Progressing One Health from theory to policy to practice

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How to operationalise One Health?

- One Health approach has full support at the highest levels
- WHO
- OIE
- FAO
- World Bank
- Member Countries
- Professional bodies

Theory
Policy
Practice
WHO-OIE Operational Framework for good governance at the human-animal interface

- Published 2014
- Built on a 2010 concept note
- Objective is to help Member Countries contribute to the development of a coherent system of global health governance at the human-animal interface.
Purpose of the WHO-OIE Operational Framework

• Inform WHO and OIE Member Countries of the processes and tools that have been developed and which are available to support them in operating under the principles of good governance.

• Developed for:
  • Public health authorities
  • IHR National Focal Points
  • National Veterinary Services

• To assist them in obtaining a comprehensive overview and understanding of all the available tools, how to access them and the outputs produced.
Three parts

• **Part 1:** Concept of good governance in the context of the human-animal interface

• **Part 2:** List of support processes and tools developed by WHO and OIE to assist their Member Countries and their overlap.
  - Comparison of the Performance of Veterinary Services (PVS) Evaluation (PVS Pathway) and WHO Monitoring Framework
  - Country specific examples from workshops

• **Part 3:** Detailed description of WHO and OIE tools; synergies
  - OIE and WHO assessment and monitoring tools and how they can be linked
  - OIE and WHO costing tools
  - WHO and OIE laboratory analysis tools to identify targeted and strategic improvements
Expectations of good governance for Member Countries

- Accountable
- Transparent
- Able to monitor performance
- Able to enforce legislation
- Formulate and implement sound policies
- Manage resources efficiently
- Provide effective services

Good governance = refers to human and animal health systems which comply with international regulations, standards and obligations to protect people and livestock against major health threats that have the potential to spread internationally.
Early warning – Intergovernmental standards

- International Health Regulations (2005) (IHR)
  - Public Health Emergency of International Concern (PHEIC)
- Terrestrial Animal Health Code
- Aquatic Animal Health Code

Early detection, Response, Control

Developing a common global strategic framework
WHO Tools for Member Countries

- IHR Monitoring Framework – 28 indicators
- 4 capabilities and hazards relevant to human-animal interface cover zoonotic events and food safety

Fig. 5
Capacity scores for the detection of and response to public health hazards, 2011, per World Health Organization (WHO) regions
OIE Performance of Veterinary Services Pathway

- Veterinary services = public and **private**
- PVS Pathway is a comprehensive, multi-stage continuous process that engages all components of veterinary services.
- PVS Evaluation
- PVS Gap Analysis (PVS Costing Tool)
- PVS Veterinary Legislation Support Programme
- PVS Pathway Laboratory Mission
- PVS Pathway Follow-up Missions
## PVS Pathway fundamental components

### Table VIII: Fundamental components of the PVS Tool

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<tr>
<th>Fundamental component 1</th>
<th>The human, physical and financial resources to attract resources and retain professionals with technical and leadership skills</th>
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<tr>
<td>Fundamental component 2</td>
<td>The technical authority and capability to address current and new issues including prevention and control of biological disasters based on scientific principles</td>
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<td>Fundamental component 3</td>
<td>The sustained interaction with interested parties in order to stay on course and carry out relevant joint programmes and services</td>
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<td>Fundamental component 4</td>
<td>The ability to access markets through compliance with existing standards and the implementation of new disciplines such as the harmonisation of standards, equivalence and zoning</td>
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### Fig. 7
Visual representation of the PVS Tool

- Critical competencies (5 - 18)
- 47 in total
- 5 levels of advancement
IHR (2005): Capacity to detect, assess, report and response to all Emergency Event of International Concern

- Human infectious pathogens
- Zoonotic pathogens
  - Food safety
- Radiation and nuclear hazards
- Chemical hazards

- Legislation and Policy
- Coordination
- Surveillance
- Response
- Preparedness
- Risk Comm.
- Human Resources
- Laboratory
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<th>Core capacity 1: National legislation, policy and financing</th>
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<th>Core capacity 2: Coordination and National Focal Point communication</th>
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Developing a common global strategic framework
What happens in Member Countries?

• Strong support for One Health in theory from health and veterinary departments.
• Wildlife / environment departments often absent from One Health arena.
• One Health is becoming an acceptable theoretical approach.
• Implementation in policy is difficult to find.
• Implementation in practice is progressing for specific diseases, particularly emerging zoonotic diseases.
Workforce development

• Now generally well accepted that when researching zoonoses need a team that includes doctors and veterinarians plus ecologists/zoologists for zoonoses from wildlife.

• In developed countries One Health Workforce education and training is mainly through short courses and inclusion of OH concept in UG and PG subjects.

• In Southeast Asia and Eastern Africa the active strategies to develop an OH Workforce is leading the world.

• The Emerging Pandemic Threats Program (USAID) is assisting this.
What topics do OIE Member Countries consider most important for One Health approach?

