People and Animals - A Public Health Perspective

Dr. Paul Sockett, Public Health Agency of Canada

A Webber Training Teleclass

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Hosted by Paul Webber
paul@webbertraining.com

Animals contribute to Canada's economy

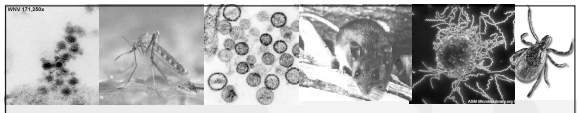
Animals impact us from economic, social and recreational perspectives

Over 2 million people are employed directly and indirectly in

- livestock farms
- zoos and aquariums
- aquaculture
- parks and natures reserves

Animals, animal products and associated service sectors are significant engines of the regional economy in Canada.

A huge proportion of Canadians have pets in their homes



Zoonoses in Canada-examples

Anthrax	Tuberculosis*	Babasiosis
Borrelia (Lyme Disease)	Tuleremia	Cryptosporidiosis
Botulism	Vibrio parahaemolyticus	Giardiasis
Brucellosis	Plague*	Tapeworm
Ehrlichiosis	Psittacosis	Toxoplasmosis
Enteric bacterial infections	Q-Fever	Trichinellosis
Leptospirosis	Arboviruses	Systemic mycoses
Listeria	Hantavirus*	
Tetanus*	Rabies*	

*Nationally notifiable

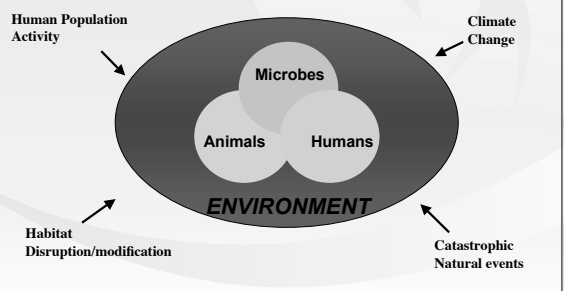
Also notifiable: Yellow Fever; Malaria

Arboviruses Isolated In Canada

Of over 500 known arboviruses; 19 have been isolated in Canada – including:

- **2 midge-borne (Culicoides) viruses**
  - Blue-tongue; epizootic hemorrhagic disease
- **11 mosquito-borne viruses**
  - Western equine encephalitis; St. Louis encephalitis, West Nile; snowshoe hare & Jamestown Canyon viruses.
- **6 tick-borne viruses**
  - Powassan encephalitis virus; Colorado tick fever virus

Risk to Human Health Arising from Dynamically Interacting Populations in a Changing Environment



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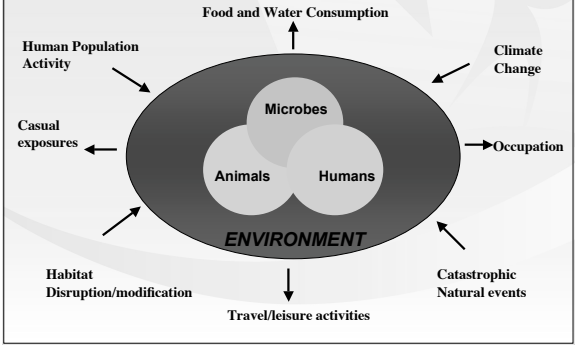

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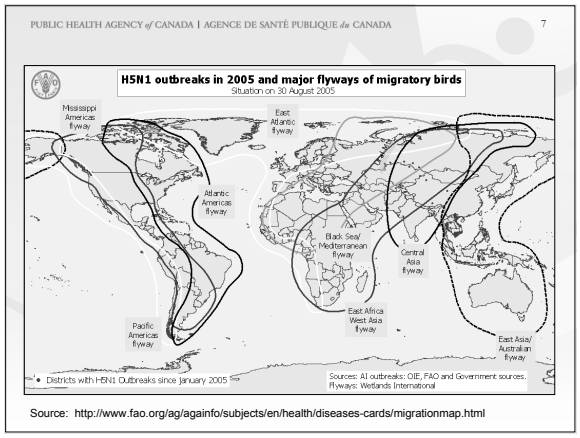

