Moving Forward on One Health
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“To Prevent Disease, to Relieve Suffering, and to Heal the Sick, -This Is Our Work”

Sir William Osler (late 19th C. clinical pathologist, but also active in promotion of veterinary health)
Economic Impacts of Emerging Infectious Diseases

Economic Impact of Selected Infectious Disease Outbreaks

- **SARS**
  - China, Hong Kong, Singapore, Canada
  - $30-50bn
- **H1N1**
  - Worldwide
  - $45-55bn
- **H5N1 Avian Flu**
  - Worldwide
  - $30bn
- **Foot & Mouth**
  - Taiwan
  - $5-8bn
- **Foot & Mouth**
  - UK
  - $10-15bn
- **Nipah**
  - SE Asia
  - $550-650m
- **Lyme Disease**
  - US
  - $200m
- **BSE**
  - UK
  - $5bn
- **BSE**
  - SE Asia
  - $550-650m
- **BSE**
  - Canada
  - $3bn
- **E. Coli**
  - US
  - $1.8bn
- **MRSA**
  - US
  - $5-10bn

Figures are estimates and are presented as relative size.
Drivers of Public Health Threats

- Catastrophic natural events
- Casual exposures
- Occupational
- Movement of people, animals, goods
- Food and water
- Ecosystems
- Animals: Domestic and Wildlife
- Humans
- Economics
- Habitat disruption or modification (agricultural practices)
- Human population growth and cultural change
- Climate change
One Health – Tackling the Wicked Problems
An Inclusive Approach to Decision-Making

• If we don’t consider linkages, we risk missing impacts in other areas
  • Migration due to ecological events - what if a crisis like the Haiti earthquake occurred in an area with Ebola?
  • Severe weather events – what is the relationship between heat and seniors health?
  • Age-friendly communities – what are the relationships between built and physical environments, social connectedness, health care, working with municipalities?
  • Pet foods, outbreaks of Salmonella, human contact with pets, domestic animals and wildlife?
  • Melamine in pet food- later- melamine in infant formula
  • Increased Allergic phenomena- Why both humans and pets?

• One Health approach helps to provide cohesion as the gaps in get wider
Setting the Stage:

One Health:

- Recognizes linkages between human, animal and ecosystem health
- International, interdisciplinary, cross-sectoral approach to surveillance, monitoring, prevention and control
- Recognizes the interdependence between Human, Animal, Environmental and Economic Factors

One Health:

- Has gone from a concept to a broad, adopted paradigm globally
- Does not supplant disciplinary roles and responsibilities, but helps us ask and address questions that might lead to better answers
- If we’re going to be good at it, it’s not about creating new structures, but making existing structures work better
Moving Forward on One Health: Challenges and Opportunities

Integration

Education and Training

Awareness and Attitudes
Integration

Opportunities:

• Chance to show collaboration and leadership nationally and globally
• Shifting funding- upstream, connected
• One Health approach helps to bridge educational/research gaps between human, veterinary and environmental science fields

Challenges:

• Common language when mixing disciplines
• Truly taking multi-sectoral approaches
• ‘Proof of concept’ – showing One Health adds value
Education
Research and Training

Opportunities:

• Improved professional competencies
• Interesting Case Studies
• Advances in food-animal husbandry and welfare, water safety and security, health of wildlife/ecosystems
• Nutrition, Chronic Disease, Immunity

Challenges:

• Small number of One Health mentors and senior faculty
• Integrating what private and public sectors are doing
• Integrating key disciplinary approaches of human/veterinary medicine, biology, ecosystem, economics etc
Awareness and Attitudes

Opportunities:

- Paradigm to approach complex, multi-faceted issues – inside and outside policy-making sphere
- Meeting new global challenges head-on through multi-disciplinary collaboration
- Adding to scientific knowledge
- Increasing professional opportunities, centres of excellence in specific areas

Challenges:

- Requires changing behaviours and mindsets
- Career paths unclear, labelled as ‘non-experts’
- Funding challenges in global economic, political environment
Some of the Organized efforts Globally

USA: One Health Initiative Office
CDC One Health Office
USDA-APHIS One Health Coordination Office

WHO, OIE, FAO, World Bank – developing joint ministerial processes, surveillance programs, capacity development

EU – European External Action Service

Australia: Dept. of Agriculture, Fisheries and Forestry; Australian Veterinary Association

Africa: One Health Central and Eastern Africa – network of 14 educational institutions in 6 countries

Asia: One Health Alliance of South Asia

Canada: PHAC
Sampling of Canadian Approaches

**Manitoba:** One World One Health Workshop 2012; One Health Framework

**British Columbia:** Centre for Coastal Health

**Alberta:** Livestock and Meat Agency – One Health Road Map

**Saskatchewan:** One Health Leadership Camp, U of Sask

**Québec:** Stratégie québécoise de santé et de bien-être des animaux; Graduate program in Veterinary Public Health, U of M

**Ontario –** U of Guelph – Centre for Public Health and Zoonoses and MPH Program

Climate Change and Indigenous Peoples

- Creates favourable conditions for the emergence and establishment of disease vectors
- Country foods: eg parasitic cycles in musk ox, changed migration in cariboo
- Eco system change, changing traditional way of life. Old economies lost without an alternative
- Migration and Social Status: the vulnerable have fewest options
The Next Generation of One Health Practitioners

Physical Environments

- Psychological
- Sociological
- Historical
- Anthropological
- Economic
- Political
- Public Policy
- Communication Studies

Humans

Social Environments

- Governance
- Public and Population Health
- Veterinary Medical
- Public Population Health
- Animal Science
- Evolutionary and Comparative
- Environmental and Ecological
- Medical

Animals

Biomedical

Source: Rock et al., 2009
When one tugs at a single thing in nature, he finds it attached to the rest of the world.

- John Muir
What are we about?
BJs - Postulates

- Everything happens for a reason
- Health and Economy: a virtuous circle
- Focus = Healthiest Population per Resources
- Health Has Inherent Worth, However Achieved
- Greatest Health Improvements came from Outside of Health Services - but what we do matters
- Prevention is Not Last Resort of Failed Treatment
- Prevention/Health Promotion is not a Panacea - Both Benefits and Liabilities
- We’re not in a cult...
- Expertise? It’s Easy To Do...Poorly
- Spectrum = Promote-Prevent-Treat-Care
Utility

- Multiple perspectives are better than one
- Framing complex multidimensional issues
- Information sharing and integrative surveillance
- Improved professional competencies and education
- One Health is an *integrated* approach to risk management and decision making
Success Factors and Considerations

- Everything Happens for a Reason
- Inter-sectoral Approaches
- International/Multilateral Collaboration and Agreements
- Citizen Participation, Space for Deliberation
- Integrated Measurement and Monitoring
- Continuous Learning
- Openness and Courage to Address Bigger Issues

- Respect
- Make it Practical
- Rule of three
- Have something to offer
"It's amazing how much can be accomplished if no one cares who gets the credit."

“If you always do what you’ve always done, you’ll always get what you’ve always got.”
Even when we’re on the right track,
if we’re not moving, We’ll get run over.

*Mark Twain*
Group Discussion Questions

• Where will the resources come from:
  – Resource Identification
  – Resource Sharing

• What are the important bridges and gaps:
  – Where are they and how do we address them?

• What are the next steps:
  – Institutional
  – NA Network (inter-institutional)
  – Next Workshop