PUBLIC HEALTH AGENCY *of* CANADA
AGENCE DE LA SANTÉ PUBLIQUE *du* CANADA

One Health: A Canadian Public Health Perspective

Dr. Rainer Engelhardt
Assistant Deputy Minister
Infectious Disease Prevention and Control Branch

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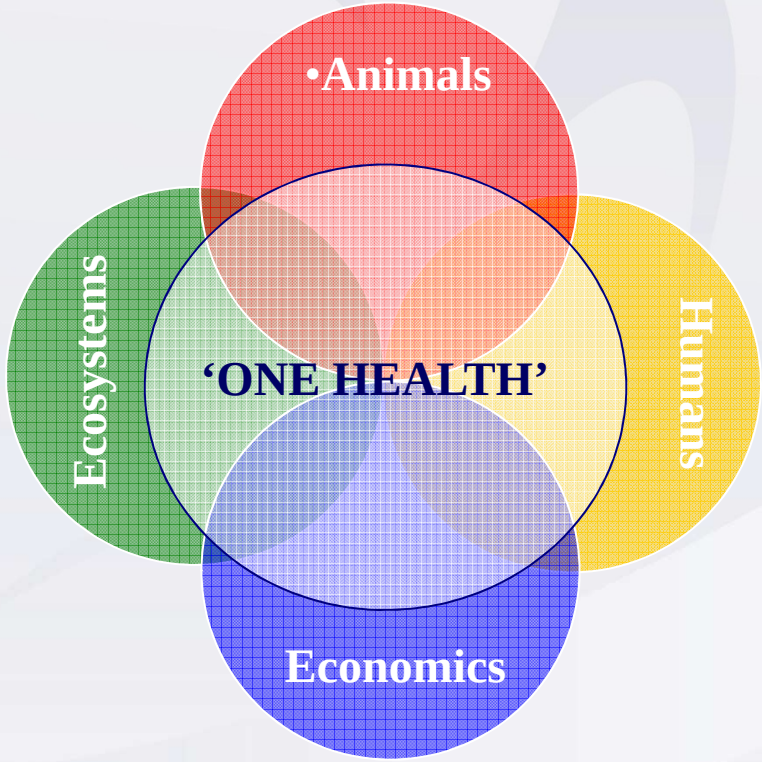
Public Health Agency of Canada | Agence de la santé publique du Canada

Canada

'One Health'

- One Health approach recognizes linkages among human, animal, ecosystem and economic health domains
- Scope is international, inter-/multi-disciplinary, multi-jurisdictional, international



Benefit of One Health Approach to Public Health Practice

- Shift towards prevention and control of emerging diseases
  - Risk identification, assessment and mitigation
- Looks at issues through an integrative, holistic lens
- More collaborative and cooperative
- Expertise of disciplines and technologies, in addition to health, applied to complex problems
- Considers social and cultural determinants of health

One World One Health – Winnipeg 2009

- Public Health Agency of Canada hosted an international expert consultation on One Health
- Included 120 participants from 23 countries
- Contributed to “A Strategic Framework for Reducing Risks of Infectious Diseases at the Animal-Human-Ecosystems Interface”, released by WHO, OIE, FAO, UNICEF, UNSIC and World Bank
- Watershed event for Canada internationally, federally, and with Provinces and Territories

PHAC Capacities in Animal, Human and Ecosystem Health

Public Health Agency of Canada, Headquarters (Ottawa, Ontario)

Canadian Science Centre for Human and Animal Health/ National Microbiology Laboratory (Winnipeg, Manitoba)

Laboratory for Foodborne Zoonoses, (Guelph, Ontario)

National Engagement

- Canada's Provinces and Territories are embracing the One Health concept and acknowledge the value of innovative partnerships
- Developing strategies using a One Health approach:
  - Manitoba has a primer on One Health and food safety and developed an animal health and food safety strategy for the future ("Protecting Animals, Food and People")
  - Quebec has an animal health and welfare strategy ("One Health, Health for All")

National Integrated Enteric Disease Surveillance Program (C-EnterNet)

- Active network of local water, agriculture, retail food sectors and provincial and federal institutions responsible for public health
- Effective system for early warning to reduce the burden of enteric disease
- Evaluation and development of policies related to the safety of food and water

