Canada-U.S. Food Safety Risk Assessment Organization: Case Study

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Yadira Tejeda, Postdoctoral Research Fellow
Lawrence Centre, Ivey Business School, Western University

Ivey | Lawrence National Centre for Policy and Management

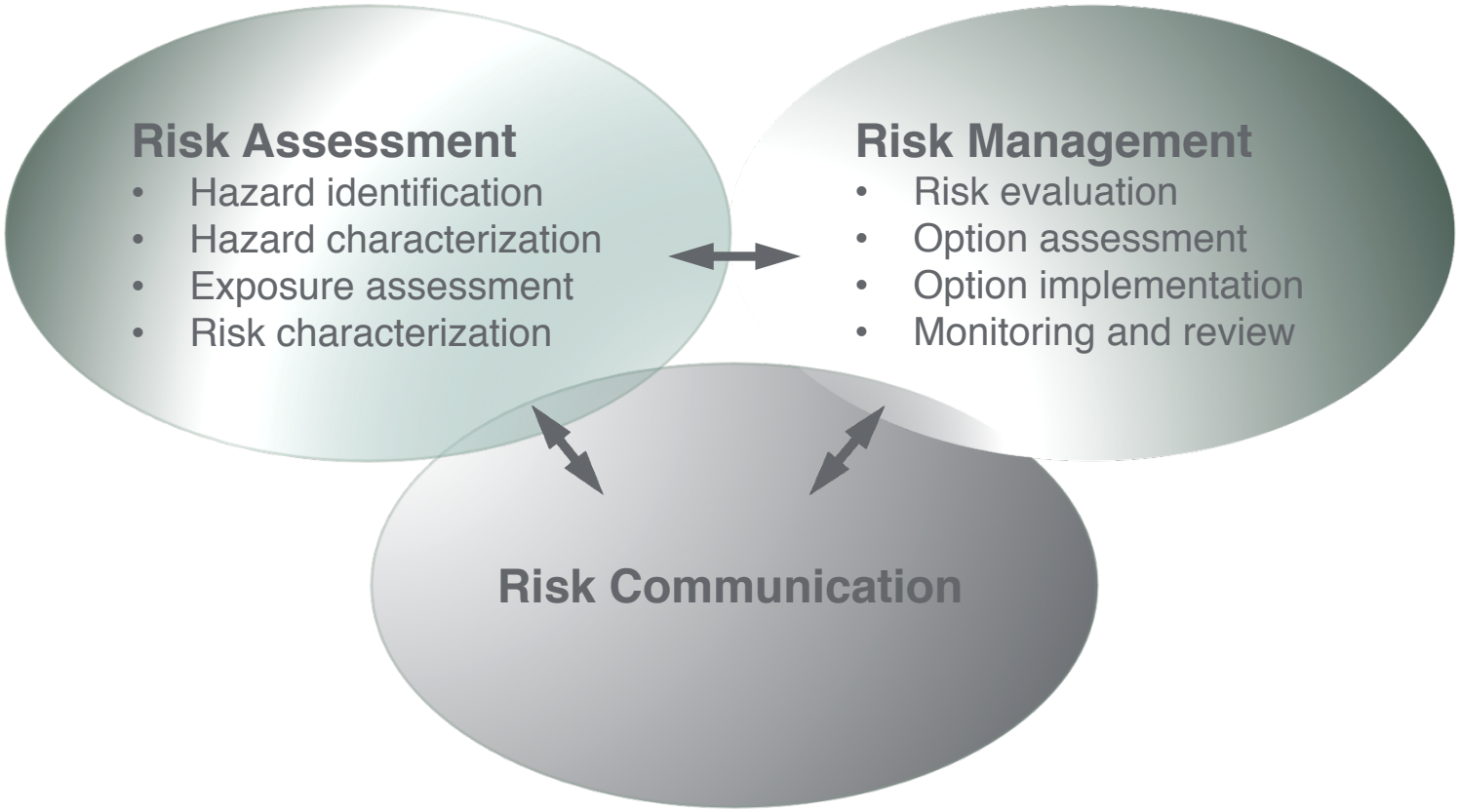
Objective

To present and illustrate the concept of a **Food Safety Risk Assessment Organization** (FSRAO) for achieving food safety regulatory cooperation between Canada and the U.S.

