Animal Health and animal welfare perspective

Predict, Prevent and Control emerging zoonosis

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Zoonotic Threats and Emerging Diseases
One World, One Health

GLOBALISATION

Unprecedented movements of goods and people
Permanent changes: Climate, human behaviour, deforestation, urbanization, wildlife disruption...

Opportunities for pathogens to colonize new territories

GLOBAL AGENDA FOR SUSTAINABLE LIVESTOCK

ZOONOTIC THREATS

75 % of emerging infectious diseases of humans are zoonotic

80 % of pathogen agents with bioterrorism potential are zoonotic

Interdependence of countries for their own protection

Zoonotic Origin of Coronaviruses

- 7 known Human Coronaviruses
  Mild disease: HKU1, OC43, NL63, and 229E
  Severe outbreaks: SARS-CoV, MERS-CoV, SARS-CoV2 (COVID-19)

- Almost all have zoonotic origins or circulate in animals:
  Human 229E (bats, camels)
  NL63 (bats)
  OC43 (cattle)
  SARS (civets, origins in bats?)
  MERS (camels, origins in bats?)

- Non-human CoVs such as porcine epidemic diarrhea virus (PEDV) may have emerged by host switching

- Recent outbreaks cemented coronaviruses as family of zoonotic concern
According to calculations by the United Nations and others, the COVID-19 pandemic could cost the global economy between US $8.5 – 15.8 trillion and is triggering a global recession, forcing the introduction of costly stimulus packages.
# Expert groups and guidance

In the framework of the OIE Incident Management System, several expert *ad hoc* Expert Groups have been established:

<table>
<thead>
<tr>
<th>Permanent Working Group</th>
<th>Ad hoc Groups</th>
<th>Objective</th>
<th>Resources available to date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wildlife</td>
<td>COVID-19 and the human animal ecosystem interface</td>
<td>Advises on investigations into the possible role of animals as a reservoir of SARS-CoV-2 and in zoonotic transmission</td>
<td>Safe trade in animals and animal products</td>
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<td></td>
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<td>Advisory Group on animal health laboratories</td>
<td>Develops high-level considerations for diagnostic testing of human specimens for SARS-CoV-2 virus in veterinary laboratories, to support Public Health pandemic response</td>
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<tr>
<td>Informs and advises the OIE on all health problems relating to wild animals, whether in the wild or in captivity</td>
<td>Develops high-level consideration based available scientific evidence of SARS-CoV-2 infection in animals</td>
<td></td>
<td>Statement <a href="https://www.oie.int/en/zoonotic-diseases">Wildlife Trade and Emerging Zoonotic Diseases</a> (April 2020)</td>
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</tbody>
</table>
Statement of the OIE Wildlife Working Group, April 2020

Wildlife Trade and Emerging Zoonotic Diseases

The majority of recently-emerging infectious diseases have wildlife origins, among them Lassa, Monkeypox, Marburg, Nipah and numerous other viral diseases. Within the coronavirus family, zoonotic viruses have been linked to the Severe Acute Respiratory Syndrome (SARS) epidemic in 2003 and the Middle East Respiratory Syndrome (MERS) first detected in 2012. The COVID-19 pandemic stemmed from introduction of a novel coronavirus (“SARS-CoV-2”) into human populations. While the specific mechanism of SARS-CoV-2 transmission has not been aforementioned 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.

The OIE is developing guidelines or standards for trade in wildlife based on sound governance and regulatory principles that reduce health risks, and support animal welfare and biodiversity conservation. These standards will result in sustainable and responsible practices in legal trade, transportation, capture, farming, consumption.

Wildlife Health Problem Statement

- Emerging diseases from animal sources can have severe economic and health impacts.
- Disease spread between wildlife, livestock and humans occurs through complex transmission pathways at the One Health interface, with collateral impacts for biodiversity and food system sustainability.
- The risk of disease emergence has increased as a result of increasing opportunities for human-livestock-wildlife contact.
- This is exacerbated by human activity: intensified agriculture and livestock production; deforestation and land use change; illegal and under-regulated wildlife trade; climate change; antimicrobial resistance.
Lessons learned from EBO-SURSY Project

1. Wildlife health management is rarely included in the VS mandate
2. Develop and sustain intersectoral collaboration and partnerships
3. Engage key stakeholders early on in the surveillance systems
4. Translate scientific findings into practical recommendations, guidelines and policies
5. Develop and improve integrated protocols of surveillance
## Animals Positive for SARS-Cov-2 Globally Reported

<table>
<thead>
<tr>
<th>Species</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat</td>
<td>Belgium, Germany</td>
</tr>
<tr>
<td></td>
<td>Hong Kong, The Netherlands</td>
</tr>
<tr>
<td></td>
<td>USA, France, Spain</td>
</tr>
<tr>
<td>Dog</td>
<td>Hong Kong, USA, The Netherlands, Japan</td>
</tr>
<tr>
<td>Tiger</td>
<td>USA</td>
</tr>
<tr>
<td>Lion</td>
<td>USA</td>
</tr>
<tr>
<td>Mink</td>
<td>The Netherlands, Denmark, Spain, USA</td>
</tr>
<tr>
<td>Puma</td>
<td>South Africa</td>
</tr>
</tbody>
</table>
Potential of Infection in other Animals

Genomic analysis reveals many mammals can potentially be infected by SARS-CoV-2 through their ACE2 receptors.

The **Western lowland gorilla** shows a very high risk.

Others at very high risk include **Sumatran orangutan and Northern white-cheeked gibbon**

[https://www.ucdavis.edu/news/genomic-analysis-reveals-many-animal-species-may-be-vulnerable-sars-cov-2-infection?fbclid=IwAR2XwRv2NR0sGGg4vE0iW_xMjkTzaJxvhwBhOkjiP1d9hZV9Gx3JnC9ie_4](https://www.ucdavis.edu/news/genomic-analysis-reveals-many-animal-species-may-be-vulnerable-sars-cov-2-infection?fbclid=IwAR2XwRv2NR0sGGg4vE0iW_xMjkTzaJxvhwBhOkjiP1d9hZV9Gx3JnC9ie_4)
What can be done?

2 main principles of action:

- Controlling zoonotic pathogens at their animal source
- Embracing the One Health approach

are the most effective and economic ways of control their impact and protecting people

= crucial cornerstones, particularly with the prediction that 75% of emerging diseases are of animal origin
Intergovernmental regulations and standards

Development of national capacities for early detection and rapid response

Intergovernmental Standards

International Health Regulations (IHR)

PVS Tool

IHR follow up tool
Which Lessons for the future?

● There is a need for strengthening the One Health Approach, because:
  ● The health of animals, humans and the environment is inextricably linked
  ● Disease spillovers threaten animals (mainly wildlife animals in the case of covid-19), humans, and the environment. The risk is increasing and cannot be ignored

● There is a need for collective action and international cooperation, because:
  ● Diseases such as Covid-19 know no borders
  ● The drivers of disease emergence are broad and no one organization can have an impact across all of them

There is a need of strong political awareness and commitment:
  ● To sustain investments and capacity building of national and regional health systems
  ● To sustain research and scientific knowledge
  ● To support multilateral dialogue and engagement in Global and Regional organizations’
Thank you