

Pathways to progress One Health expertise in Australia:

A Public Health Association of Australia (PHAA) and National Centre for Epidemiology and Population Health (NCEPH) national expert consultation

Introduction

In 2011, the Public Health Association of Australia (PHAA) established a Special Interest Group on One Health. On October 24–25 October 2013 the PHAA One Health Special Interest Group held a national workshop of Australian experts at the National Centre for Epidemiology and Population Health, a part of College of Medicine, Biology and Environment of the Australian National University (ANU). The workshop explored potential components of One Health education and training in Australia.

The program included an outline of the One Health approach and incorporated a series of case studies on specific disease events demonstrating how a One Health approach clearly added value and benefit. This provided a framework for discussing the skills and knowledge that support such an approach and how to invest these in both graduate and postgraduate education and training. This report provides a brief background on One Health, and a summary of recommendations from the workshop. A copy of the program, summary content from discussions and a list of participants are included as Attachments A, B and C.

Background

One Health advocates a multidisciplinary and multisectoral approach to improving human, animal and environmental health. One Health provides a proven way to anticipate and manage human, animal and environmental health issues in an increasingly complex and interconnected world.

Australia hosted the first international Congress on One Health in 2011 and there have been a variety of initiatives in Australia to develop a One Health approach to a many of our challenges. The One Health approach is gaining momentum as scientists and policy-makers realise that the systems thinking involved is the only way forward in an increasingly complex world. Institutions and countries are increasingly looking to adopt the principles and concepts that underpin a One Health approach, and the World Health Organization (WHO), the Food and Agricultural Organization (FAO), and the World Organisation for Animal Health (OIE) signed an agreement to align many of their activities under a coordinated One Health framework.

One Health approaches are applicable to both infectious and non-infectious diseases. About 75% of emerging infectious diseases arise in animals, including wildlife. Understanding and responding to these diseases requires contributions from the medical profession, from animal health experts, from wildlife specialists and ecologists, and from environmentalists, economists and social scientists. The One Health approach is also applicable to non-infectious diseases and in addressing broader issues such as food safety and food security. Using a One Health approach is relevant to research, to operational activities (such as prevention, preparedness and response), and to policy development.

Challenges are in implementing multi-jurisdictional and multidisciplinary programs and maintaining shared goals and effective relationships. A key element of addressing this is ensuring that graduate and postgraduate education and training include an understanding of the interdisciplinary principles and practices of One Health. This should ensure that our next generation of professionals can work effectively in multidisciplinary teams to prevent, prepare for and respond to future animal, human and environmental health threats.

Recommendations

General recommendations

There is a need to:

- Increase awareness and understanding of One Health concepts across Australia.
- Incorporate awareness of One Health approaches in undergraduate and postgraduate education in a wide range of relevant disciplines at tertiary institutions.

Specific recommendations

1. Undergraduate training across a wide range of disciplines

There is a need to:

- Manage complex relationships at the human, animal, environmental interface in Australia, with consideration of the global context.
- Recognise that complex problem solving needs specific multidisciplinary skills and understanding of future local and global impacts.
- Be aware of the need to use other disciplines and skills (e.g. for scientific and technical disciplines to appreciate the skills offered by disciplines such as economics, social sciences, communication skills, change management and problem analysis — and for students in these disciplines to appreciate the skills offered by scientific and technical disciplines such as medicine, veterinary science and environmental science).
- Reflect on the role of discipline specialists and their role in the bigger picture and the need for teamwork as a necessary part of solving complex problems.

Solutions

- Co-teach basic life sciences and overlapping disciplines (such as medicine and veterinary science), especially across public health.
- Determine core competencies and curricula to deliver those competencies.
- Work with professional accreditation agencies to develop and roll-out units in medical and veterinary areas to show-case the One Health approach.
- Develop of foundation units and additional units.

2. Postgraduate specialisation, skills and knowledge

There is a need to:

- Manage complex relationships at the human, animal, environmental interface in Australia, with consideration of the global context.
- Be able to build on individual specific disciplinary expertise by adding skills that enable a transdisciplinary¹ approach.
- Be able to apply a transdisciplinary approach to problems and issues of mutual concern.
- Apply systemic thinking across diverse disciplines.
- Understand other disciplines enough to be able to collaborate effectively through a shared language and approach to problem solving.
- Know of stakeholders who have used a One Health approach and know of examples of where a One Health approach has been beneficial.
- Develop leadership, networking, advocacy, risk management and project management skills.

¹ *Multidisciplinary* is defined as many disciplines being involved and *interdisciplinary* as disciplines working very closely with one another and plans fully integrated. *Transdisciplinary* implies an exchange of knowledge and skills between disciplines in working together for a desired outcome.