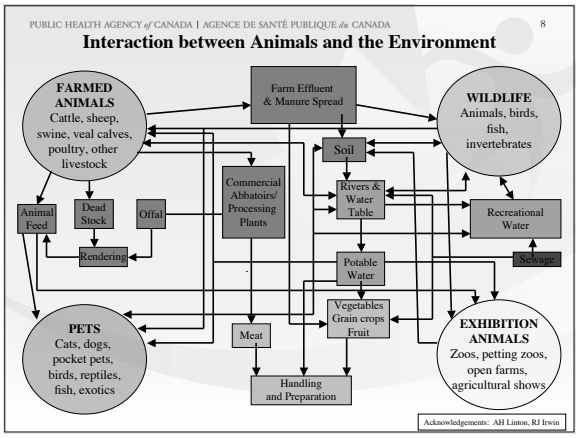

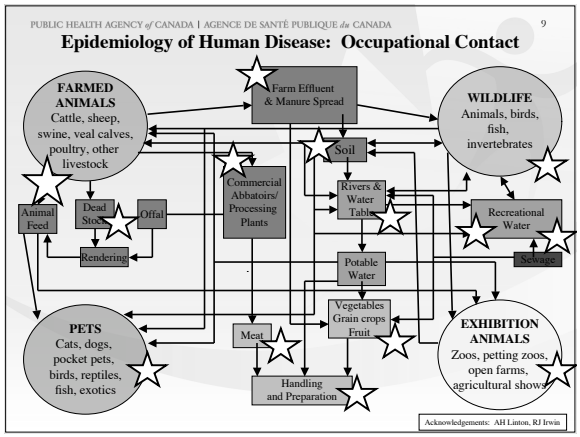

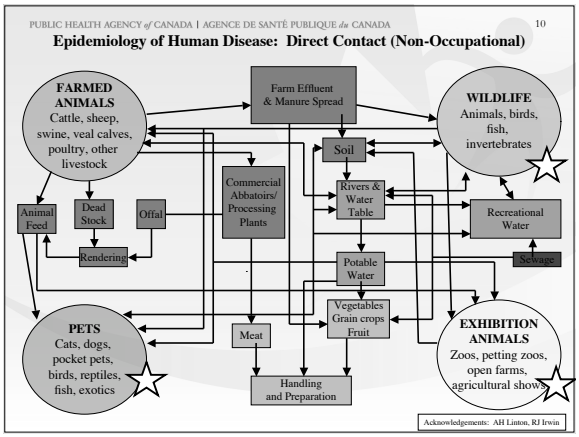

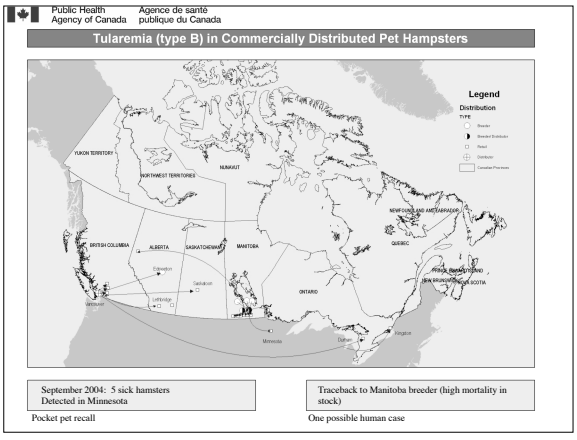

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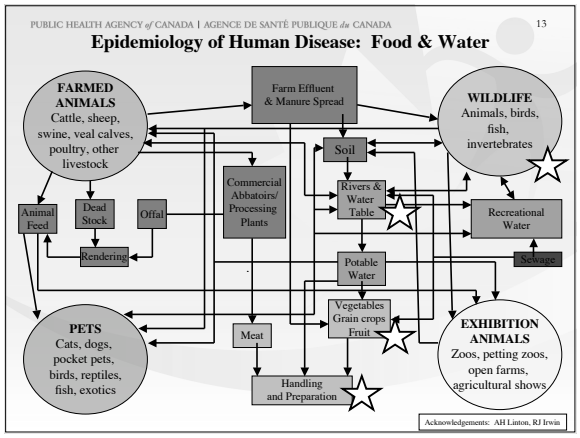

