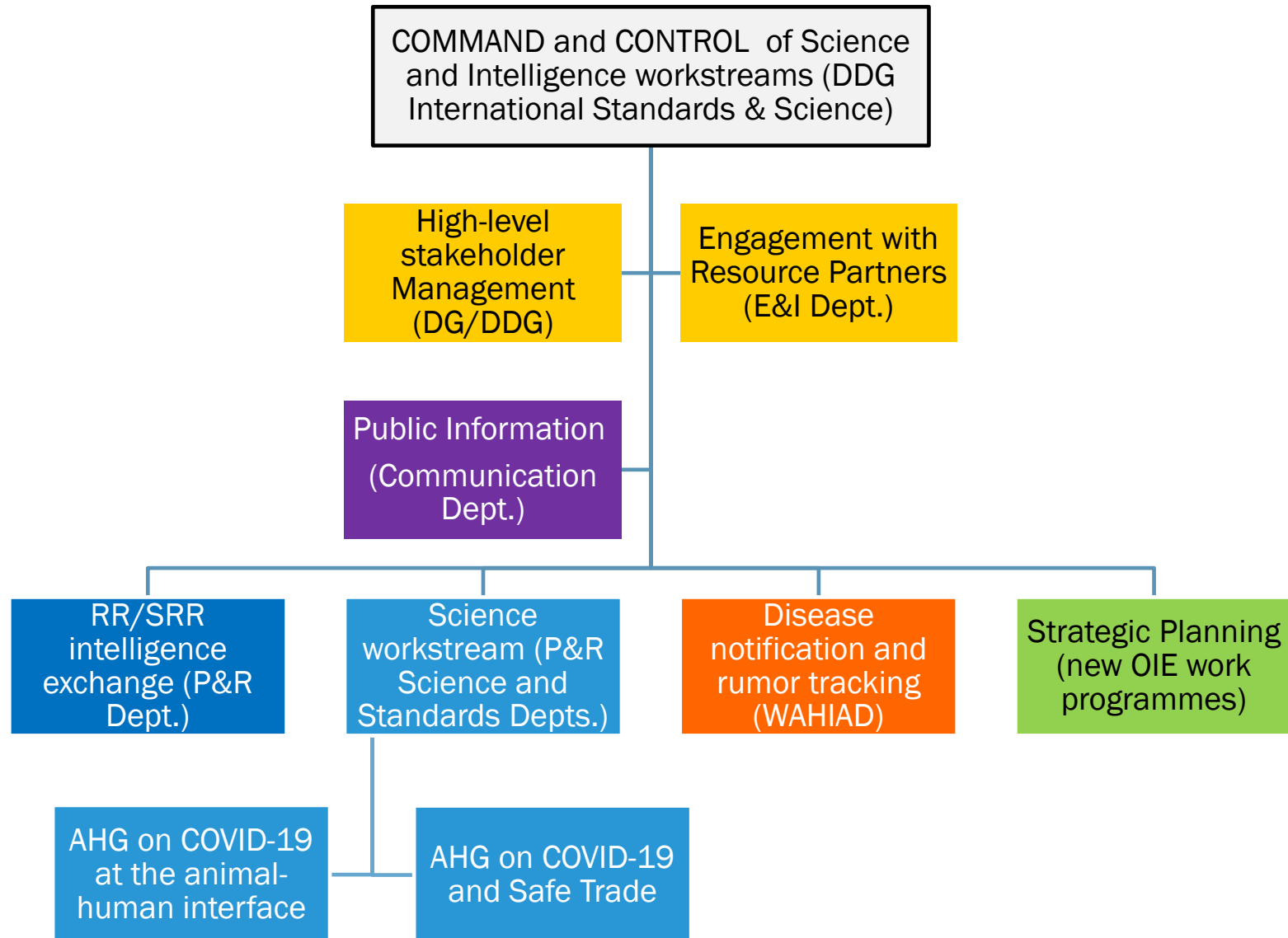
- The response of the OIE to the COVID-19 emergency
- Guidance issued by OIE Groups of Experts
- Latest epidemiological observations and research done about SARS-COV-2 in animals



THE RESPONSE OF THE OIE TO THE COVID-19 EMERGENCY



OIE COVID-19 INCIDENT MANAGEMENT APPROACH



TIMELINE: COVID-19 RESPONSE AT THE OIE

January to March	IHR Emergency Committee (OIE as advisor) OIE AHG for COVID-19 at the human-animal interface met for the first time (“informal advisory group”) Contribution to WHO R&D roadmap Q&A first published Guidance on Veterinary Laboratory Support to the Public Health Response for COVID-19
April to June	OIE AHG on COVID-19 and Safe Trade in Animals and Animal Products met for the first time Statement of the OIE Wildlife Working Group Considerations for sampling, testing, and reporting of SARS-CoV-2 in animals Considerations on the application of sanitary measures for international trade related to COVID-19 OIE Technical Factsheet on SARS-CoV-2 infection in animals Survey Member Countries – emerging disease/wildlife Special edition of OIE Bulletin
July to November	OIE Policy Paper: Prepare for, Prevent & Build Resilience against Health Crises After Action Review of OIE’s response Guidelines for Working with Free-Ranging Wild Mammals in the Era of the COVID-19 Pandemic Global Webinar ‘Wildlife Health: Challenges and actions for the OIE – new workstream presented <i>Guidelines to work with farmed animals of species susceptible to infection with SARS-CoV-2</i>



AFTER-ACTION REVIEW

- COVID-19 and the associated sanitary restrictions significantly impacted the ways of working of the OIE.
- The OIE Director General commissioned an interim AAR to learn from the success and challenges in the response of the OIE (technically and institutionally) to COVID-19.
- Interview of Members, stakeholders and staff.
- Outputs will be used improve the OIE's institutional preparedness and resilience to events which may impact business continuity in the future.