Solutions

- Include One Health as a core subject in Masters courses (e.g. Masters programs in public health or veterinary public health).
- Include One Health as an elective in a range of interdisciplinary post-graduate courses.
- Explore the demand for:
 - Specific One Health postgraduate course modelled on existing courses (e.g. Master of Applied Epidemiology, Master of Veterinary Public Health Management), potentially co-funded by interdisciplinary government agencies and including placements with organisations that practise One Health.
 - A One Health specialisation in existing masters courses, a model unit, core subject, or stream specialisation (e.g. US Academy of Science 'Blue Print'-type model)
 - Multidisciplinary masters courses.

3. Improving collaboration in research

To improve collaboration in research, there is a need to:

- Articulate problems that should be targeted and the desired outcomes including a strong business case through development of One Health research methods.
- Recognise the need for the recognition of teams of complementary investigators and institutional contributions.
- Accept the need for collaboration and co-leadership of teams.
- Identify mechanisms for funding One Health research (e.g. through mapping funding opportunities and models in Australia and overseas; lobbying main research institutes).
- Identify champions and form advisory groups to identify and advise on strategic priorities for One Health research.
- Develop ways to work as collectively including:
 - Sharing resources.
 - Developing transdisciplinary shared research funding applications.
 - Using a shared understanding of language.
 - Form a consortium (e.g. universities, government and other bodies including agreed arrangements around IP etc.).
 - Develop engagement frameworks.
 - Explore models for One Health research (e.g. the Cooperative Research Centre model).
- Develop an agreed vision and principles that includes recognition of the role of social sciences as a key enabler.
- Develop a plan and process of review and assessment.
- Develop tools to identify, articulate and solve problems.

Appendix A: Workshop Program

PATHWAYS TO DEVELOPING ONE HEALTH AS A DISCIPLINE

Public Health Association of Australia (PHAA) and National Centre for Population Health (NCEPH)
Australian National University, Canberra, ACT

DAY 1 Thursday 24 October 2013

0800 – 0830 **Registration, coffee and tea**

0830 – 0845 **Introduction**

0845 – 0915 **What is One Health?**

Professor Martyn Jeggo
Professor Chris Baggoley

0915 – 1015 **Perspectives on One Health: Panel One**

Medical	Dr Moira McKinnon
Veterinary	Dr Ian Roth
Policy	Dr Mike Nunn
Research	<i>TBC</i>
Academic	Professor Tania Sorrell

1015 – 1030 **Morning tea**

1030 – 1130 **Perspectives on One Health: Panel two**

Public Health	<i>TBC</i>
Social Sciences	Dr Mel Taylor
Animal Welfare	Dr David Adams
Economics	<i>TBC</i>
Student	<i>TBC</i>

1130 – 1230 **General discussion with Panellists**

1230 – 1300 **Lunch**

1300 – 1345 **Case studies and Leaders**

- 1) Demonstrating success using a One Health approach including participation of social scientists – the **Hendra story and bat control** (Professor Martyn Jeggo)
- 2) Lessons learned from the international experience of H5N1 influenza – how a One Health approach would have been beneficial in the early days of **dealing with H5N1** (Dr Mike Nunn)
- 3) An Australian One Health case study: how a One Health approach with greater **human health expertise** could improve management of influenza in pigs (A/Professor David Smith)
- 4) Where use of **wildlife expertise** in a One Health setting has been beneficial – tuberculosis at Taronga Zoo – (Dr Larry Vogelnest)
- 5) Where a more inclusive One Health approach would be beneficial – **antimicrobial resistance** (Professor Lyn Gilbert)
- 6) Where a One Health approach is used and beneficial – **food safety** (Dr Scott Crerar)
- 7) Where expertise in **human health epidemiology** would have been beneficial in **wildlife / environmental issue** – amphibian decline (Dr Lee Skerratt)
- 8) Where education/training for **biosafety** for zoonoses has been beneficial (Dr Kevin Doyle)

1345 – 1430 Group discussion of case studies

1430 – 1445 Afternoon tea

1445 – 1515 Case study group reports and general discussion

1515 – 1545 Walk and talk review of case study reports

1545 – 1630 Case study outcomes and identification of ‘champions’

DINNER 1800 - 2030 Boffins, University House, ANU

Guest Speaker Dr Peter Black

DAY 2 Friday 25 October 2013

0830 – 0900 Coffee and tea

0900 – 0915 Recap Day 1 and outline morning activity

0915 – 1000 Group discussion with ‘champions’

1000 – 1045 Champions present summaries from groups

1045 – 1100 Morning tea

1100 – 1130 Walk and vote on group summaries

1130 – 1200 Select three top directions for developing One Health as a discipline

1200 – 1215 Summary of workshop

1215 – 1230 Final comments: Michael Moore, CEO, PHAA

1230 – 1300 Lunch

1300 – 1500 PHAA ONE HEALTH SPECIAL INTEREST GROUP ANNUAL GENERAL MEETING

Appendix B: Workshop discussions

The workshop discussed, *inter alia*:

- Tools for prevention, preparedness, response and recovery.
- Stakeholder mapping for employment
- Education and training in One Health currently available in Australia
- The way forward.

