Current position of the OIE on the approach of emerging diseases

Colloquium “Emerging Animal Diseases”
Brussels, Belgium, 17 October 2008
Three components:

- why new strategies?
- which solutions?
- the OIE response
Why new appropriate animal health strategies became crucial?

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>2.56 billion</td>
</tr>
<tr>
<td>1960</td>
<td>3.06 billion</td>
</tr>
<tr>
<td>1970</td>
<td>3.57 billion</td>
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<tr>
<td>1980</td>
<td>4.07 billion</td>
</tr>
<tr>
<td>1990</td>
<td>4.60 billion</td>
</tr>
<tr>
<td>2000</td>
<td>5.57 billion</td>
</tr>
<tr>
<td>2010</td>
<td>7.03 billion</td>
</tr>
<tr>
<td>2015</td>
<td>7.35 billion</td>
</tr>
</tbody>
</table>

Source: US Bureau of the Census
Projections toward 2020 indicate that the demand for animal protein will increase by 50%, especially in developing countries.

Food security is a key public health concern.

Need for supply of safe food.
Healthy animals ensure food security and food safety

Animal health = Key element of Animal Productions / Public Health
GLOBALISATION
HUMAN AND COMMODITIES MOVEMENTS
PNAS, 2004
GLOBALISATION
HUMAN AND COMMODITIES MOVEMENTS

Annual Global Trade in Exotic Animals

✓ 4 million birds
✓ 640,000 reptiles
✓ 40,000 primates
✓ Illegal trade unknown – estimate $4-6 billion
Recent creation of the OIE Ad Hoc Group on Climate Change: aims to define new needs arising from climate changes (e.g. surveillance of arthropods vectors)
CLIMATE CHANGE
IMPACT ON VECTORS
EMERGING & RE-EMERGING DISEASES
WHAT ARE THEY?

- Zoonotic infections with new animal hosts
- Biological agents in new environmental niches
- Newly identified pathogens
- Reappearance of once-eradicated pathogens
- Malicious or accidentally bioengineered organisms?
EMERGING & RE-EMERGING DISEASES
POSSIBLE CAUSES OF INFECTION

- Incidental (‘Normal’/expected)
- External (Uncontrolled/difficult to control)
  - Wild animals, migratory birds
  - Illegal trade
- Deliberate spread Agroterrorism
EMERGING & RE-EMERGING DISEASES

EXAMPLES

Map identifies origin of diverse or serious outbreak spreading or flared-up recently
EMERGING & RE-EMERGING DISEASES
EXAMPLES

- BSE
- FMD in UK (2001)
- AVIAN INFLUENZA in 3 continents (2003-2008…)
- NIPAH VIRUS in Malaysia (1999)
- SARS
- West Nile Virus in N. America
- Bluetongue in Northern Europe..
EMERGING & RE-EMERGING DISEASES

THE HPAI CASE

- H5N1 infection in poultry declared in 48 countries since 2003
- Highly virulent H5N1 strains – Mortality among poultry up to 100%
- Other strains of highly pathogenic avian influenza identified (e.g.: H7N3, H7N7, H5N2)
- Wildlife reservoir
EMERGING & RE-EMERGING DISEASES

THE HPAI CASE

- First H5N1 human case recognized in China and Vietnam in 2003
- Total of 387 human cases reported since 2003 with 63% mortality in 15 countries
- Pandemic threat
  (Spanish influenza: 1918-1919 20 - 40 million dead)
60% of human pathogens are zoonotic
80% of animal pathogens are multi-host
75% of emerging diseases are zoonotic
80% of agents having a potential bioterrorist use are zoonotic pathogens