GUIDANCE ISSUED BY OIE GROUPS OF EXPERTS



FOR THE GENERAL PUBLIC AND OIE NETWORK

- Questions and Answers on COVID-19
- OIE Technical Factsheet on Infection with SARS-CoV-2 in Animals
- Statement of the OIE Wildlife Working Group
- Videos and social media posts
- OIE News

Go to: [Questions and Answers on COVID-19](#)

INFECTION WITH SARS-COV-2 IN ANIMALS

[Aetiology](#) - [Epidemiology](#) - [Diagnosis](#) - [Prevention and Control](#) - [References](#)

Last updated in June 2020

Statement of the OIE Wildlife Working Group, April 2020

Wildlife Trade and Emerging Zoonotic Diseases

disease COVID-19 and was first animal source and then spilled-over in isolated from *Rhinolophus* bats, transmission has not been established.

in transmission. Animal infections species have proven to be susceptible infection. Important livestock species through experimental studies. Further by SARS-CoV-2.

biological significance for animal epidemiological investigations, and a role in SARS-CoV-2 infection of

over, consistent with the reporting International Animal Health Code relating to World Animal Health Information

observations and research data

forementioned risks. Thus, there is a need to support legal, sustainable and responsible wildlife use by providing sound guidance, standards, and risk assessment and risk management tools.

OIE NEWS

An OIE Twinning project with Canada improved its capacities and expertise, making it possible for Accra Veterinary Laboratory in Ghana to test more than 3,000 human samples of COVID-19 as of April 25, 2020.



FOR GOVERNMENTS AND VETERINARY SERVICES

- Guidance on Veterinary Laboratory Support to the Public Health Response for COVID-19
- Considerations on the application of sanitary measures for international trade related to COVID-19
- Considerations for sampling, testing, and reporting of SARS-CoV-2 in animals
- Guidelines for working with free-ranging wild mammals in the era of the COVID-19 pandemic
- Guidelines to work with farmed animals of species susceptible to infection with SARS-CoV-2 (draft)

Go to: [Expert Groups and Guidance](#)

Update: 26 May 2020

OIE CONSIDERATIONS ON THE APPLICATION OF SANITARY MEASURES FOR INTERNATIONAL TRADE RELATED TO COVID-19 | 26 May 2020

CONTEXT

In December 2019, human cases of pneumonia of unknown origin were reported in Wuhan City, Hubei Province of China (People's Rep. of). A new Coronavirus (SARS-CoV-2) was identified as the causative agent by Chinese Authorities. Since then, human cases have been reported by most countries around the world and the Coronavirus Disease 2019 (COVID-19) event was declared by the World Health Organization (WHO) to be a pandemic.

In the context of COVID-19, the question of whether international trade in live animals and animal products¹ may pose a risk to the health of humans or animals must be considered by countries as they attempt to balance the protection of human health against maintenance of sustainable food supply chains and movements of companion animals. It is important that trade-related decisions are fully informed by science, are no more restrictive than is necessary to provide adequate sanitary protection, and consider other strategic imperatives and needs such as food security.

The International Health Regulations (2005) Emergency Committee's statement regarding the outbreak of coronavirus disease (COVID-19) pandemic recommended strengthening the global food supply chain and mitigating possible disruptions to the food supply, especially for vulnerable populations².

CONSIDERATIONS

- International trade in live animals and animal products is critical to the support of food security and economic activity.

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Veterinary Laboratory Support to the Public Health Response for COVID-19

TESTING OF HUMAN DIAGNOSTIC SPECIMENS IN VETERINARY LABORATORIES

The COVID-19 pandemic is creating unprecedented pressure on Public Health services. A multidisciplinary collaborative ('whole-of-society') approach is required to contain the spreading virus. Veterinary Services can support Public Health services by increasing the demand for diagnostic testing of human samples for SARS-CoV-2 by making available and competent veterinary laboratories. In some countries human laboratories are at maximum capacity and, as an alternative, veterinary laboratories are available. Veterinary laboratories are well positioned because they have experience with diagnostic testing, biosecurity, and high throughput testing for the surveillance and control of zoonotic diseases, some of which are zoonotic. Additionally, Veterinary Services can support Public Health services in epidemiology, risk assessment, training and risk communication.

Testing of human specimens in veterinary laboratories should be part of the Public Health response and laboratories performing COVID-19 diagnostics should be subject to regulations regarding the laboratory testing of human specimens.

