

**Advancing global understanding of  
the origins of the SARS-CoV-2 virus  
&  
Human/Animal interface COVID-19  
issues**

*Member States briefing  
19 November 2020*



**World Health  
Organization**

# Background

- **February WHO mission to China:** Recommendation to investigate the source of the virus.
- **World Health Assembly 73 May 2020:** Adopted Resolution 73.1 on the COVID-19 response requesting WHO: *“to continue to work closely with the World Organisation for Animal Health (OIE), the Food and Agriculture Organization of the United Nations (FAO) and countries, as part of the One-Health Approach to identify the zoonotic source of the virus and the route of introduction to the human population, including the possible role of intermediate hosts, including through efforts such as scientific and collaborative field missions, which will enable targeted interventions and a research agenda to reduce the risk of similar events occurring, as well as to provide guidance on how to prevent infection with severe acute respiratory syndrome coronavirus 2 (SARS-COV2) in animals and humans and prevent the establishment of new zoonotic reservoirs, as well as to reduce further risks of emergence and transmission of zoonotic diseases”*
- **WHO advanced mission July-August 2020 to China:** To develop terms of references for an international multi-sectoral mission to support additional studies and investigations into the source of the virus.



# SARS-CoV-2 virus origin: International team & studies in China

- WHO deployed an advance team in July-August 2020 to China with 3 objectives:
  - 1) To review work and studies already undertaken in the country;
  - 2) to identify knowledge gaps; and
  - 3) to develop terms of references for an international multi-sectoral mission to support the development and conduct of additional studies and investigations into the source of the virus.
- Terms of reference for studies to be undertaken and the composition of an international team to support the work in China have been agreed.
- ToRs includes epidemiological studies around the initial cases and the market in Wuhan and more long term targeted studies in human and animal populations

# Meetings of the international team – China updates

- Members of the International Team have started meetings with the members of the Chinese Team. It gave an opportunity for the international Team to get updated on the results of past studies done in China.

## 1) Epidemiological studies :

Of the 106 detected clinical COVID-19 cases until 10 January 2020, 81 cases were associated with the Huanan market (76% of all cases) with 57 of them workers at the market, working at 36 different stores.

- Three scenarios for the introduction of the virus to the Wuhan wholesale market are likely:

1. Introduction via live animals;
2. Introduction via a human case with subsequent human to human spread ;
3. Introduction via product(s) contaminated with the virus.



# Meetings of the international team – China updates

## 2) Investigations at the Wuhan wholesale market:

None of the 366 dead animal samples (17 species, 156 animals) from the market tested positive for SARS-CoV-2. Of the 842 environmental samples, 69 tested positive for SARS-CoV-2.

- These findings are in line with the human epidemiological investigation results showing the market was substantially contaminated and played a role in the event.

## 3) Wild animal studies (serology):

Sera of 110 wild animal species, were analyzed. 7084 samples from 11 provinces from 2015-2019 were found negative for SARS-CoV-2. 1000 additional serum samples collected in 2020 from different provinces were also tested negative.

# Meetings of the international team – China updates

## 4) Domestic and farm animals:

18,708 domestic animal samples, including pigs, ox, poultry, dogs and cats, from 10+ provinces were all tested negative for SARS-CoV-2.

Additional studies to focus on farmed animals including cattle, pigs, goats, ducks, sheep, cats, dogs, minks, foxes, racoon, geese and chicken.

China has had no report of animal to human transmission from mink populations.

## 5) Food products and food safety

Out of approx. 900 000 samples of imported frozen food products, SARS-CoV-2 was found on few food and food packaging. Live virus was isolated from samples from food packaging.

On at least one occasion, food handlers were reported to have been most likely infected from handling frozen food products.

While a rare event, it could play a role in the reintroduction of the virus in areas/countries who have controlled the domestic transmission of the virus in the human population.

# Human Animal Interface : Current Knowledge

## ▪ **Animal studies :**

- Ferrets, mink and cats can get infected and can transmit the virus.
- Outbreaks in Mink farms in Denmark, Italy, Netherlands, Spain Sweden, and USA.
  - Mink are susceptible and can transmit the virus to other minks as well as to humans (Netherlands and Denmark).
  - Virus mutation rates in mink appears to be more intense than in humans reflecting an adaptation to mink.
  - Mink virus variants detected in Denmark in humans triggering a total cull of the 17 M mink population in the country.
  - Mink virus variant detected in human in another 6 countries.
  - Denmark and Netherlands experience show the difficulties of preventing the virus spread between farms and the difficulty of preventing spill over from mink to humans.



# Animal human interface research agenda

21 projects underway supported by WHO. These research projects cover:

- Animal susceptibility studies
- Virus behavior and dynamic in animals.
- Animal surveys in different regions
- Understanding drivers for animal trade for food
- Improving traditional food markets
- Persistence studies of the virus on food surfaces
- Feeding studies
- Better understanding of recent reports of positive human and sewage samples from different countries dating in 2019





Questions?

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