OIE’s activities during the COVID-19 pandemic crisis and opportunities for OIE work programmes

OIE Delegates and Partners Seminar
7 July 2020
1. Drivers for disease emergence
2. Origins of SARS-CoV-2
3. OIE COVID-19 Response
4. Mitigating risks of disease spill-over between wildlife, humans and livestock
5. Supporting resilience at OIE and in our Members
Kamran Khan, BlueDot
Integrating and using big data

Population Growth
Climate Change
Bioterrorism
Deforestation
Antibiotic Resistance

Mass Livestock Production
Global Air Travel
Urbanization
Wildlife Disruption
Mass Gatherings

Kamran Khan, BlueDot
Integrating and using big data
Origins of SARS-CoV-2
Bats Are Natural Reservoirs of SARS-Like Coronaviruses

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Severe acute respiratory syndrome (SARS) emerged in 2002 to 2003 in southern China. The origin of its etiological agent, the SARS coronavirus (SARS-CoV), remains elusive. Here we report that species of bats are a natural host of coronaviruses closely related to those responsible for the SARS outbreak. These viruses, termed SARS-like coronaviruses (SL-CoVs), display greater genetic variation than SARS-CoV isolated from humans or from civets. The human and civet isolates of SARS-CoV nestle phylogenetically within the spectrum of SL-CoVs, indicating that the virus responsible for the SARS outbreak was a member of this coronavirus group.

Li et al. (2005) Science 310: 676-679

Lau et al. (2005) PNAS 102: 14040-14045

Slide credit: Dr William Karesh, OIE Working Group on Wildlife
Discovery of a rich gene pool of bat SARS-related coronaviruses provides new insights into the origin of SARS coronavirus

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Hu et al. (2017) PLoS Pathogens
SARS-CoV-2

- Part a family of enveloped positive-strand RNA viruses (coronaviridae)
- Belongs to the betacoronavirus genus
  - 98% similarity with bat coronavirus RaTG13
  - 79% genetic similarity with SARS-CoV
- 7 coronavirus known to infect humans
  - 4 coronavirus infect only the upper respiratory tract
    - HCoV HKU1 – OC43 – NL63 – 229E
  - 3 coronavirus can replicated in lower respiratory tract and cause pneumonia
    - MERS-CoV = CFR of 37% (2012 - )
    - SARS-CoV-2 = CFR unknown (2019 - )
Bat-CoV risk is regional, not restricted to China

Distribution of bats harboring SARSr-CoVs  Distribution of *Rhinolophus affinis*
Wildlife Trade

Bats in their natural environments → Hunting → Intermediary traders → Traditional markets (wet markets) selling live and dead wild animals direct to public
OIE COVID-19 Response
WHO’s work in emergencies – achievements in numbers – 2018

PREPARE

ASSESSMENTS FOR ACTION
187 Member States International Health Regulations (IHR) 2005 annual reports
24 Joint External Evaluations
31 Simulation exercises
28 National action plans
16 Risk assessment reviews
11 Bilateral public veterinary sector bridging workshops

STRENGTHENED CAPACITIES FOR ALL HAZARDS
Health security workforce development
Goal: all countries prepared for the full emergency-cycle management

400 professionals at ports and airports trained on surveillance
850 laboratory personnel trained in 62 countries
2800 health professionals in 141 countries trained on health security
6300 enrolments in online course offered through the Health Security Learning Platform
16 000 downloads of the Managing Epidemics handbook
100 000 subscribers to OpenWHO Learning platform

READYNESS
41 risk-profiling workshops were conducted in the African region
83% of high risk countries in the index for Risk Management have interagency preparedness plans in place

PREVENT

ELIMINATE YELLOW FEVER STRATEGY
61 million people vaccinated in 24 African countries
20.8 million doses of oral cholera vaccine were shipped to 20 countries

ENDING EBOLA
60 000 people vaccinated during response operations in the Democratic Republic of the Congo

GLOBAL INFLUENZA PREPAREDNESS AND RESPONSE
500 million people are estimated to have been vaccinated around the world
400 million doses of pandemic vaccine secured through the Pandemic Influenza Preparedness Framework