Nearly all emerging (new) human diseases originate from animal reservoirs
## Emerging & Re-Emerging Diseases Factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>2007</th>
<th>2017</th>
<th>2027</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human demographics and behavior</td>
<td>↑</td>
<td>▲</td>
<td>▲</td>
</tr>
<tr>
<td>Technology and industry</td>
<td>↑</td>
<td>▲</td>
<td>▲</td>
</tr>
<tr>
<td>Economic development and land use</td>
<td>↑</td>
<td>▲</td>
<td>▲</td>
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<tr>
<td>International travel and commerce</td>
<td>↑</td>
<td>▲</td>
<td>▲</td>
</tr>
<tr>
<td>Microbial adaptation and change</td>
<td>↑</td>
<td>▲</td>
<td>▲</td>
</tr>
<tr>
<td>Breakdown of public health measures</td>
<td>↑</td>
<td>▲</td>
<td>▲</td>
</tr>
<tr>
<td>Climate change and weather</td>
<td>↑</td>
<td>▲</td>
<td>▲</td>
</tr>
<tr>
<td>Changing ecosystems</td>
<td>↑</td>
<td>▲</td>
<td>▲</td>
</tr>
<tr>
<td>Poverty and social inequality</td>
<td>↑</td>
<td>▲</td>
<td>▲</td>
</tr>
<tr>
<td>War and famine</td>
<td>↑</td>
<td>▲</td>
<td>▲</td>
</tr>
<tr>
<td>Lack of political will</td>
<td>↑</td>
<td>▲</td>
<td>▲</td>
</tr>
<tr>
<td>Intent to harm</td>
<td>↑</td>
<td>▲</td>
<td>▲</td>
</tr>
</tbody>
</table>
Which solutions?
Requirements for all countries

Need for appropriate legislation and implementation through national animal health systems providing for:

- **Appropriate surveillance** (including wildlife), **early detection and warning** systems
- **Transparency**, notification through OIE
- **Rapid response** to animal disease outbreaks
  - rapid confirmation of suspects
  - confinement and humane stamping out
  - use of vaccination when available and if appropriate
  - compensation mechanisms
GOOD GOVERNANCE FOR VETERINARY SERVICES

KEY ELEMENTS

- Building and maintaining efficient epidemiosurveillance networks and territorial meshing in the entire national territory, potentially for all terrestrial and aquatic animal diseases, including wild animals surveillance

⇒ A responsibility of Governments

⇒ Concept of Quality of Veterinary Services

  Governance, legislation, policies and resources must be in compliance with OIE international standards
GOOD GOVERNANCE FOR VETERINARY SERVICES
STANDARDS OF QUALITY

(Terr. Code, chap .3.1.1)

The Veterinary Services:
- must be able to demonstrate …. that they are in a position to have control of the establishment and application of animal health measures, and of international veterinary certification activities

VS need to define and document responsibilities and structure of the organisations in charge of:
- animal identification system,
- control of animal movements,
- animal disease control and reporting systems,
- epidemiological surveillance and communication of epidemiological information.
The Veterinary Services should have at their disposal effective systems for animal disease surveillance and for notification of disease problems wherever they occur, in accordance with the provisions of the Terrestrial Code.

Adequate coverage of animal populations should also be demonstrated.

+ Other quality requirements set up in chp 3.1/.3.2 are to be met by VS
SCIENTIFIC EXPERTISE

Need for development of:

- Research activities
  - epidemiology,
  - diagnostic tools
  - ...
- Laboratories capacities
  - New technologies
  - Networking
  - ...
INTERNATIONAL SANITARY GOVERNANCE

- World Animal Health Organization – OIE
- World Trade Organization – WTO
- United Nations:
  - FAO – WHO
  - Codex Alimentarius
  - Biological Weapon Convention
  - Others
- Regional Organisations
The OIE response
OIE’s OBJECTIVES

TO IMPROVE ANIMAL HEALTH WORLDWIDE

1. To ensure transparency on the global animal disease and zoonosis situation
2. To collect, analyse and disseminate veterinary scientific information
3. To provide expertise and encourage international solidarity in the control of animal diseases
4. Within its mandate under the WTO SPS Agreement, to safeguard world trade by publishing sanitary standards for international trade in animals and animal products
5. To improve the legal framework and resources of national Veterinary Services
6. To better guarantee the safety of food of animal origin and to promote animal welfare through a science-based approach
ENSURING TRANSPARENCY
WORLD ANIMAL HEALTH INFORMATION SYSTEM

Early warning Monitoring

OIE Listed disease
New Disease / Infection
Immediate notification
Follow-up reports
Final report

Six-monthly report on OIE Listed disease / infection absent or present

Annual report

WAHIS – Secure Access system

Non OIE listed disease
Unusual epidemiological event
Emerging disease

WAHIS Database

WAHID

ENSURING TRANSPARENCY
WORLD ANIMAL HEALTH INFORMATION SYSTEM
OIE’s LIST OF DISEASES
DECISION TREE: TERRESTRIAL ANIMAL DISEASES

INTERNATIONAL SPREAD
• Has international spread been proven on 3 or more occasions? OR
• Are more than 3 countries with populations of susceptible animals free of the disease or facing impending freedom (based on Code provisions, especially contained in Chap 1.4)? OR
• Do OIE annual reports indicate that a significant number of countries with susceptible populations have reported absence of the disease for several consecutive years?

