Zoonoses: The Animal/Human Interface

Evolving Veterinary Education For A Safer World
World Organisation for Animal Health
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Presentation Overview

- D.V.M.s are.............
- Convergence of Animal and Human Health is Not A New Concept or Challenge
- What Has Changed?
- Current Reality
- Consequence Management At The Interface
- Critical Competencies
- The Students Get It!
D.V.M.’s Are………

• Doctors of Veterinary Medicine (DVMs) and as a result...

• Doctors of Very Many Species (DVMs) and as a result...

• Doctors of Very Many Situations (DVMs) and as a result…

• Determiners of Very Many Scenarios (DVMs)
Convergence of human and animal health is not a new concept

- Edward Jenner’s Inquiry -
  Jenner observed that patients who had previously had cowpox were immune to smallpox - this led to the discovery of the smallpox vaccine

Fig. 1. Cowpox lesions on the hand of Sarah Nelmes, from Jenner’s Inquiry. Material from one of these lesions was used to ‘vaccinate’ James Phipps on May 14, 1796
Nipah Virus
The Convergence of Animal and Human Health is Not A New Concept

- 60% of all human pathogens are zoonotic
- 80% of animal pathogens are multi-host pathogens
- 75% of emerging infectious diseases are zoonotic
- Bacterial, viral, parasitic, fungal, prion
The Convergence of Animal and Human Health Is Not New Concept

- From Acariasis and Anthrax to West Nile and Yersinia over 250 zoonoses documented
- Transmission may be in either direction
- Transmission pathways well defined
  - Aerosol
  - Direct
  - Fomites
  - Oral
  - Vector
- Not limited to any one animal population
  - Companion animals
  - Livestock
  - Laboratory
  - Wildlife
  - Aquatic
Current Reality

- Estimated 70,000 people get salmonellosis from contact with reptiles in the U.S. each year
- Over 150 people die every day from rabies
- Last month eighty-nine people in the United Kingdom contracted e. coli following a visit to a petting zoo
- Report of resistance to Tamiflu in Japan
- Pandemic H1N1 2009 in swine and turkeys (victims or vectors?)
- Consequences of water supply contamination with giardia, cryptosporidium, campylobacter, e. coli……
- Food borne zoonoses versus food security
- Bioterrorism
So What Has Changed?

- Globalization of trade and travel
- Number and variety of companion animals kept as pets
- Demographics of animal based food production systems
- Population concentration and susceptibility
- Population encroachment
- Eco-system degradation
- Environmental and climate change
- Pathogen adaptation
Consequence Management At The Interface

• Need for expanded and enhanced partnerships
• Need for a changed dialogue and relationship with animal owners and with the public
• Occupational health and safety
• Personal protection
• Biosecurity and biocontainment
• Food handling and preparation
• Health is more than the absence of disease
• Vulnerable population determination and precautions
• One Health: A New Professional Imperative
Critical Competencies

• Comparative medicine health professional
• Lateral thinking
• Problem solving vs dilemma management
• Communication and leadership skills
• Facilitators of knowledge transfer
• Promoters of bio-security and biocontainment
• Catalysts for ecosystem health and sustainable food production
• Part of a community of health professionals that supports animal, owner, family and society
• Emergency medicine
• Ethics of prevention, detection, reporting, treatment
The Students Get It!

Students Get First-hand Insight into Public Health at the Centers for Disease Control and Prevention

In June 2008, 20 D-Vet students and 8 faculty members from the Canadian veterinary colleges accompanied by representatives from the Canadian Food Inspection Agency (CFIA) and the Public Health Agency of Canada (PHAC), travelled to Atlanta, Georgia to attend the “CDC Nocturne Day.” The 1-day event, hosted by the Centers for Disease Control and Prevention (CDC) and the American Association of Veterinary Medical Colleges (AAVMC), introduced the students to the CDC mission, preventive measures and, to the exciting world of public health and epidemiology.

Participants were welcomed at the 850-square-foot reception area where the students had the opportunity to mingle and network with over 500 other South American veterinary students and faculty members. Early the next morning, participants were hosted at the CDC campus where they learned safety and toured the day by conducting a mock laboratory test and comparing a live computer survey on the land that had been at the previous evening’s reception. They were then given the results on whether their test was correct in the context of a mock foodborne illness outbreak, which affected many hungry students.

Les étudiants se familiarisent avec la santé publique aux Centers for Disease Control and Prevention

Plus tôt en 2008, 20 étudiants en médecine vétérinaire et 8 membres du personnel du Centre canadien d'inspection des aliments (CFIA) et de l'Agence canadienne d' Inspection des aliments (ACIA), se sont rendus à Atlanta, en Géorgie, pour participer à la journée CDC Nocturne Day. Cette journée d'une journée, organisée par les Centers for Disease Control and Prevention (CDC) et l'American Association of Veterinary Medical Colleges (AAVMC), a introduit les étudiants à la mission, aux mesures de prévention et aux domaines d'expertise de la santé publique et de l'épidémiologie.

Les participants ont été accueillis lors d'une réception à l'hôtel de la journée d'étude où les étudiants ont été exposés aux résultats de leurs tests et ont comparé un vote en ligne sur le terrain, qui avait été effectué lors de la réception de la veille. Les participants ont été ensuite invités à la participation à des activités liées à la santé publique et à l'épidémiologie.
Neither the atmosphere that protects us or the ecosystem that nurtures us are segmented by national or discipline boundaries.
Risk transfer **is not** risk management. Similarly consequence transfer **is not** consequence management.
The practice of veterinary medicine is a public good founded on the strength of societal relevance.