EMERGENCY VACCINATION
16 million doses of vaccines deployed through the WIO International Coordinating Group on Vaccine Provision mechanism

DETECT AND RESPOND

24/7/365 each day, every day the global surveillance system detects public health events

7000 PUBLIC HEALTH THREAT SIGNALS PICKED UP EVERY MONTH with about 0.6% of these resulting in a formal public health event

52 WEEKS A YEAR the early warning system (EWARS) collects data each week, generates and manages alerts

1600 TECHNICAL/OPERATIONAL PARTNER INSTITUTIONS WHO relies on its global network of technical and operational partners when responding to health emergencies, and when helping countries be better prepared to prevent, detect and respond to health emergencies

481 NEW EVENTS IN 141 COUNTRIES AND TERRITORIES Some of the public health events included: cholera, Ebola virus disease, measles and monkeypox in the Democratic Republic of the Congo; plague in Madagascar; measles in Argentina, Brazil and Ecuador; emergency operations in Liberia; West Nile fever in Serbia;

1621 health emergencies experts from WHO and its partners deployed in 32 countries

Nipah virus in India; diphtheria in Bangladesh; and hand foot and mouth disease in Viet Nam

30 EVENTS IN 29 COUNTRIES The contingency fund for emergencies was provided within 48 hours
Coronavirus disease (COVID-19)
Situation Report – 163
Data as received by WHO from national authorities by 10:00 CEST, 1 July 2020

Highlights

It has never been clearer that communication is an important public health intervention that contributes to controlling pandemics. The WHO Regional Office for Europe discusses this and the risks of an “infodemic” – an overabundance of information, some of which can be misleading or even harmful. WHO launched the first Infodemiology conference on 29 June, which includes talks with experts on how the infodemic affects the world and reflections on how it can be managed.

https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports
Tripartite Partner Frameworks for emergency management

- Pandemic Influenza Preparedness Programme
- WHO International Health Regulations
- Global Outbreak Alert and Response Network
- FAO Emergency Management Centre
What is an Incident Management System?

- Systems describing coordination, command and control for management of emergency events
- National standardization to provide for inter-departmental / inter-organizational interoperability
- Bespoke structure with generic functions and reporting lines
- Set daily and weekly rhythm of data cut-off times, reporting, briefings, media
- Key concepts: interoperability and scaleability
OIE COVID-19 Incident Management Approach

Stakeholder Management

OIE COVID-19 Incident Management: Science and Intelligence Mechanisms

Public Information

RR/SRR Intelligence network

OIE Ad hoc group on Safe Trade

OIE Ad Hoc Group on human-animal-ecosystem

Emerging Disease Immediate Notifications and rumour tracking

Sub-group on AH Surveillance

Sub-group on AH Laboratories
OIE and World Veterinary Association Statement on Veterinary Activities as Essential

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,
OIE ad hoc group on COVID-19 and the human-animal-ecosystem interface

Terms of Reference

1. Advise on investigations into the possible role of animals as a reservoir of the SARS-CoV2 and in zoonotic transmission;
2. Contribute to OIE’s technical coordination with WHO and FAO;
3. Share relevant scientific information and opinion on COVID-19 at the human-animal-ecosystems interface;
4. Provide advice to support national veterinary services on human animal interface aspects of COVID-19;
5. Advise on knowledge gaps and associated animal related research priorities;
6. Monitor and interpret scientific publications and communications;
7. Contribute to the implementation of WHO R&D Blueprint.
Eight immediate research actions were agreed as part of the Global Research Forum

1. Mobilize research on rapid point of care diagnostics for use at the community level - this is critical to be able to quickly identify sick people, treat them and better estimate how widely the virus has spread.

2. Immediately assess available data to learn what standard of care approaches from China and elsewhere are the most effective - there is an imperative to optimize standard of care given to patients at different stages of the disease and take advantage of all available technological innovations to improve survival and recovery.

3. Evaluate as fast as possible the effect of adjunctive and supportive therapies. The global research community needs to understand what other adjunctive treatments being used we have at our disposal that may help with the standard of care provided to patients, including the quick evaluation of interventions such as steroids and high flow oxygen.