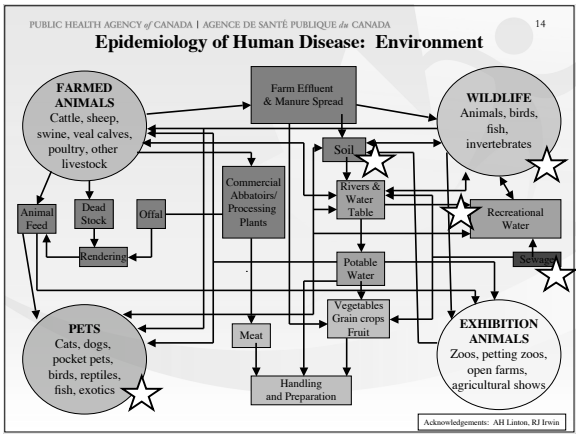

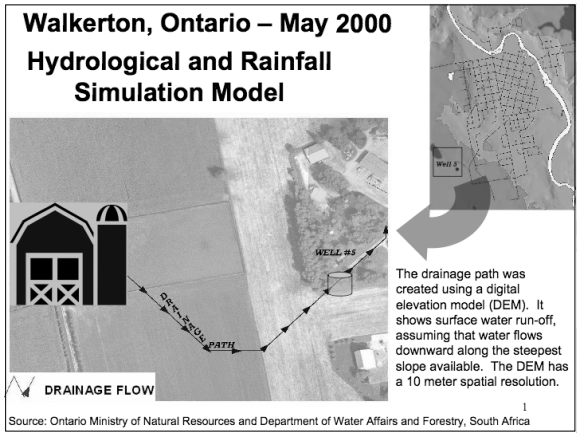

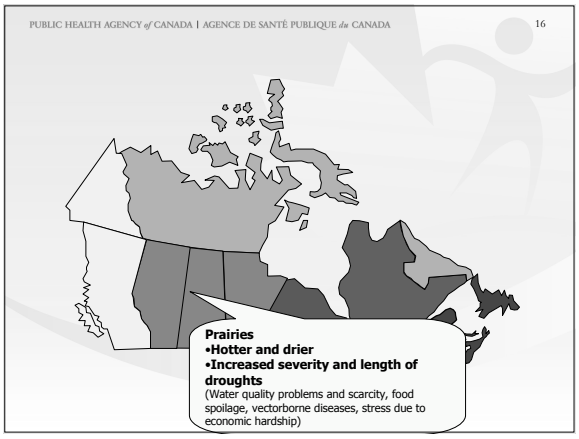

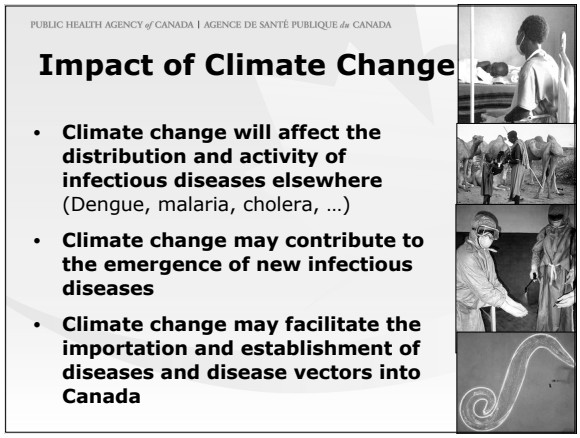

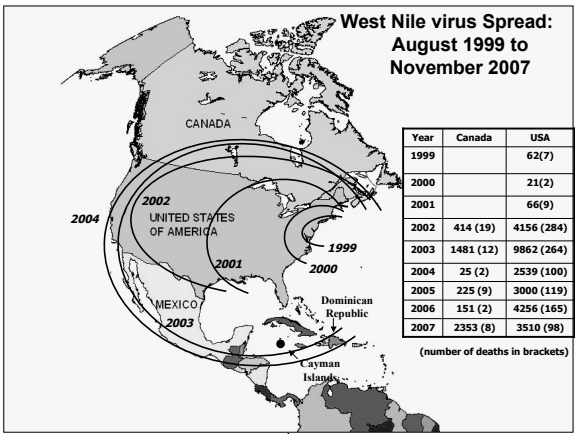

Year	Canada	USA
1999		62(7)
2000		21(2)
2001		66(9)
2002	414 (19)	4156 (284)
2003	1481 (12)	9862 (264)
2004	25 (2)	2539 (100)
2005	225 (9)	3000 (119)
2006	151 (2)	4256 (165)
2007	2353 (8)	3510 (98)

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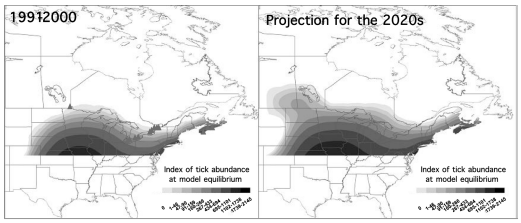
Impact of Climate Change on Lyme Disease

Modelled geographic limits projected for the establishment of *I. Scapularis* ticks in degree days above O°C.



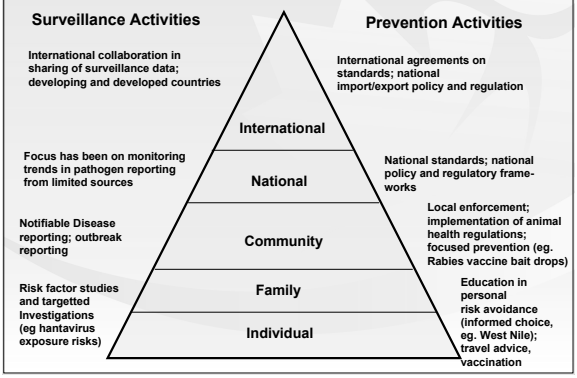
▲ **Known endemic tick populations**

Further expansion of projected tick establishment is predicted Under climate change to the end of the century.

Ogden et al, 2008

19

Zoonotic disease activities operate at multiple levels….



Roadmap: Interface of Human/Animal Health

Federal Authorities

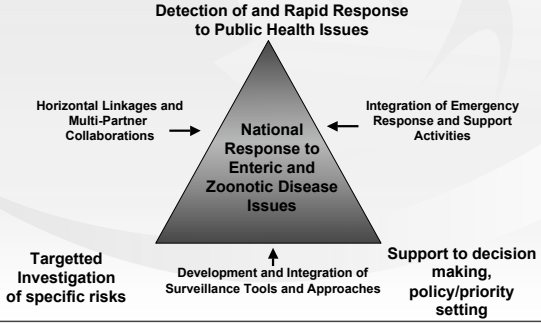
Agriculture/Food	Environment	Public Health
Agriculture and Agrifood Canada	Environment Canada	Public Health Agency of Canada
Canadian Food Inspection Agency	Parks Canada	Health Canada
Department of Fisheries and Oceans	Indian Affairs and Northern Development	First Nations And Inuit Health Branch

Roadmap: Interface of Human/Animal Health

Provincial and Territorial Authorities

- **Major organizations include:**
  - Agriculture (Lands, Forests, Food, Rural initiatives)
  - Health and Wellness
  - Sustainable Development
  - Aquaculture
  - Natural Resources
- **Relevant sub-groupings within departmental structures**

Public Health Response Enteric and Zoonotic Diseases



Public Health Response must support…

- **Identification of Zoonotic disease issues**
- **Evaluation of mitigation strategies**
- **Informing science-based assessments**
- **Engagement of industry, academia, government in focused research**
- **Synthesis of science-based data (via risk analysis approaches) for application to decision-making**
- **Development of prevention strategies in both the animal and human sectors**