EMERGING
(A newly recognised pathogen or known pathogen behaving differently)
Is there rapid spread or apparent zoonotic properties?

NO

YES

ZOOONOTIC POTENTIAL
• Has transmission to humans been proven? (with the exception of artificial circumstances) AND
• Is human infection associated with severe consequences? (death or prolonged illness)

NO

EXCLUDE

YES

INCLUDE

SIGNIFICANT SPREAD IN NAIVE POPULATIONS
• Does the disease exhibit significant mortality at the level of a country or zone? OR
• Does the disease exhibit significant morbidity at the level of a country or zone?

NO

EXCLUDE

YES

INCLUDE
Definition

“Emerging disease”: means a new infection resulting from the evolution or change of an existing pathogenic agent, a known infection spreading to a new geographic area or population, or a previously unrecognized pathogenic agent or disease diagnosed for the first time and which has a significant impact on animal or public health.

Development/Update of new chapters

➢ Creation of Ad hoc groups, e.g. :
  - on epidemiology
  - on emerging zoonosis
  - on vector borne diseases
  - on surveillance on wildlife
  - ... => standards and guidelines on specific diseases, surveillance, diagnosis.
OIE EXPERTISE
REF. LABs & COLLABORATING CENTRES

• 177 Reference Laboratories
• in 32 Countries
• covering 95 diseases or topics

• 29 Collaborating Centres
• in 18 Countries
• covering 27 topics
Five permanent Regional Representations: Bamako, Buenos Aires, Tokyo, Sofia and Beirut
Four Sub-regional Representations: Bangkok, Gaborone, Panama, Brussels
Five Regional Commissions: Africa, America, Asia-Pacific, Europe and Middle East
INTERNATIONAL COOPERATION
Global Early Warning System (GLEWS)

- Joint OIE / FAO / WHO initiative
- Animal disease and zoonoses tracking
- Emergency response
- Trends analysis predictions
- Capacity building of Veterinary Services for surveillance and early warning and response (animal sector)
- List of priority animal diseases, zoonoses and emerging diseases
INTERNATIONAL COOPERATION
Concept of One World-One Health

=> A global strategy for managing risks at the animal-human interface

OIE’s global partners:
- FAO
- WHO
- UNICEF
- World Bank
INTERNATIONAL COOPERATION
GF-TADs

• Joint **OIE / FAO** initiative: Global Framework for the Progressive Control of Transboundary Animal Diseases

• **Based on Regional Support Units**

• Epidemiological analysis and Early Warning

• Rationalisation of Veterinary Services

• National and Regional capacity building for diagnosis and surveillance

• Laboratories/surveillance teams, through Networks:
  - Regional and National Laboratories
  - Regional and National Epidemiology Units

• Surveillance for primary endemic areas

• Pilot disease control programmes

• Design of National Projects/Advocacy Promotion
OIE Tool for the Evaluation of Performance of Veterinary Services

- Training and certification of OIE experts
- Mission under OIE auspices
- Report
  - Draft
  - OIE Peer Review
  - Final PVS Country Report
  - Acceptance by the country +/- public release
- Gap analysis and Investment proposal (national and international donors)

Through OIE World Animal Health and Welfare Fund
Policies regarding Ref. Labs and Coll. C

Enhance scientific influence

- necessity to audit and strengthen the OIE’s Collaborating Centres and Reference Laboratories Network
- development of twinning procedures and of specific projects supporting laboratories

Through OIE World Animal Health and Welfare Fund
CONCLUSION

Crucial role of VS to address emerging and re-emerging diseases

=> Quality of Veterinary Services

“We must be prepared for the unexpected and be ready to respond rapidly”
Thank you for your attention