4. Optimize use of personal protective equipment and other infection prevention and control measures in health care and community settings - it is critical to protect health care workers and the community from transmission and create a safe working environment.

5. Review all evidence available to identify animal host(s), to prevent continued spill over and to better understand the virus transmissibility in different contexts: over time, the severity of disease and who is more susceptible to infection. Understanding transmission dynamics would help us appreciate the full spectrum of the disease, in terms of at risk groups, and conditions that make the disease more severe as well as the effectiveness of certain public health interventions.

6. Accelerate the evaluation of investigational therapeutics and vaccines by using “Master Protocols”. Rapidly developing master protocols for clinical trials will accelerate the potential to assess what works and what does not, improve collaboration and comparison across different studies, streamline ethics review and optimize the evaluation of new investigational drugs, vaccines and diagnostics.

7. Maintain a high degree of communication and interaction among funders so that critical research is implemented. Funders reiterated their current financial commitments to tackling this outbreak and agreed that the priorities agreed at the Forum would help to coordinate existing investments and inform mobilization of additional resources in the coming days, weeks and months.

8. Broadly and rapidly share virus materials, clinical samples and data for immediate public health purposes - it was agreed that virus materials, clinical samples and associated data should be rapidly shared for immediate public health purposes and that fair and equitable access to any medical products or innovations that are developed using the materials must be part of such sharing.
TESTING OF HUMAN DIAGNOSTIC SPECIMENS IN VETERINARY LABORATORIES

Considerations:

- Regulatory affairs
- Business continuity and prioritisation
- Types of test and testing requirements
- Scalability
- Quality assurance
- Biosafety
- Biosecurity
- Data management and reporting
- Personnel and logistics
- Training needs

Objective:
- Publish through WAHIS as soon as possible - if relevant - the immediate notifications and follow-up reports received from our Member Countries using “emerging disease” as reason of notification.

Terms of Reference:

Findings in animals

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

- SARS-CoV-2 positive test results in dogs in Hong Kong: Follow-up report no. 1 (08/03/2020), Follow-up report no. 2 (16/03/2020), Follow-up report no. 3 (23/03/2020)
- SARS-CoV-2 positive test result in a cat in Belgium (28/03/2020)
- SARS-CoV-2 positive test result in a tiger (06/04/2020), a lion (17/04/2020) and a dog (03/06/2020) in the USA
- SARS-CoV-2 positive test result in two domestic cats in the USA (22/04/2020), Follow-up reports latest (10/06/2020)
- SARS-CoV-2 positive test result in two mink farms in The Netherlands (26/04/2020), situation update 1 (15/05/2020), situation update 2 (08/06/2020)
- SARS-CoV-2 positive test result in two domestic cats in France: 1st (02/05/2020) and 2nd (12/05/2020)
- SARS-CoV-2 positive test result in domestic cats in Spain: 1st (11/05/2020) and 2nd (08/06/2020)
- SARS-CoV-2 positive test result in a domestic cat in Germany (13/05/2020)
- SARS-CoV-2 positive test result in a domestic cat in Russia (28/05/2020)
- SARS-CoV-2 positive test result in a mink farm in Denmark (17/06/2020)
Considerations for sampling, testing, and reporting of SARS-CoV-2 in animals

Prepared by the OIE Preparedness and Resilience Department and the OIE ad hoc Group on COVID-19 and the human-animal interface

Purpose
The purpose of this document is to provide high level considerations on sampling, testing, and reporting of SARS-CoV-2 in animals.

Scope
The following considerations are intended to be non-prescriptive and broad enough to cover a range of human and animal interactions. The document aims to differentiate individual case management from research.

This document will be reviewed and updated as new scientific evidence of SARS-CoV-2 infection in animals comes to light.