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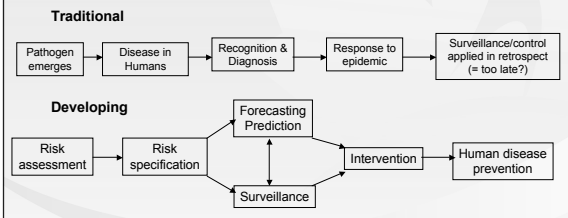
These in turn require a better understanding of:

- **Objectives of surveillance programmes**
- **Complexity of human-animal-pathogen interactions**
- **Type, frequency and quality of data obtained**
- **Analytic products required** (interpretation; risk analysis; contextual/integrative approaches)
- **Needs of zoonotic diseases specialists** (e.g. regulatory community; animal health community, training etc.)
- **Needs of animal "industry"** (farmed, leisure, companion, wildlife)
  - welfare
  - social
  - economic

This amounts to a vision presenting new challenges to Public Health…

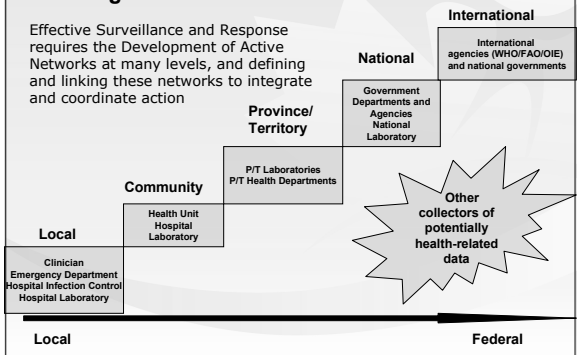
- **Vulnerability assessment of specific populations** (a proactive approach to assessing risk and responding to regulatory needs)
- **Presentation of information to more demanding clients** (public, industry, policy-makers/regulators, academia)
- **Response to regulatory priorities and requirements**
- **Tracing risks through global networks**
- **Rapid assessment of risk in "Emerging Pathogen" situations**

A new approach to public health risk management



Achieving The Vision – effective networks ….

Effective Surveillance and Response requires the Development of Active Networks at many levels, and defining and linking these networks to integrate and coordinate action



Achieving the Vision – Critical Success Factors

- **Agreed, common understanding** of Canada's zoonotic disease/emerging pathogens imperatives
- **Development and maintenance** of integrated and collaborative approaches to surveillance and response to achieve common goals (between various sectors)
- **A highly reactive approach** to new Public Health/Animal Health surveillance and response needs
- **Explicit and clear targets** for Public Health/Animal Health issues that are tied to current and possible future risks
- Further development and maintenance of national and international **information sharing and research networks**

THE NEXT FEW TELECLASSES

	09 Oct. 08	Elimination of Health Care-Associated Infections: Is it Possible & Can we Afford Not to Try? Speaker: Russell Olmsted, Saint Joseph Mercy Health System
Just added	10 Oct. 08	(FREE South Pacific Teleclass) Rebirth of Public Health & Infection Control Post-SARS Speaker: Dr. Dick Zoutman, Queen's University Broadcast live from the Australian Infection Control Association conference
	20 Oct. 08	(South Pacific Teleclass) Biofilms - When Bugs Get Clingy Speaker: Dr. David Hammer, Canterbury District Health Board
	23 Oct. 08	Health Care Facility Maintenance for Infection Control Speaker: Andy Streifel, University of Minnesota
	30 Oct. 08	LTC - How Maryland Increased ICP Presence in Long Term Care Facilities Speaker: Dr. Brenda Roup, Maryland Department of Health and Mental Health
	11 Nov. 08	(British Teleclass) Clostridium difficile - Prevention is Better Than Cure Speaker: Prof Mark Wilcox, University of Leeds

www.webbertraining.com.schedulep1.php

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