Purpose

The following non-prescriptive high-level guidance aims to support the Public Health response by providing a list of key considerations for testing human specimens for the causative agent of COVID-19 in veterinary laboratories.

This document does not cover research activities.

Considerations

1. Regulatory affairs (national level)

Veterinary laboratory support to the public health response should respect

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Draft published 05/11/2020

Guidance on working with farmed animals of species susceptible to infection with SARS-CoV-2

In light of recent surveillance findings in mink which suggest genetic/antigenic drift of SARS-CoV-2, following introduction from humans, the OIE has decided to publish draft guidance on reducing the risk of spillover from humans to domestic animals. The OIE encourages countries to promote these risk reduction strategies and to monitor susceptible animal species for SARS-CoV-2 infection.

Summary

COVID-19, caused by infection with SARS-CoV-2, is a human disease which has emerged from an animal source and became a pandemic through widespread human to human transmission. The nature of this new zoonotic virus, its widespread distribution, and the susceptibility of some animal species to infection has led to animal infections resulting from contact between infected people and susceptible animals, and raises the concern that some animal species may become reservoirs of SARS-CoV-2.

The results of experimental infection studies combined with reports from natural animal infections have provided a growing body of knowledge to characterise animal species in terms of susceptibility to infection with SARS-CoV-2 and transmissibility of infection to other animals and humans. This guidance aims to support Veterinary Services, public health, and other partners in reducing the risk of introduction of SARS-CoV-2 to susceptible farmed animal populations using a One Health approach; address the risks and risk pathways associated with different farming systems; and propose measures to follow in case of SARS-CoV-2 introduction to a farm.

Further information on current knowledge about SARS-CoV-2 in animals can be found on the OIE website: <https://www.oie.int/scientific-expertise/specific-information-and-recommendations/questions-and-answers-on-2019-novel-coronavirus>

Further information on the public health aspects of COVID-19 can be found on the WHO website: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>



**(LATEST) EPIDEMIOLOGICAL OBSERVATIONS AND
RESEARCH DONE ABOUT SARS-COV-2 IN ANIMALS**



SPECIES SUSCEPTIBILITY

Species	Type of infection ² [experimental (laboratory)/natural (field)]	Susceptibility to infection [none/extremely low/low/medium/high]	Clinical signs	Transmission
Farmed animals				
Ferrets	Experimental	High	Yes (only in few cases)	Yes, between ferrets
American mink (<i>Neovison vison</i>)	Natural	High	Yes (in some cases)	Yes, between minks and from mink to humans
Rabbits (New Zealand White rabbits, <i>Oryctolagus cuniculus</i>)	Experimental	High	No	No
Raccoon dogs (<i>Nyctereutes procyonoides</i>)	Experimental	High	No	Yes, between racoon dogs
Cattle (<i>Bos taurus</i>)	Experimental	Extremely low	No	No
Pigs (American Yorkshire crossbred pigs, <i>Sus scrofa</i>)	Experimental	Extremely low	No	No
Poultry (chicken, ducks, and turkeys)	Experimental	None	No	No

Species	Type of infection ² [experimental (laboratory)/natural (field)]	Susceptibility to infection [none/extremely low/low/medium/high]	Clinical signs	Transmission
Companion animals				
Dogs	Natural and experimental	Low	Yes (but not observed in all cases)	No
Cats (domestic)	Natural and experimental	High	Yes (but not observed in all cases)	Yes, between cats
Wildlife				
Large cats (tigers, lions and puma)	Natural	Medium to high	Yes, in most cases	Yes, between animals
Egyptian fruit bats (<i>Rousettus aegyptiacus</i>)	Experimental	High	No	Yes, between fruit bats
Others				
Golden Syrian hamsters	Experimental	High	Yes (none to very mild in some cases, depending on age)	Yes, between hamsters
Marmosets (<i>Callithrix jacchus</i>)	Experimental	High	No	No
Macaques (<i>Macaca fascicularis</i> and <i>Macaca mulatta</i>)	Experimental	High	Yes (none to severe in some cases)	Yes

¹ Some of the information on the table is available through pre-prints of experimental infection studies. References to peer-reviewed publications will be added once available.

² Please note that extrapolating susceptibility information derived from animal challenge studies conducted under laboratory conditions to external, 'real-world' situations might be difficult as the viral challenge dose tends to be very high in experimental settings when compared to viral dose that animals would be exposed to in natural infection scenarios.



PREDICTION OF SPECIES SUSCEPTIBILITY THROUGH ANALYSIS OF ACE2 RECEPTOR

scientific reports

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Article | Open Access | Published: 05 October 2020

SARS-CoV-2 spike protein predicted to form complexes with host receptor protein orthologues from a broad range of mammals

S. D. Lam, N. Bordin, V. P. Waman, H. M. Scholes, P. Ashford, N. Sen, L. van Dorp, C. Rauer, N. L. Dawson, C. S. M. Pang, M. Abbasian, I. Sillitoe, S. J. L. Edwards, F. Fraternali, J. G. Lees, J. M. Santini & C. A. Orengo

Scientific Reports 10, Article number: 16471 (2020) | Cite this article

7805 Accesses | 1 Citations | 1279 Altmetric | Metrics

- To predict infection risks, S-protein:ACE2 complexes from 215 vertebrate species were modelled, changes in the energy of the complex caused by mutations in each species calculated, relative to human ACE2, and correlated with COVID-19 infection data.
- Results suggest that SARS-CoV-2 can infect a broad range of mammals, but few fish, birds or reptiles.
- However, while receptor binding contributes to the viral host range, looking at the ACE2 receptor in isolation is an oversimplification of the complex interaction between host, pathogen, environment. Possessing a receptor is a necessary but not sufficient requirement for susceptibility to infection.