• Glynn & Brink surveyed all 178 OIE Member Countries to better understand the perceptions and priorities of Veterinary Services with respect to One Health efforts and to guide future work in that area.

• Delegates identified zoonoses as a high-priority disease area

• Most important were rabies, avian influenza, brucellosis

• Disease reporting and food safety identified as high-priority programme areas for One Health approaches.
Fig. 1
The importance of taking a One Health approach: average levels of importance attached to select diseases or groups of diseases by national Veterinary Services
Survey of national OIE Delegates, 2012 (120 delegates responded)

*Viral haemorrhagic fevers other than Rift Valley fever

- Glynn & Brink Rev, Sci Tech Off Int Epiz 2014;33:433-441
“Following the 2011 1st International Conference on One Health in Australia there was a lot of energy and enthusiasm to develop further the One Health concepts and to operationalise activities. In reality this has not materialised into significant tangible outcomes ...” Prof Martyn Jago et al. *Update on One Health in Australia* June 2013.

- Highlighted the creation of a Division of One Health in the Commonwealth Department of Agriculture, Fisheries and Forestry (DAFF).
- In 2015 this Division does not appear to exist in DAFF.
In Australia it is difficult to find any official policies on One Health

Public Health Association of Australia:
Policy-at-a-glance – One Health Policy

Key message: PHAA will –

1. Document and deliver clear examples of where a One Health approach has added value.
2. Develop a range of communication messages focusing on the added value of this approach.
3. Document and share a baseline risk analysis of existing and potential disease threats at the national and state levels.
4. Advocate for curriculum review for relevant fields of study.
5. Seek additional resources to enhance a One Health approach to research, policy formulation, operational activities, communications and education.
6. Convene a range of meetings and workshops to develop One Health approaches for Australia and attend interdisciplinary events to engage new thinking.

• http://www.phaa.net.au/about-us/SIGs/one-health-sig
The One Health SIG aims to:

- Increase awareness and understanding of One Health concepts across Australia
- Incorporate awareness of One Health approaches in undergraduate and post graduate education in a wide range of relevant disciplines at tertiary institutions
- Endorsed 5 Actions and a 7 point Action Plan.
Operationalisation for specific diseases or events: examples

• Antibiotic resistance - Australia

• Emerging zoonotic diseases
  • Hendra virus – Australia
  • West Nile virus – USA

• Environmental contamination
  • Lead poisoning – Australia

• Endemic zoonoses
  • Rabies
  • Q fever - Australia
Antimicrobial Resistance

A Report of the Australian One Health Antimicrobial Resistance Colloquium

18 July 2013
One Health approach to action provides an opportunity to find common ground across sectors and develop a unified management plan.

Fundamental priority is to develop an integrated, risk-based surveillance system that covers human and animal use of antibiotics, and the incidence and spread of organisms with antimicrobial resistance.

Highlights knowledge gaps and priorities for action across both human and animal sectors.

This report helped inform the National Antimicrobial Resistance Strategy for Australia.

Advantage of One Health approach for control of antimicrobial resistance
Hendra virus (HeV) is a Henipavirus similar to Nipah virus.

All 4 species of fruit bat in Australia carry HeV.

HeV spills over from bats to horses (via urine and faeces), then to people and other domestic animals via all fluids.

HeV transmission in bats is higher when food is scarce and when they are reproducing.

Outbreaks in horses occur largely in coastal Qld and northern NSW.
HeV transmission relies on alignment of multiple factors

Bat to horse

Control at multiple points

Reduce stress on bat populations (conservation strategy)

Reduce contact between bats and horses

Increase level of equine immunity (HeV vaccination)
Bats and Trees

Because of the threat of Hendra virus and the extensive area that flying foxes cover in Australia, equine owners now have to re-evaluate the way that equine properties are set up, the type of tree and the way they are planted.

The following is a guide to avoid bat/equine interactions by using a combination of recommended trees and the way to plant them so you reduce your risks.

There is no way you will completely eliminate the risks.

Reduce contact between bats and horses

• Bats feed on trees with blossoms and fruit.

• Keep these bat-attracting trees out of horse paddocks.
Reduce contact between bats and horses

• Put horses into stables at night to reduce contact with the bats that are most active at night.
Control: Horses to humans

Decrease contact between humans and HeV infected horses

Improve veterinary infection control

Use HeV monoclonal antibody prophylaxis for humans at high risk

Cartoon by Diana Mendez and Ken Miller
HeV control – One Health approach

• Reduce stress on bats by providing an adequate environment.
• Implement long term conservation strategies.
• Keep people and domestic animals apart from bats.
• Detect and manage spillovers rapidly to prevent horse to horse, horse to other domestic animal or horse to human transmission.
• Maintain high standards of veterinary and human infection control.
• Promote horse HeV vaccine as protection for horses and humans.
• Develop treatments for exposed humans and animals.
Initial challenges in putting theory into practice

- No official mechanism for Qld Health and Qld department of veterinary services to work together in controlling HeV outbreaks.
- Now have MOU and clear operational roles.
- Primary responsibility for outbreak control with state veterinary services
  - Isolation, quarantine, testing of exposed animals
- State health manages human exposures – risk assessment and prophylaxis if needed.
- Private veterinarians manage clinical aspects and workheath and safety (WHS) of their staff and clients (owners of the horse).
- WHS is overseen by Qld Department of Justice.
Hendra Virus Task Force
- Broad group with veterinarians, doctors from government and private services at state and national levels.

