One World-One Health

Reducing health risks at the animal-human-ecosystems interface

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The Food and Agriculture Organization of the United Nations
The „one medicine“ by Calvin Schwabe’s has its origins in his work with Dinka pastoralists in Sudan in the 1960s.

„There is no difference of paradigm between human and veterinary medicine. Both sciences share a common body of knowledge in anatomy, physiology, pathology, on the origins of diseases in all species. “

OWOH Manhattan Principles, 2004

- Developed by Wildlife Conservation Society (WCS) in 2004 in New York
- Increasingly being adopted to address pathogen jumps between animals and humans
- **Holistic approach** encompassing interfaces among the human, animal and ecosystem health domains
- Proposes an **international, interdisciplinary, cross-sectoral** approach to disease emergence and control
H5N1 Highly Pathogenic Avian Influenza
May 1997 – March 2014

Summary of confirmed human infections:
- Median age = 17 years (range: 0-75)
- 53% cases female
- Median days from symptom onset to hospitalization = 4
- Median days from symptom onset to WHO reporting = 14
- Apparent case fatality rate = 58%
- Cases in clusters (2 or more) = at least 13%
- Cases exposed to sick or dead poultry = at least 50%
- Cases who were health workers = 0%
- Cases with basic data** = 68%

Sources = World Health Organization, Food and Agriculture Organization, OIE, and scientific publications through 4/4/14; * may be biased towards more-severe cases that are more-easily recognized. ** includes age, gender, location, clinical outcome, and dates for symptom onset, hospitalization, death (if applicable) in publicly-available reports.
6th Interministerial Conference on Avian and Pandemic Influenza (IMCAPI), Sharm- el Sheikh, October 2008

Goal
Diminish the threat and minimize the global impact of epidemics and pandemics due to highly infectious and pathogenic diseases of humans and animals

Focus
Emerging and re-emerging infectious diseases at the animal-human-ecosystems interface

Contributing to One World, One Health*
A Strategic Framework for Reducing Risks of Infectious Diseases at the Animal–Human–Ecosystems Interface

14 October 2008

Consultation Document
Produced by:

FAO
OIE
World Health Organization
UN System Influenza Coordination
UNICEF
THE WORLD BANK
One Health

Ecosystem Health

Human Health

Animal Health

Social factors/impact

Economic factors/impact
## H1N1 Spread in humans: numbers 2009

<table>
<thead>
<tr>
<th></th>
<th>27 Apr</th>
<th>7 May</th>
<th>8 June</th>
</tr>
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<tbody>
<tr>
<td>Confirmed human cases</td>
<td>52</td>
<td>2,117</td>
<td>25,146</td>
</tr>
<tr>
<td>No. Countries</td>
<td>4</td>
<td>24</td>
<td>77</td>
</tr>
<tr>
<td>Deaths from A/H1N1</td>
<td>0</td>
<td>44</td>
<td>133</td>
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</tbody>
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The FAO-OIE-WHO Collaboration

Sharing responsibilities and coordinating global activities to address health risks at the animal-human-ecosystems interfaces

A Tripartite Concept Note

FAO-OIE-WHO

Tripartite Position Paper April 2010

VISION
A world capable of preventing, detecting, containing, eliminating, and responding to animal and public health risks attributable to zoonoses and animal diseases with an impact on food security through multi-sectoral cooperation and strong partnerships.

BACKGROUND
Pathogens populations and human animals and a stake in controlling parasites in their life. It is more and more that replicating host to a suitable

While the in across animal has been at and region systems are with limited. However, the highly patho
Prevention and control of Rift Valley fever
Detection of Specific Zoonotic Viruses that have Potential to Spread within Human Populations*

Nov 2012-Oct 2013

Nov 2013-Oct 2014

- H5N1 highly-pathogenic avian influenza (poultry, wild birds, or humans)
- H7N9 low-pathogenic avian influenza (poultry, wild birds, or humans)
- Other novel avian influenza such as H6N1 and H10N8 (humans)
- Other highly-pathogenic avian influenza H5, H7, or H9 avian influenza (poultry, wild birds) and/or other low-pathogenic H5, H7, or H9 (humans)
- H1N1v, H1N2v, and H3N2v swine influenza (humans)
- Ebola (humans)
- Marburg (humans)
- Nipah (humans)
- Middle East Respiratory Syndrome-Coronavirus (humans)

Sources = OIE, WHO, CDC, Ministry of Agriculture/FAO (Egypt, Indonesia), and IEDCR (Bangladesh) reports between 11/1/12 and 4/4/14. * = All of these viruses are capable of infecting people and human populations likely do not have wide-spread immunity to them; at present, human-to-human transmission appears to be limited. While these reports reflect known infections with these viruses, there may be additional viral circulation in these and other countries that is not detected due to limitations in surveillance and/or detection.

= countries (including northeastern Brazil, southeastern China, and most of Indonesia) using USAID avian influenza and/or other emerging pandemic threats funding between FY2012 and FY2014 for surveillance and response.
Middle East Respiratory Syndrome – Coronavirus (MERS-CoV)
March 2012-March 2014

Summary of confirmed human infections:
- Median age = 54 years (range: 2-94)
- 68% cases male
- Median days from symptom onset to hospitalization = 4
- Median days from symptom onset to WHO reporting = 16
- Apparent case fatality rate = 41%
- Cases with comorbidities = at least 59%
- Cases in clusters (2 or more) = at least 57%
- Cases with connections to Saudi Arabia = at least 83%
- Cases with reported contact with animals** = at least 29%
- Cases involving health workers = 15%
- Cases with basic data*** = 37%

Sources: World Health Organization, ProMed, and scientific publications through 4/4/14; * may be biased towards more-severe cases that are easier to recognize; ** of those cases providing yes/no information; *** includes age, gender, location, clinical outcome, and dates for symptom onset, hospitalization, death (if applicable) in publicly-available reports.