- Host susceptibility to the virus based on in silico simulations of the binding affinity of the viral spike protein to ACE2 receptors suggests that mammals including primates, cattle, hamsters, cetaceans, cats, dogs, bats, pigs, ferrets, civets and pangolins could present high susceptibility to SARS-CoV-2.
- In contrast, the in-silico analysis of ACE2 receptors of a range of fish, amphibian, reptile and bird species predicted a very low risk for SARS-CoV-2 infection.
- Interestingly, in-silico analysis also predicted a very low risk for SARS-CoV-2 infection of several bat and pangolin species, and contradictory results have been reported, highlighting the limitations of in silico predictions.



NEW RESEARCH IN Physical Sciences Social Sciences

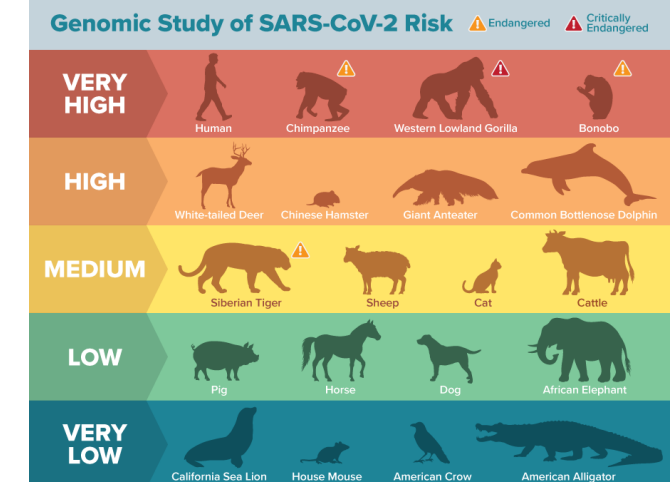
RESEARCH ARTICLE

Broad host range of SARS-CoV-2 predicted by comparative and structural analysis of ACE2 in vertebrates

Joana Damas, Graham M. Hughes, Kathleen C. Keough, Corrie A. Painter, Nicole S. Persky, Marco Corbo, Michael Hiller, Klaus-Peter Koepfli, Andreas R. Pfenning, Huabin Zhao, Diane P. Genereux, Ross Swofford, Katherine S. Pollard, Oliver A. Ryder, Martin T. Nweeia, Kerstin Lindblad-Toh, Emma C. Teeling, Elinor K. Karlsson, and Harris A. Lewin

PNAS September 8, 2020 117 (36) 22311-22322; first published August 21, 2020; <https://doi.org/10.1073/pnas.2010146117>

Edited by Scott V. Edwards, Harvard University, Cambridge, MA, and approved July 31, 2020 (received for review June 2, 2020)



Source: <https://doi.org/10.1038/s41598-020-71936-5>

Source: <https://doi.org/10.1073/pnas.2010146117>

POTENTIAL INTERMEDIATE HOSTS



The Potential Intermediate Hosts for SARS-CoV-2

Jie Zhao, Wei Cui and Bao-ping Tian*

Department of Critical Care Medicine, The Second Affiliated Hospital, Zhejiang University School of Medicine, Hangzhou, China

The coronavirus disease 19 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has become a global pandemic since the first report in Wuhan. COVID-19 is a zoonotic disease and the natural reservoir of SARS-CoV-2 seems to be bats. However, the intermediate host explaining the transmission and evolution is still unclear. In addition to the wildlife which has access to contact with bats in the natural ecological environment and then infects humans in wildlife market, domestic animals are also able to establish themselves as the intermediate host after infected by SARS-CoV-2. Although recent studies related to SARS-CoV-2 have made a lot of progress, many critical issues are still unaddressed. Here, we reviewed findings regarding the investigations of the intermediate host, which may inspire future investigators and provide them with plenty of information. The results demonstrate the critical role of the intermediate host in the transmission chain of SARS-CoV-2, and the efficient intervention on this basis may be useful to prevent further deterioration of COVID-19.