Bat Health Focus Group
- Very broad group with veterinarians, doctors, bat ecologists, bat carers, zoos, universities, from government, private and public sectors.
- Coordinated by Wildlife Health Australia.
- Produces 6th monthly reports on Australian bat lyssavirus (ABLV) and other issues (Bat news).
- Produces guidelines on bat health issues.
West Nile Virus in USA

- Arrived in USA in 1999
- WNV first found in crows dying in New York state
- >10,000 humans affected with 23% case fatality rate
- Now spread to all but 2 off-shore states.
Only free in Hawaii and Alaska

http://www.cdc.gov/ncidod/dvbid/westnile/surv&control.htm
Surveillance using a One Health strategy

- Mosquitoes – detecting virus by PCR.
- Infected birds – dead and moribund birds tested via wildlife surveillance.
- Affected humans – detected and managed through health system.
- Affected domestic animals – detected and managed through veterinary services.
- Warnings issued and mosquitoes controlled by targeted spraying.
One Health – Wild birds as indicators for human risk of lead poisoning

• In late 2006 epidemic with high mortality in wild birds at Esperance, Western Australia.
• Wildlife Health Australia (national surveillance) identified that birds died from acute lead poisoning.
• Evidence of a hazard to all!

State health dept initially denied any risk to human health
Due to lead carbonate ore being carried into the port by train from an inland mine

• Resulted in trains being stopped.
• Dust proof transport being required.
• Testing of children
  • Evidence of lead contamination.
• Clean up of contaminated water tanks around the town.
The Esperence lead epidemic was an excellent proof of concept of One Health

• Control of the problem was markedly improved since it would have been ignored without the animal component (bird deaths detected through wildlife surveillance).
• Evidence from birds showed level of contamination steadily worsening when no remedial action was taken.
• Proof of the impact of interventions.
• Many lessons learned with application for future contaminating events.

How can a One Health approach work?

Rabies

Improved efficiency of control
Brucellosis in Australia

• Australia eliminated *Brucella abortus*
• Australia has no *B. melitensis*
• *B. suis* is present in wild pigs in NSW and Qld.
• Pig hunters are at risk.
• Difficult group to access for health promotion and to improve hygiene practices.
Protection against brucellosis is low on the pig hunters’ agenda
Compromise for a difficult group!

- Feral pig hunters ignored WHS recommendations
- Did qualitative research to understand the world view of feral pig hunters
- Compromise needed
  - take more time and watch your hands when making cuts
  - have good lighting
  - take care when cutting near a sow’s uterus
  - use latex gloves to cover cuts on hands.

Goats can be sources of major Q fever outbreaks.
Worse when they are intensively farmed.
Intensive goat herds in Victoria expanding to supply goat milk powder to China.
Risk of Q fever being managed by standard human vaccination of staff, plus
Vaccination of goats with an unlicenced effective vaccine
  Kept in herd; so general licencing not required.

Vaccination of high-risk domestic animal species to protect humans, and the new industry
One Health progress in operationalisation

• The One Health approach is well accepted and established in theory.
• Starting to shape how health issues are managed at the population level.
• Implementation in national policies is lagging behind strategies being used for specific diseases.
• Clinicians both in human and animal health tend to remain isolated in professional silos.
• Developing strategies to get doctors and veterinarians working together in the clinical area will reduce this professional isolation.
Most physicians think that veterinarians are the profession with the better knowledge about zoonoses.

However, there is no official mechanism to allow veterinarians to assist with the management of patients with zoonoses.

Veterinarians can add to doctors efforts by educating the patient and reducing risks for them, their family and fellow workers.

This can be explored under Clinical One Health.
What evidence is needed?

- For Clinical One Health to progress evidence of improved efficiency is needed.
- Operational research is required.

Acceptable to public?
Acceptable to professions?
What training do vets need?
Regulatory logistics?
Is the approach effective?
Is it feasible?
Is it cheaper?

Demonstrations with nominated zoonoses in rural areas or occupational groups: Q fever, leptospirosis?
Survey of public – 1023 residents of Queensland, Australia in 2014

• If your doctor diagnosed you with an infectious disease that had been acquired from an animal, would you be willing to have an additional consultation with a veterinarian at your own expense to learn more about the disease if your doctor recommended it?

• If “No”, would you be willing if the veterinary consultation fee was funded under Medicare?

Yes to Q1 = 79.8%

Yes to Q2 = 59.9%

Yes overall = 90.7%
We are at an interesting stage in implementation of One Health.

Southeast Asia has the opportunity to lead the way!