Bridging the Gap between Science and Policy: Federal Perspective

Guelph

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Dr. Primal Silva

Executive Director, Animal Health Science Directorate

Science Branch, CFIA
Our Vision and Mission:

CFIA’s vision is to excel as a science-based regulator, trusted and respected by Canadians and the international community.

We are dedicated to safeguarding food, animals and plants, which enhances the health and well-being of Canada’s people, environment and economy.
Our Priorities

- **Food safety**
  - consumer protection
  - effectively managing food safety emergencies
  - public awareness

- **Plant protection and animal health**
  - maintaining a safe and sustainable plant and animal resource base
  - minimizing and managing risks by protecting plants and animals from pests and diseases
Who We Are

The CFIA is:

- the largest science-based regulatory agency in Canada

- responsible for delivering all federally-mandated programs for food inspection, plant and animal health, and consumer protection as it relates to food
Who We Are

Our People

We have more than 7000 dedicated and highly trained professionals working across Canada.

The CFIA is organized into four operational Areas (Atlantic, Quebec, Ontario and Western):

• 18 regional offices
• 185 field offices (including border points of entry)
• 408 offices in non-government establishments, such as processing facilities

The Agency also has 12 laboratories and research facilities.
What We Do
CFIA’s Operating Environment

The CFIA operates in a rapidly evolving environment shaped by:

- globalization
- changing demographics
- consumer preferences
- complex trading environments
- evolving science and technology
- impacts of climate change
CFIA must deal on a daily basis with a storm of multi-dimensional issues.....

- Foodborne pathogens
  - E.g. E.Coli, Listeria
- Fraud and adulteration
  - (e.g. species, horse vs beef)
- Zoonoses
  - (e.g. TB, influenza, Brucella)
- Foreign Animal Disease
  - (e.g. Foot and Mouth)
- Vector borne diseases
  - (e.g. Bluetongue)
- Emerging diseases
  - (e.g. pH1N1)
- BSE, scrapie
- Chemical contaminants
  - (e.g. melamine)
- Animal Welfare
  - (e.g. horse slaughter)
- Aquatic animals
  - (e.g. ISA)
- Animal feed
  - (e.g. Salmonella)
- Plant pests, invasive species and pathogens
  - (e.g. Asian Long Horn Beetle)
Most of these issues present to Science and Policy as \textit{wicked problems} that are….

- Complex and tangled
- Unprecedented
- Difficult to define and enigmatic
- Many possible solutions
- Often generate unexpected consequences
- Unique and past experiences not helpful
- Threatening
- Often a symptom of another issue/problem
...wicked problems have widespread impacts on Canada and the world

- Animal Health and Welfare
- Science
- Social
- Economics
- Ecosystem
- Public Health
- Political
- International
- Fear
- Uncertainty
- Decreased Confidence
Economic & Social Impacts

- **Foot & Mouth**: Taiwan, $5-8bn
- **BSE**: UK, $5bn
- **Nipah**: SE Asia, $550-650m
- **Lyme Disease**: US, $200m
- **BSE**: US, $3.5bn
- **BSE**: Canada, $3bn
- **E. Coli**: US, $1.8bn
- **MRSA**: US, $5-10bn

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**SARS**
- China, Hong Kong, Singapore, Canada
- $30-50bn

**H5N1 Avian Flu**
- Worldwide, $30bn

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Figures are estimates and are presented as relative size.
Science is *hard at work* in the CFIA....

...supporting development of policies, laws and regulations that deliver outcomes to benefit Canadians:
Science is embedded in our business…

- laboratory analyses, diagnostics and related services
- methods development
- risk assessments, foresight and scientific advice
- surveillance and epidemiology (terrestrial and aquatic)
- research in support of all of the above
- oversight of third party delivery of laboratory services
Big questions for Science and Policy...

1. How to reach an understanding of points of view across diverse stakeholders?
   - How to adopting a universal “One Health” mindset and strategy
   - Veterinary versus medical priorities

2. How to shift from problem-solving to managing wicked problems?

3. How to account for new global interdependence and connectivity (and ensure market access)?
Big questions for Science and Policy…

4. How to bridge the gap between science and policy “cultures”?

Risk Analysis Framework

Risk Assessment
(Science-based)

Risk management
(Policy-based)

Risk Communication
(interactive exchange of information and opinions concerning risks)
CFIA’s ongoing response to challenges…

- Develop a Risk Analysis Framework to Address Animal Health, Plant Health and Food Safety Risks within the Canadian Food Inspection Agency.

- Establish with other federal departments, systematic and holistic approaches to manage risks as part of an Integrated Risk Management Framework.

- Apply One Health thinking, strategic partnerships and collaborations, and investment in new technology
Balanced outcomes require engagement of multiple stakeholders and integrated thinking……

- Governments
- Universities
- Industry
- International
- Citizens
- NGOs

Integrated Thinking

Balanced Outcomes

Science

Policy

Ecosystem Health

Animal Health

Public Health
This means working together in new ways...

- Manage risk at the system level
- Recognize that simple solutions do not exist in complex systems
- View government as facilitator, partner in developing co-solutions
- Apply an integrated multi-disciplinary and multi-jurisdictional approach
- Develop more proactive strategies to address future challenges

Universities and governments have the expertise to lead stakeholders in designing and building a better risk management system
A Global Dilemma:
Emerging Infectious Diseases (EID)

“Infections that have newly appeared in a population or have existed but are rapidly increasing in incidence or geographic range”

- 60% of EIDs arise from animals
- 75% of these EIDs are from wildlife

- Outbreaks of EID can have severe consequences:

Public Health  
Ecosystem Health  
Animal Health  
Economic/Social
Highly Pathogenic Avian Influenza Case Study (CFIA and other federal departments, 2011)

- An ongoing threat to the health of Canadians, the animal resource base, the environment, the economy and society.
- Science-Policy linkages are not currently in place to address complex problems such as Highly Pathogenic Avian Influenza
- A real problem that requires a new management strategy
- Lessons learned from recent outbreaks, and tools One Health and Foresight were applied in workshop settings with federal Science and Policy participants to generate insights on Emerging Infectious Disease management

*Improved science-policy integration can help address current and future policy issues for Highly Pathogenic Influenza*
Integrated Disease Risk Management Framework (Foresight for Canadian Animal Health, 2011)
Key systemic gaps and vulnerabilities identified in capabilities for managing *emerging infectious disease*

1. Risk communication. Ability to share intelligence

2. Lack of “integrators” especially cross-discipline and science/policy domains

3. Governance to support One Health

4. Ability to apply lessons-learned to better anticipate and prevent disease

5. Ability to anticipate EID threats

6. Ability to align plans, priorities and actions of stakeholders to ensure that system capability requirements are met
Unprecedented Events call for Unprecedented Actions
The way forward....

• System thinking must be applied
  • Needed to address systemic gaps and vulnerabilities including across science and policy
  • Must align thinking and action across partner organizations

• Role of governments, educational institutions, and society must be clarified
  • One Health governance
  • Roles and responsibilities of existing organizations
  • Management of cross-border and cross-jurisdictional issues

• Pressing need for new leaders and new ways of leading
  • Universities need to train Science-Policy “Integrators”
  • Provide new skills to integrate thinking and disciplines, enhance communication

(Thanks to Dr. Lonnie King)
Successful management of the complex problems facing Agri-Health depends on the ability of government, academia and industry to work together!