Keywords: SARS-CoV-2, intermediate host, transmission, COVID-19, review

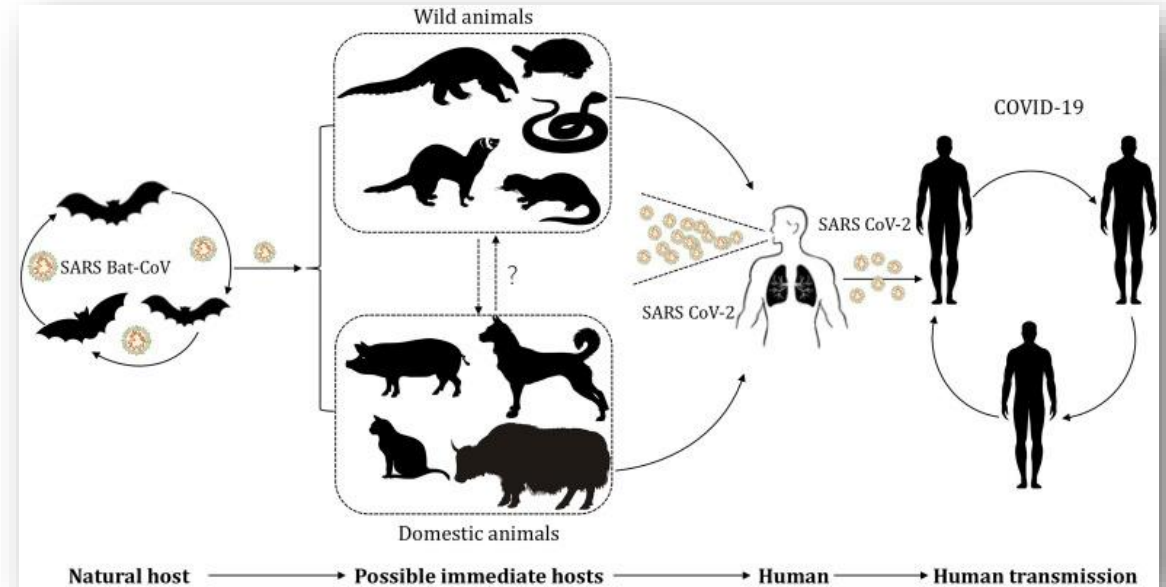
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Edited by:

Yashpal S. Malik,
Indian Veterinary Research Institute
(IVRI), India

Reviewed by:

Santhamani Ramasamy,
Albert Einstein College of Medicine,
United States
Tung Phan



- In the current perspective, the bat is the natural host for SARS-CoV-2
- The intermediate host is still unclear. The intermediate host is not just the bridge that links natural origin and susceptible population, but also the ground where SARS-CoV-2 evolves gradually and replicates massively.
- Recognition of the intermediate host is of much significance in cutting off the transmission chain and preventing the COVID-19 pandemic from further advancing.
- Strains of SARS-CoV-2 have been shown to have relatively high similarity to pangolin-nCoV, only secondary to bat-nCoV.
- Other wild animals such as snakes, mink and turtles should not be ignored because these are also found in wildlife markets and present a high risk for infection.

ZOO NOTIC TRANSMISSION – WHERE WE STARTED

As of the 6th November 2020, the extent of infections in mink farms reported to the OIE is as follows:

- 62 in the Netherlands
- 207 in Denmark
- 11 in the USA
- 1 in Spain
- 1 in Italy
- 1 in Sweden

See : “Events in Animals”

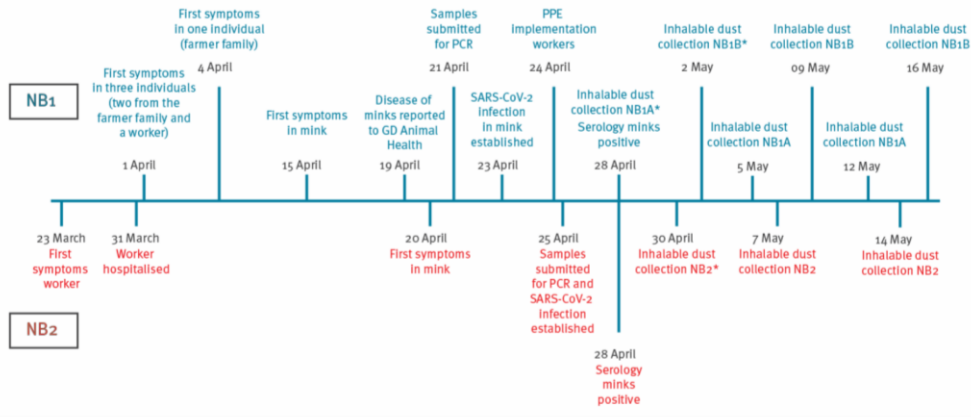
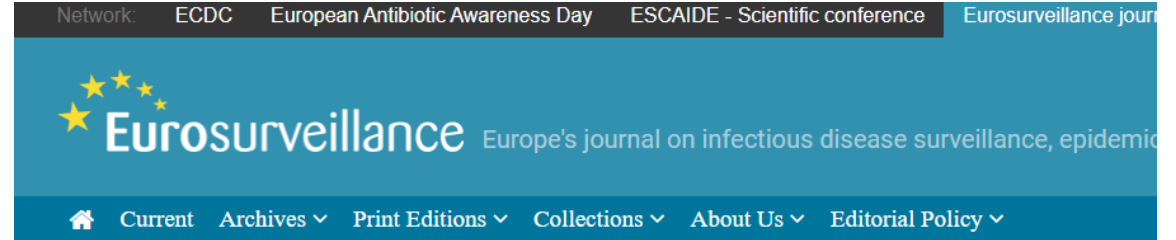