Tools for prevention, preparedness, response and recovery

Some tools and associated ideas discussed at the workshop include:

- Thinking
 - Paradigm shift to a One Health approach.
 - Shared responsibility.
 - Humility is needed for transdisciplinary collaboration.
 - All necessary need to be involved.
- Development
 - Workshops and meetings (like this) to influence thinking in the workplace.
 - Develop fora to share ideas and insights
 - Develop a One Health “toolkit” to assist disciplinary specialists (e.g. mapping, relationship pathways, decision pathways)
 - Encourage regular meetings of CMO and CVO (plus environment equivalents) in all jurisdictions.
 - Identify stakeholders, including rolls and responsibilities.
 - Understand that different response capacity is required.
 - Understand the different needs during ‘peace-time’, emergencies and crises.
 - Practise One Health responses.
- Implementation
 - There is a need for an action and communication mapping tool.
 - Optimisation tools are at different levels of response.
 - Foresight tools, including scenario analysis, are required.
 - Identification of stakeholders and key cells including roles and responsibility.
- Connectivity
 - Develop a common language.
 - Develop a network to maintain contacts between relevant people.
 - Foster political will (e.g. letters, presentations, invitations to be a key speaker).
 - Develop a communication plan and key messages (for consistency across levels of study and disciplines).
 - Agree on what One Health is (to ensure consistency when talking to policy-makers).
 - Develop cross-disciplinary collaboration to improve the health of all sectors (i.e. not just all working together to improve human health).

- Encourage a One Health stream in conferences in different disciplines (ethics, ecology, economics) to develop a shared language and understanding as well as to explore different ways of framing the question or issue.

Stakeholder mapping for employment

Some ideas about stakeholder mapping for employment discussed at the workshop include:

- Other professional associations and societies (leadership together)
- Career options: employers (understanding value of One Health skills/training)
- Social scientists (need to involve more)
- Industry (e.g. engineers).
- Education specialists (not only technical and scientific specialists, but also specialists in course design etc.)
- People who work in health services/management.
- Media/journalists (advocacy).
- Policy-makers.
- Politicians (advocacy).
- Environmental agencies (government and non-government organisations: advocacy).
- Environmental scientists (e.g. ecology, biology).

Education and training (university and professional) in One Health currently available in Australia includes:

- One Health short course (University of Queensland)
- Master of Health Security (University of Sydney)
- Master of Conservation Medicine (Murdoch University WA)
- Master of Public Health specialising epidemiology (University of New South Wales)
- Master Applied Epidemiology (Australian National University)
- Master of Veterinary Public Health (University of Sydney)
- One Health unit in master of public health (Monash University)
- Professional college membership and fellowship (e.g. Member of the Australia and New Zealand College of Veterinary Science [MANZCVS] in epidemiology)

The way forward

Actions discussed at the workshop include:

- Explore recognition and rewards for teams and projects that use a One Health approach.
- Increase opportunities for cross-disciplinary links:
 - CVO–CMO–Environment meetings
 - Run more workshops on One Health
 - Encourage integrated meetings of professional societies
 - Include relevant website linkages on PHAA website
- Form a consortium of universities, Government and other bodies (include employers and industry groups) working in the One Health area to:
 - provide national leadership, sustained research, integrated education programs
 - provide advice to key policy, economic, environmental and resource sectors on the threats and opportunities of animal, human and environmental health
 - form an advisory group on strategic research needs.

- Develop One Health competencies for undergraduate and postgraduate curricula.
- Encourage peer reviews and journal submissions to be more attuned to and inclusive of the One Health approach.
- Develop and implement a One Health approach to identified signature areas (e.g. emerging infectious diseases, including pandemic preparedness and medical countermeasures); antibiotic resistance; food safety; food security; sustainability and biodiversity).
- Educate employers about the opportunities and benefits of graduates trained in the One Health approach.
- Encourage awareness that wildlife health, ecology, and climate and environment management are integral to the One Health approach.
- Integrate the One Health approach into mainstream policy is a high priority for the future of Australia.