A Few Representative Disease Examples Benefiting from the One Health Approach

- Antimicrobial resistance
  - Food safety
  - Hospital acquired infections
  - Community-acquired infections
- Lyme disease
- Bovine spongioform encephalitis
- Also:
  - H5N1 (avian) influenza
  - H1N1 (swine) flu
  - Dengue fever
  - Etc. (70% of re-/emerging infectious diseases of zoonotic origin)

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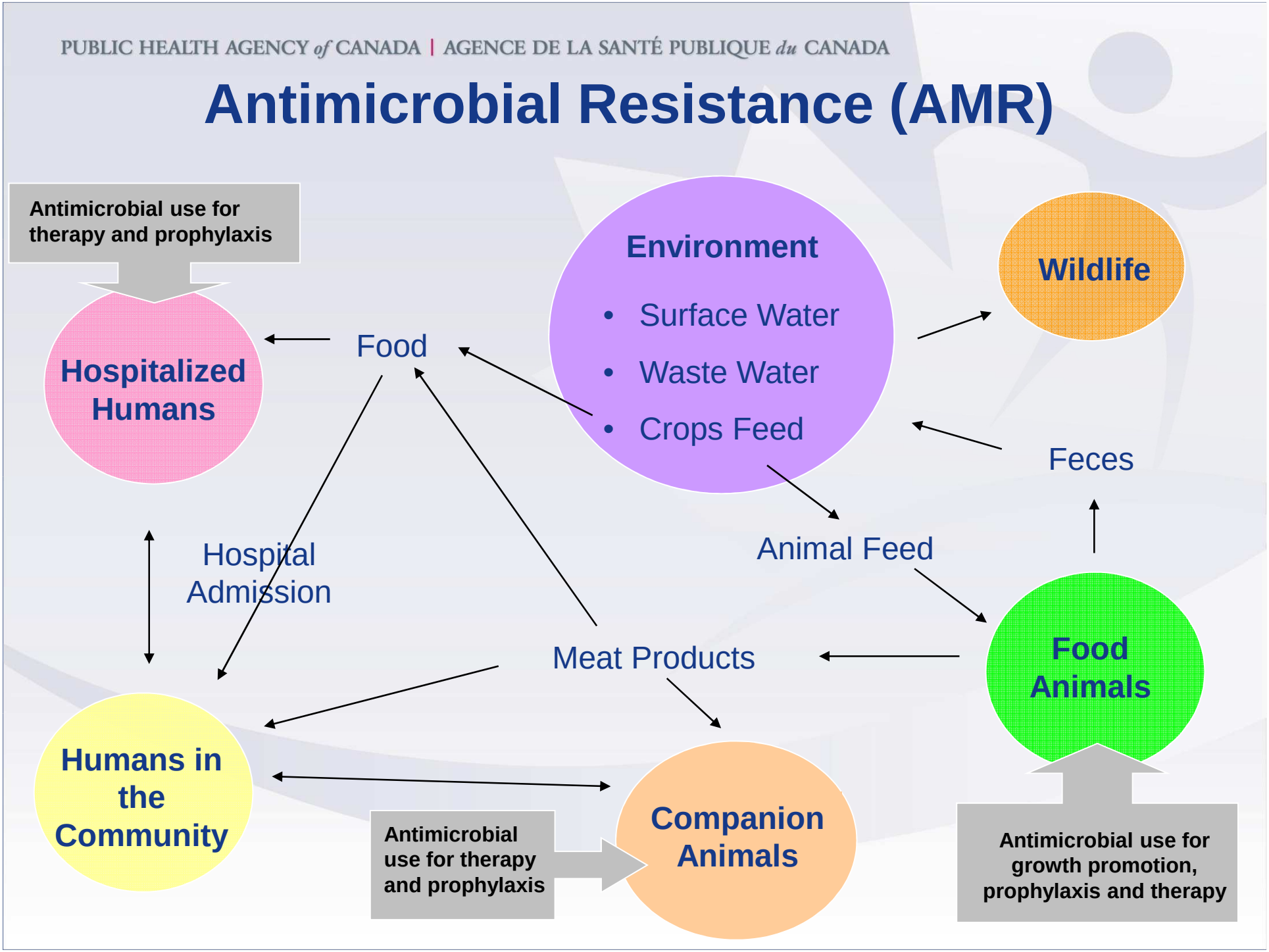
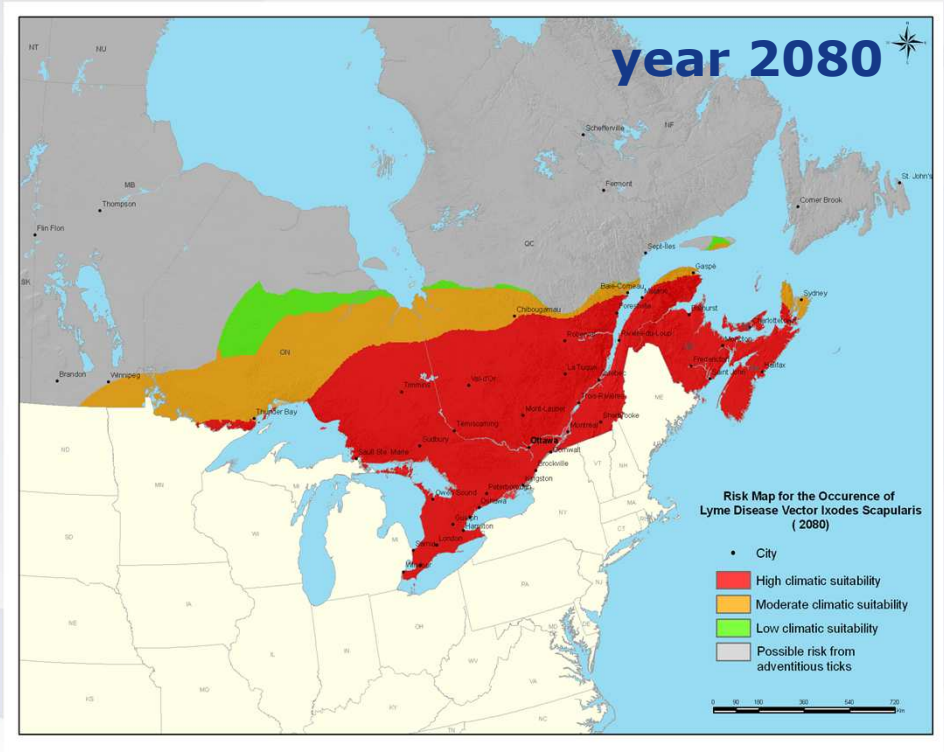
Antimicrobial Resistance (AMR)



