One Health Approach Roadmap: A University Perspective

Prof. Reza Nassiri

Go Green, Go State!

2nd GRF One Health Summit
November 17-20, 2013
Davos, Switzerland
The aim of this presentation is:

*To cultivate a shared vision*

*and*

*to set a framework of One Health implementation*
Concept of Bringing One Health Into Focus

Figure 1: One Health: Driving Forces at the Interface

Ecological Factors
- Changing ecosystems
- Human demographics & behaviour
- Animal production systems

Physical Environmental Factors
- Climate & weather
- Economic development
- Land use

Genetic & Biologic Factors
- Microbial adaptation / change
- Susceptibility to infection
- Loss of biodiversity
- Epigenetic changes

Social, Political & Economic Factors
- Globalization of people / commerce
- Poverty & social inequity
- Food security
- Intent to harm

Environment Health

Animal Health

Human Health

1 Brain Evans “Redefining Biosecurity in a One Health World” (paper presented at the CanWest Veterinary Conference, Banff, Alberta, 2011).
One World One Health
Manhattan Principles, September 2004
Formulation of Concepts

Operationalizing “One Health”
National Center for Emerging & Zoonotic Infectious Diseases – CDC, May 4-6, 2010 Stone Mountain, Georgia

Global Approach in One Health
(Barrett et al, Front Ecol Environ, 2011; 9(4): 239-245

The Challenges of Implementing One Health
Laura H. Kahn, Institute on Science for Global Security
Princeton University
Barriers against implementation of One Health in Switzerland

- Different professional cultures
- Inappropriate structures
- Shortage of resources
- Lack of information and/or evidence
- Satisfaction with today’s situation
- Lethargy of the system
- Fear of losing power
- Low self-confidence of vets
- Different educational levels
- Interference with data safety
- Varying research standards

Number of entries
Economic Logic
Where the logic translates into success for One Health

Jonathan Rushton

- Specific diseases
- Where resources are scarce
- Where resources are underutilized

.....and where opportunities and bridges exist (Reza Nassiri)
Strategic Priorities of One Health Roadmap

• Immediate
  • Leadership
  • Expertise
  • Stakeholders
• Funding resources – impact grants
• International collaborative research
• Vision/white paper
Strategic Priorities of One Health Roadmap

• One Health Index (OHI)
  • To be used for benchmarking and priority-setting
• Academic - corporate partnership
• Capacity development
• Communication and networking
• Action plan
• Advocacy
• Culture of change
• Gaps/barriers/bridges
• Opportunities
Benchmarks of One Health Quality
(Establishing Standards of Excellence)

• Identification of **themes relevant to One Health concept** with regard to local, national and global needs (evidence-based international research)

• **Short-term efficacy studies** concerning effectiveness of One Health approaches and implementation

• **What actions would be most appropriate** to take to improve global health outcomes through One Health approach, such as taking into consideration cultural & practice difference in values (Global Bioethics)
Benchmarks of One Health Quality (Establishing Standards of Excellence)

- **Safety** and regulatory issues
- Application of **metrics** to measure One Health quality outcomes. Examples:
  - Zoonoses
  - Environmental toxicants risking human, animal health and ecosystem health
  - Epigenome and environmental factors (stresses such as pollution, contaminated waters, etc)
Strategic Factors in One Health Implementation

• Evidence-based proof of concept
• Culture of collaborative efforts of multiple disciplines and the stakeholders (multisectoral, multinational)
• Political and legislation will
  • Local
  • National
  • International
• Institutional commitment
The Way Forward
(Homework – multisectoral and multinational)

• Articulate a vision of One Health for integration
  • 3Is (Innovation, Implementation, Impact)

• Identify
  • Opportunities
  • Areas (education, research, development projects) such integration exists and is practical
  • Resources including technical and administrative support
The Way Forward
(Homework – multisectoral and multinational)

• Articulate One Health solution aligned with current global health challenges

• Evaluate economics of One Health

• Perhaps the momentum for establishing an International Journal of One Health?
Taking One Health Approach to Impact

Financial commitment and political leadership

Key Ingredients:
- Strategic Roadmap - Innovation
- Collaborative efforts (partnership) - Funding

* Translating evidence into policy and practice
Research and teaching activities link the institution with external communities in mutually-beneficial knowledge exchange relationships.
Systems integration of global health issues that necessitate collaborative multidisciplinary-, multinational solutions addressing human health, animal health, ecosystem health, and food/water security collectively.

Risk & Exposure: understanding the mechanism of “toxicity” is critical.
Summary

• The goal of One Health is to INTEGRATE efforts in human & animal health, public health, agriculture, food & water security, and environmental health.

• One Health approach is a growing global vision being adopted by health organizations, universities and policymakers.

• **One Health approach should expand on scientific knowledge.**
Summary

• Universities play a pivotal role in advancing One Health science, knowledge, and training of future One Health investigators and policymakers.

• One Health benchmarks will help universities to more closely examine their role in One Health teaching & research.

• Investment in One Health is a growing trend that continues to transform the vision of many institutions and agencies for not only one planet and one future, but also for the people of the planet.
..... advancing sustainable global prosperity ....