1. SARS-CoV-2 as an emerging disease in animals
2. High level guiding principles for sampling and testing
3. Rationale for testing of animals to manage risk
4. Suggested case definition
5. Reporting to the OIE

OIE considerations on the application of sanitary measures for international trade related to COVID-19

Recommendations for OIE Members
That Members work collaboratively and cooperatively during the COVID-19 pandemic to:

1. facilitate safe international movement of live animals and animal products (accordance OIE Terrestrial Animal Health Code)

2. introduce no COVID-19-related sanitary measures unless and until these have been shown necessary to protect human or animal health, are scientifically justified by a risk analysis, and are fully in line with relevant International Standards

3. continue implementing OIE standards under WTO SPS principles, and (where possible) apply administrative flexibility to minimize the impact that this pandemic may have on procedural aspects of trade e.g. allowing electronic certification, making allowances
Public Information: OIE Communications
OIE Wildlife Programme:

Mitigating Risks of disease spill-over between wildlife, humans and livestock
IMPROVING EARLY WARNING SYSTEMS and preventing viral haemorrhagic fevers

5 YEARS
2017 → 2021

Financed by
THE EUROPEAN UNION

10 COUNTRIES
from West and Central Africa

PROJECT IMPLEMENTERS
In partnership with

ZOOONOSES

60% of infectious diseases affecting people are of animal origin, meaning they are zoonoses

60%

5 MAJOR PATHOGENS STUDIED

VIRUSES
- Ebola virus
- Marburg virus
- Rift Valley Fever
- Crimean-Congo Fever
- Lassa Fever
1. Increase surveillance capacity for viral haemorrhagic fevers
   - Professional training and education
   - Laboratory twinning
   - Awareness raising workshops for human and animal health services
   - Sustainable strengthening of national health systems and veterinary services

2. Raise community awareness of viral haemorrhagic fevers
   - Communicate with Ministers, schools, and local communities
   - Scientific communication conferences and publications
   - Produce awareness-raising communications tools

3. Strengthen surveillance protocols for viral haemorrhagic fevers
   - Collect and analyse samples
   - Undertake socio-economic, epidemiological and ecological studies
   - Develop a database

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
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.
OIE Wildlife Health Management Framework

**Overall objective**
To anticipate, reduce and manage the risk of spill over events of pathogens between wildlife, livestock, and humans at the animal-human-environment interface

**Objective 1**
Member Countries improve prevention, mitigation, early detection and notification of pathogen spill overs
- Strengthen multisectoral collaboration and capacity in integrated wildlife health management and surveillance systems
- Promote political and regulatory enabling environment for Veterinary Services
- Increase awareness and knowledge of Veterinary Services, local communities and decision makers of the health risks posed by pathogen spillover between wildlife, livestock and humans

**Objective 2**
Member Countries implement good practices in health and welfare management of wildlife trade and use

- A new OIE work programme building on WWG priorities and EBO-SURSY experience
- Programme design advancing through stakeholder engagement and surveys
- Resource and implementation partners welcome
COVID-19 – adapting to the shifting focus from members and partners
Purpose

- To learn and improve, to build institutional resilience
- What happened, why it happened, how it could be done better in future
- Organisational learning, not the performance of individuals

Scope

- Administration (finance, procurement, work from home, recruitment, staff wellbeing)
- Logistics (occupational safety, tools, (IT, office equipment))
- Events (meetings, General Session)
- Science and Technical (technical response, expert groups, guidance, coordination with partners, communications)
- Institutional communications and coordination (internal and with regions)
Broader negative impacts of the COVID-19 global response

- Animal health programme interruptions
  - Surveillance activities
  - Vaccination programmes

- National economy fragility
  - Increased national indebtedness, unemployment and business failures

- Food insecurity and trade
  - Food sector as essential service (plus sectors supporting)
  - Impacts on national and international food supply chains

- Globalisation and market access
  - Further weakening of multi-lateral global institutions
Prepare for, Prevent & Build Resilience against Health Crises in OIE Members

Enhancing our current service offering to Members:
- Integrated surveillance and early warning systems for disease emergence
- Emergency preparedness and contingency planning
- Resilient “One Health” Veterinary Services
- Sustainable Laboratories
- Notification & data analysis
- Standards, guidelines and considerations
- Wildlife value chain management
- Risk communication
- Public Private Partnerships
- Biological Threat Reduction
- Research and Development coordination
Acknowledgements
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The OIE Working Group on Wildlife works towards maintaining a global perspective and foresight on wildlife health and biodiversity and how these relate to veterinary and public health.
Thank you for your attention!