Figure 1 Schematic representation of the time-line of events in the first month of a SARS-CoV-2 outbreak on two mink farms, the Netherlands, April 2020



Home / Eurosurveillance / Volume 25, Issue 23, 11/Jun/2020 / Article

Rapid communication

Open Access

SARS-CoV-2 infection in farmed minks, the Netherlands, April and May 2020

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Nadia Oreshkova¹, Robert Jan Molenaar², Sandra Vreman¹, Frank Harders¹, Bas B Oude Munnink³, Renate W Hakze-van der Honing¹, Nora Gerhards¹, Paulien Tolsma⁴, Ruth Bouwstra², Reina S Sikkema³, Mirriam GJ Tacken¹, Myrna MT de Rooij⁵, Eefke Weesendorp¹, Marc Y Engelsma¹, Christianne JM Brusckhe⁶, Lidwien AM Smit⁵, Marion Koopmans³, Wim HM van der Poel¹, Arjan Stegeman⁷

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Abstract



Full-Text



Figures & Tables



References (18)



Supplementary Material



Metrics/Cited By



Related Content

Respiratory disease and increased mortality occurred in minks on two farms in the Netherlands, with interstitial pneumonia and SARS-CoV-2 RNA in organ and swab samples. On both farms, at least one worker had coronavirus disease-associated symptoms before the outbreak. Variations in mink-derived viral genomes showed between-mink transmission and no infection link between the farms. Inhalable dust contained viral RNA, indicating possible exposure of workers. One worker is assumed to have attracted the virus from mink.



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ZOONOTIC TRANSMISSION – WHERE WE ARE

The New York Times

Battle Over Mink Fur Almost Brings Down the Polish Government

Legislation to ban mink farming cracked the governing coalition, forcing the country's most powerful politician to assume formal office and exposing a struggle for control of Polish conservatism.



governing Law and Justice Party
The New York Times



Le Parisien

Société

Mutation du Covid-19 : le Danemark va abattre 15 millions de visons

Des campagnes d'abattage devaient concerner plusieurs élevages du pays. Finalement, tout le cheptel de visons va être tué car une mutation du virus menace l'efficacité du vaccin sur l'homme.



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Coronavirus: UK bans Denmark visitors over mink Covid-19 fears

55 minutes ago

Coronavirus pandemic



The UK has imposed a ban on non-UK citizens coming to the country over concerns over a new coronavirus strain that has spread to humans.

UK citizens will be able to return to Britain from Denmark but must isolate along with all members of their household for 14 days.

The new rules update regulations that came into force in January.

The transport secretary announced the changes shortly after midnight, less than two hours before they took effect.

Writing on Twitter, Grant Shapps said: "This decision to ban non-UK citizens from health authorities in Denmark reporting widespread coronavirus in mink farms. Keeping the UK public safe is our top priority."

Officials will contact anyone in the UK who has been in contact with anyone in Denmark in the last 14 days to make sure they also self-isolate.

Denmark had been taken off the UK coronavirus travel corridors list on Friday.

ACTUALIDADE CULTURA VÍCIOS MULTIMÉDIA CAUSAS MEGAFONE PET

p3

Covid-19: Dinamarca vai abater milhões de martas após mutação do coronavírus

A população de martas na Dinamarca pode ir dos 15 milhões aos 17 milhões. Depois de verificada uma mutação do novo coronavírus, a primeira-ministra do país ordenou o abate dos animais.

Lusa - 4 de Novembro de 2020, 16:39

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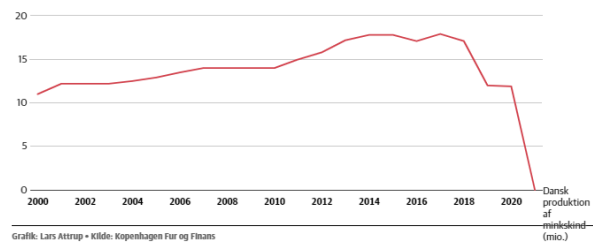
Dansk milliardindustri går op i flammer

For få år siden eksporterede København Fur minkskind for over 13 mia. kr. om året. Nu bliver hele sektoren udraderet og avlsdyrene brændt.

ERHVERV | 05.11.2020 KL. 06:05

Pelsindustrien bliver udraderet

Danmark har været verdens største producent af minkskind. Om få måneder er produktionen udraderet. (dansk produktion pr. år mio. skind)