Reported human cases by month (n=210)

Reported human cases by age in years (n=203)

Reported human cases by severity (n=210)

Reported human cases by country (n=210)

= male; = female; = gender not reported

# severe includes hospitalization and/or death

# Europe and N. Africa, # France (2), Italy (1), Tunisia (3), UK (3), Jordan (3), Kuwait (3), Oman (3), Qatar (9), UAE (17), 1 Qatari case and 1 UAE case detected in Germany, 1 Qatari case detected in UK.

USAID
FROM THE AMERICAN PEOPLE
Influenza A/H7N9 in China
February 2013 - March 2014

Summary of confirmed human infections:
- Countries affected = 2 (China, Malaysia)
- Median age = 59 years (range: 0-91)
- 70% cases male
- Median days from symptom onset to hospitalization = 4
- Median days from symptom onset to WHO reporting = 11
- Apparent case fatality rate = 16%
- Cases in clusters (2 or more) = at least 3%
- Cases with connections to China = 100%
- Cases with likely contact with poultry*** = at least 52%
- Cases involving health workers = 0%
- Cases with basic data**** = 74%

Sources = World Health Organization, Food and Agriculture Organization, OIE, ProMed, Flutrackers, and scientific publications through 4/4/14; ** may be biased towards more-severe cases that are easy to recognize. *** rate shown may not be accurate since many cases are hospitalized in serious or critical condition. **** mentioned in WHO report; includes age, gender, location, clinical outcome, and dates for symptom onset, hospitalization, death (if applicable) in publicly-available reports.

Reported human cases by month (n=406)

Reported human cases by age group (n=406)

Reported human cases by outcome (n=398)

Reported human cases in China by province (n=405)

USAID
FROM THE AMERICAN PEOPLE

^ Anhui (11), Beijing (4), Fujian (22), Guangxi (4), Guizhou (1), Hebei (1), Henan (4), Hong Kong (7), Hunan (20), Jiangxi (5), Jilin (1), Shandong (2), Taiwan (2)

** some of these hospitalized cases may have died after the original WHO reports were issued.

= male; = female; = not reported
Ebola
FAO APPROACH TO ZOONOTIC DISEASES

Neglected/endemic Zoonoses
- Echinococcosis/Hydatidiosis
  - Leptospirosis
  - Toxoplasmosis
  - Chagas
  - Lassa Fever
- Trichinellosis
  - Cryptosporidiosis
  - Cysticercosis/
    - Taeniasis
  - B-Tuberculosis

Emerging zoonoses
- Rabies
- Rift Valley Fever
- Leishmaniasis
- West Nile Fever
- Q-Fever
- Japanese Encephalites
- Brucellosis
- Anthrax
- Anisakiasis
  - E.coli 0157
  - MRSA
  - BSE/vCJD
  - Hepatitis E
- Salmonellosis
  - Staph
  - Campylobacter
  - Listeriosis
  - Yersiniosis
  - Norovirus
- HPAI
  - Nipah/Hendra
  - Ebola/Marburg (SARS)
  - Monkeypox
  - Hanta
  - Crimean Congo Hemorragic Fever

Better Health systems
Development
Poverty alleviation
Public awareness

Emergency Preparedness
Early detection
Rapid response

Chain approach
Empowered consumers
Certification systems

Antibiotic residues
and antimicrobial resistance

Food-borne diseases
Canadian Integrated Program for Antimicrobial Resistance Surveillance (CIPARS)
One Health in the Food Chain

healthy food and agriculture

healthy humans

food
distribution + marketing

food animal processing

live animal trade and transport

food animal production

food processing

waste

soil/wat

feed/food crops

plants

fisheries and forestry

arthropod vectors

wildlife

pets + feral dogs/cats

healthy ecosystems

public health

safe food

healthy eco-systems

healthy animals

healthy plants

healthy food

and agriculture

healthy

animals

healthy

plants

healthy

fisheries

and forestry

safe food

healthy

ecosystems

public health
The importance of risk communication and the impact of social media
## Key elements of effective cross-sectoral collaboration

<table>
<thead>
<tr>
<th>Key Supporting Elements</th>
<th>Key Operational Elements</th>
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<tbody>
<tr>
<td>1. Political will and high-level commitment</td>
<td>A. Joint cross-sectoral coordination mechanisms</td>
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<tr>
<td>2. Trust</td>
<td>B. Routine communication</td>
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<tr>
<td>3. Common objectives and priorities</td>
<td>C. Joint simulation exercises</td>
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<td>4. Shared benefits</td>
<td>D. Data sharing</td>
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<tr>
<td>5. Strong governance structures, aligned legal frameworks, and recognition of existing international standards</td>
<td>E. Joint risk assessment</td>
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<tr>
<td>6. Adequate and equitably distributed resources</td>
<td>F. Active cooperation on disease control programmes</td>
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<td>7. Identification and involvement of all relevant partners</td>
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<td>8. Coordinated planning of activities</td>
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<tr>
<td>9. Guidance on implementation of cross-sectoral collaborations</td>
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<td>10. Capacity development</td>
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<tr>
<td>11. Strong and effective health systems within the individual sectors</td>
<td>(HLTM, Mexico 2011)</td>
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Delivering One Health

What’s it going to take?

Understanding complexity
Dealing with the unknown
Responding to uncertainty

We can make it happen.

Let’s begin.
Preparing today the professionals of tomorrow

Thank you!!!