Lyme Disease Surveillance and Predictive Geomatic Modeling



- High risk
- Moderate risk
- Low risk
- Risk of bird-borne ticks

Bovine Spongioform Encephalitis

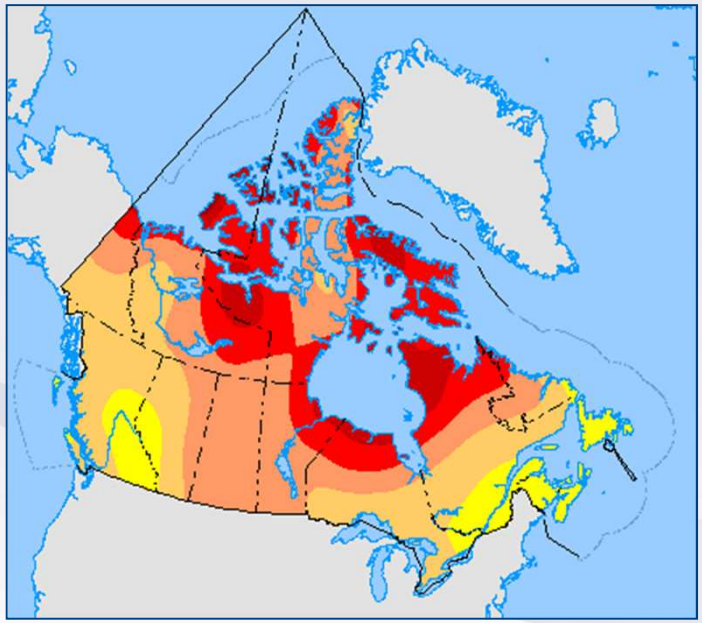
- Since May 2003, Canada has seen **16 cases** of BSE; costing the Canadian economy over **$ 5 billion**
- Agriculture is a key driver of the Canadian economy - one in seven jobs and 8.3 % of GDP