Grafik: Lars Attrup - Kilde: København Fur og Finans

LARS ATTRUP



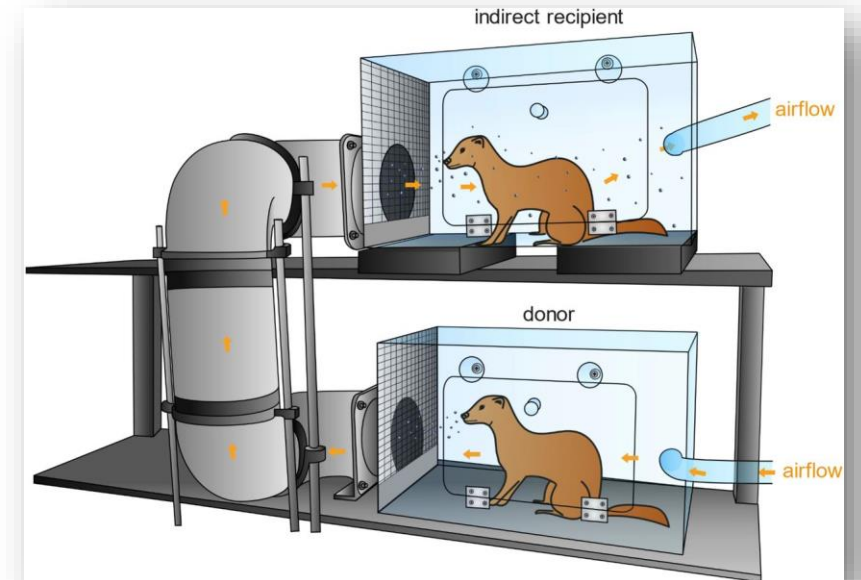
AIRBORNE TRANSMISSION OF SARS-COV AND SARS-COV 2

bioRxiv preprint doi: <https://doi.org/10.1101/2020.10.19.345363>; this version posted October 19, 2020. The copyright holder for this preprint (which was not certified by peer review) is the author/funder, who has granted bioRxiv a license to display the preprint in perpetuity. It is made available under aCC-BY-NC-ND 4.0 International license.

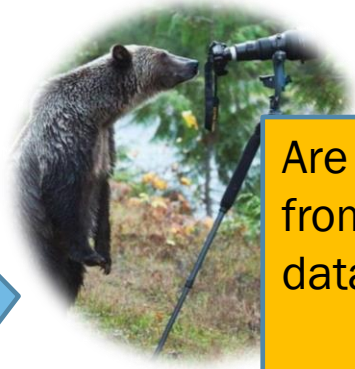
1 **SARS-CoV and SARS-CoV-2 are transmitted through the air between ferrets over**
2 **more than one meter distance**

3
4 Jasmin S Kutter¹, Dennis de Meulder¹, Theo M Bestebroer¹, Pascal Lexmond¹, Ard
5 Mulders¹, Ron AM Fouchier¹, Sander Herfst¹

6
7 ¹Department of Viroscience, Erasmus University Medical Center, Rotterdam, The
8 Netherlands.



Source: <https://doi.org/10.1101/2020.10.19.345363>



Are there results from surveillance data?



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Not fur sale

Covid-19 ends Dutch mink farming

An unexpected win for animal-rights activists



AMSTERDAM

ANIMAL-RIGHTS activists often complain that cute beasts get more sympathy than equally deserving ugly ones. If so, one would think a cuddly critter like the mink would be easy to protect. Yet in the Netherlands, mink are the only animal that can still legally be farmed for their fur. That is about to change. On August 28th the government brought forward to March a ban on mink-farming that had been scheduled to take effect in 2024. The timetable was sped up not because mink had become more adorable, but because they can contract covid-19 and spread it to humans.

Dutch farmers normally raise about 2.5m mink a year, making the Netherlands the world's fourth-largest producer after Denmark, China and Poland. In April a clutch of mink and the farm hands who tended them were diagnosed with covid-19. Genetic tracing showed that at least two workers had probably been infected by mink, rather than the other way around. The contaminated animals were destroyed and stricter hygiene rules imposed, but by summer the virus had spread to a third of the country's farms. In June parliament voted to shut down the industry as soon as possible, and the cabinet agreed.



SPILL-BACK CONCERNS



A person sits near a colony of gentoo penguins, *Pygoscelis papua*, next to an old research shed.

PHOTOGRAPH BY RONAN DONOVAN, NAT GEO IMAGE COLLECTION

| SCIENCE |

Antarctica is the last continent without COVID-19. Scientists want to keep it that way.

Studying Antarctica is critical to combating climate change, but most scientists can't travel to the continent this upcoming season.



Science of The Total Environment

Available online 29 October 2020, 143352

In Press, Journal Pre-proof



RISK ASSESSMENT OF SARS-CoV-2 IN ANTARCTIC WILDLIFE

Andrés Barbosa ^{a, *}, Arvind Varsani ^{b, c}, Virginia Morandini ^d, Wray Grimaldi ^e, Ralph E.T. Vanstreels ^f, Julia I. Diaz ^g, Thierry Boulinier ^h, Meagan Dewar ⁱ, Daniel González-Acuña ^j, Rachael Gray ^k, Clive R. McMahon ^l, Gary Miller ^m, Michelle Power ⁿ, Amandine Gamble ^{o, 1}, Michelle Wille ^{p, 1}

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<https://doi.org/10.1016/j.scitotenv.2020.143352>

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Highlights

- Conditions in Antarctica could be favorable for SARS-CoV-2 stability
- *In silico* analyses revealed that Cetaceans have a higher susceptibility to the virus
- Seals and birds seem to have a lower risk of infection
- Wildlife researchers have the highest risk of transmission to Antarctic fauna
- Tourists can be potential vectors for SARS-CoV-2 transmission to Antarctic fauna

Source: <https://doi.org/10.1016/j.scitotenv.2020.143352>

EVENTS IN ANIMALS NOTIFIED TO THE OIE




See : [“Events in Animals”](#)

Scientific expertise

- > Overview
- > Collaborating Centres
- > Reference Laboratories
- > Biological threat reduction
- > OFFLU, the animal Influenza network
- > Registration of diagnostic kits
- > Veterinary products
- > Specific information and recommendations
- > Questions and Answers on the COVID-19
- > International competition horse movement
- > Invasive alien animal species
- > Animal disease control
- > Application of Compartmentalisation

COVID-19 Portal



[OIE's response](#)
 [Questions and answers](#)
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 [Media resources](#)

Events in animals






OIE Members have been keeping the OIE updated on any investigations or outcomes of investigations in animals:

Page last updated 06/11/2020

Guidance to report cases of animals infected with SARS-CoV-2 to the OIE

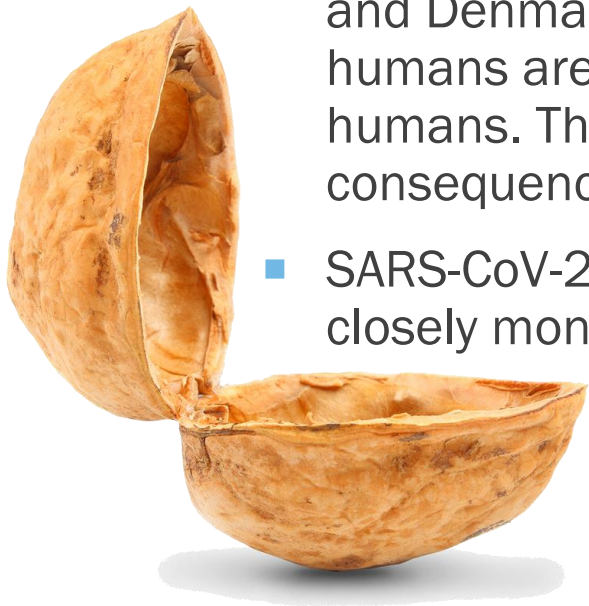
✦ Animal surveillance in China: [China update \(5/02/2020\)](#).

Member	Species affected	Date of first report	Links
Hong Kong	Dog	21/03/2020	Follow-up report no. 3 (23/03/2020)
	Cat	24/07/2020	Follow-up report no. 3 (03/09/2020)
Belgium	Cat	28/03/2020	Situation update 1 (28/03/2020)
USA	Feline (tiger, lion, cat), dog, mink	06/04/2020	Follow-up report no. 23 (30/10/2020)
Netherlands	Mink	26/04/2020	First report (26/04/2020), situation update 1 (15/05/2020), situation update 2 (9/06/2020), situation update 3 (16/07/2020), situation update 4 (12/08/2020), situation update 5 (01/09/2020), situation update 6 (06/10/2020)
France	Cat	02/05/2020	First (02/05/2020) and Second (12/05/2020)
Spain	Cat	11/05/2020	First (11/05/2020) and Second (08/06/2020)
	Mink	16/07/2020	Immediate notification (16/07/2020)
Germany	Cat	13/05/2020	First (13/05/2020)
Russia	Cat	26/05/2020	Immediate notification (26/05/2020)
Denmark	Mink	17/06/2020	Situation update 1 (17/06/2020), situation update 2 (03/07/2020), situation update 3 (24/08/2020), situation update 4 (01/10/2020), situation update 5 (16/10/2020), situation update 6 (05/11/2020)
United Kingdom	Cat	28/07/2020	Immediate notification

- > WAHIS Interface 
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- > For the media 
- > OIE world conferences 
- > Documentary database 

WHAT DO WE KNOW ABOUT SARS-COV-2 FROM AN ANIMAL HEALTH PERSPECTIVE

- Source of the human event may probably be a spillover from an intermediate animal host between humans and animals
- Animal studies have shown that ferrets, mink, cats, and racoon dogs can get infected and transmit the virus. Initial studies indicate that the virus replicates poorly in pigs, dogs and cattle, and not at all in chicken and ducks.
- Mink, besides being susceptible and transmitting the virus among themselves, have reportedly transmitted the virus back to humans. Surveillance findings from Netherlands and Denmark suggest that SARS-CoV-2 viruses introduced to mink populations from humans are evolving through viral mutation. These viruses have been shown to infect humans. This may have important public health implications, although the exact consequences are not yet known.
- SARS-CoV-2 infection can easily be missed in farmed mink populations if they are not closely monitored. Testing is important in these populations.



WHAT TO DO?

THE OIE URGES ITS MEMBERS TO:



1

Work closely with public health authorities

2

Closely monitor mink populations for SARS-CoV-2 infection and to report any positive findings to the OIE as well as to relevant national authorities, including public health

3

Implement risk mitigation strategies to reduce the risk of SARS-CoV-2 transmission from humans to animals as outlined in OIE's guidance

A photograph showing a large group of sheep gathered in a field, looking towards a small piglet that is standing with its back to the camera in the foreground. The scene is lit with warm, golden light, suggesting late afternoon or early morning. The sheep are densely packed, and the piglet is the central focus of their attention.

**THANK YOU FOR
YOUR ATTENTION**

M.MARRANA@OIE.INT