- Protecting the food supply and health of agricultural animals is a major shared public health concern:
  - Diseases can contaminate the food supply
  - Agricultural activities put farm workers in close proximity with animals, increasing risk of zoonotic disease
  - Potential loss of animal production is economic, social and health stress to those engaged in sector (e.g. farm families)
  - Perceived threat to consumers is financial risk to animal production industry

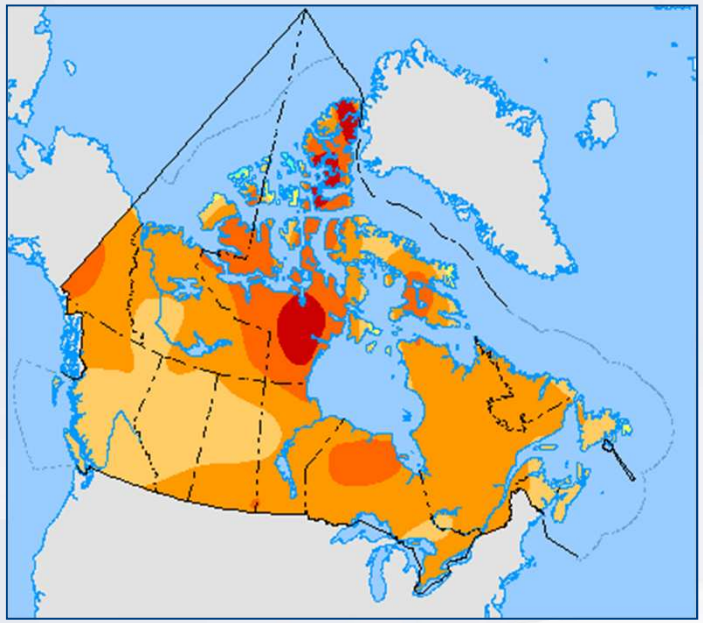
One Health and Climate Change

- Canada's average temperature is rising and will continue to do so for the remainder of the 21st century (Natural Resources Canada)

- Projected temperature change in Canada: 1961-90 to 2040-60



Winter 2050



Summer 2050

Change in ℃

	2-3
	3-4
	4-5
	5-6
	6-7
	7-8

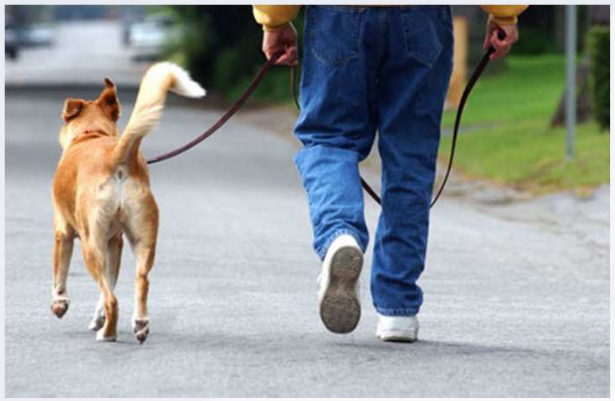
Climate Change: Impacts on Public Health

- Environmental change (climate, biodiversity, land-use and land-cover, invasive species, built-environment) has related effects on:
  - Infectious disease emergence/re-emergence
    - Ecological shift in distribution and activity of infectious diseases (e.g. lyme, dengue)
    - Importation of diseases and disease vectors into Canada in immigrant populations (e.g. tuberculosis, malaria)
  - Increased reliance on industrial agriculture
    - Water-, vector- and food-borne disease risk
    - Spread of antimicrobial resistance
  - Dynamics of zoonotic disease vectors in ‘country food’
  - Person-to-person disease transmission risk increased as pressures increase at socio-economic margins

- Climate change will affect the health and social well-being of people everywhere

Broader Connections – Social and Chronic Aspects of Health

- One Health also applies to public health issues such as fitness, obesity and mental health, for example:
  - Housing inequities as a known contributing factor to tuberculosis
  - Health and social benefit of companion animals as a strategy for at risk populations
  - Smoking as a known contributing factor for variety of chronic diseases
  - Marketing messaging of convenience food products



One Health - Future Directions for Canada

Surveillance	Inter-sectoral and trans-disciplinary networks for monitoring, information sharing
Research	Support lab/field research priorities using a multidisciplinary One Health approach
Education	Facilitate training in One Health from public education to professional development (proposal for international Summer Institute in One Health)
Communication	Develop networks and platforms for two-way information transfer between government, NGOs, stakeholders, etc.

One World

One Health