Current Context

Risk Analysis

Structure:



Source: FAO Corporate Document Repository. A primer on risk assessment modelling: focus on seafood products…
Available at: http://www.fao.org/docrep/009/a0238e/A0238E01.htm

Data Ideal

Data ideally should be:

- collected across whole food safety system
- accessible
- transferable
- comparable
- credible
- objective

Source: Recommendations to Modernize the Meat and Poultry Oversight System in the United States. Meridian Institute, June 2017. Available at: http://merid.org/Content/Projects/Meat_and_Poultry_Dialogue.aspx

Data Reality

Data, in reality, are:

- collected through different networks, agencies and research groups
- not communicated among the various agencies or third-parties
- isolated and not integrated through a strategic approach to identify information needed for risk-based decision-making

Source: Recommendations to Modernize the Meat and Poultry Oversight System in the United States. Meridian Institute, June 2017. Available at: http://merid.org/Content/Projects/Meat_and_Poultry_Dialogue.aspx

Examples of Data Collection: Foodborne Illness Surveillance

Foodborne Illness – U.S. Initiatives

Program	Agencies	Description
FoodNet (Foodborne Diseases Active Surveillance Network)	CDC, FDA, USDA-FSIS, 10 states	• Conducts active population-based surveillance for laboratory-based confirmed cases to provide estimates of foodborne illness associated with 9 pathogens. • Provides foundation for food safety policy and prevention efforts in the US.
PulseNet (National Molecular Sub-typing Network)	CDC, state public health laboratories	• National laboratory network that connects foodborne illness cases to detect outbreaks. • Performs DNA fingerprinting on potential foodborne bacteria to connect cases with common sources. • Provides early warning for outbreaks of foodborne disease.
FDOSS (Foodborne Disease Outbreak Surveillance System)	CDC	• Collects data on foodborne disease outbreaks. • Provides insight into agents and foods that cause illness and the settings where food are prepared.
FERN (Food Emergency Response Network)	FDA, USDA, CDC, EPA, state agencies	• Integrates the nation's food testing laboratories at all levels • Provides early warning and response of widespread complex threats of contamination in the food supply.
eLEXNET (Electronic Laboratory Exchange Network)	FDA, USDA, DoD	• Central food testing repository for collaborating, comparing, sharing and coordinating food testing data at all levels. • Serves as a risk assessment and trend analysis tool.
Epi-X (Epidemic Information Exchange)	CDC	• Supports a web-based communication tool limited to designated public health professionals at state and local levels to share and access preliminary health surveillance information.

Source: Keenan S, Spice S, Cole J, Banfi P. Food Safety Policy and Regulation in the United States. European Union, 2015; and https://www.cdc.gov/ncezid/dfwed/keyprograms/surveillance.html

Foodborne Illness – Canadian Initiatives

Program	Agencies	Description
CNDSS (Canadian Notifiable Disease Surveillance System)	PHAC (National Microbiology Laboratory and Centre for Foodborne, Environmental and Zoonotic Infectious Diseases)	• Collects annual numbers of laboratory-confirmed illnesses, reported voluntarily by provincial and territorial public health authorities to produce national counts and rates presented on Notifiable Diseases Online.
NESP (National Enteric Surveillance Program)	PHAC	• Collects weekly numbers from provincial health laboratories on select bacteria, parasites and viruses at subtype and species level. • Provides analysis and trends of laboratory confirmed enteric disease cases to submitting laboratories, federal and provincial epidemiologists, researchers, and public health professionals. • Integrates data from PulseNet Canada and international collaboration.
Enhanced National Listeriosis Surveillance	PHAC, provinces and territories	• Collects detailed information on invasive listeriosis cases in participating provinces and territories.
FoodNet Canada	PHAC, AAFC	• Collects information on cases of infectious gastrointestinal illness and sources of exposure in specific communities across the country.
Provincial & Territorial Reportable Disease Surveillance System	Local health units	• Collects the number of laboratory-confirmed illnesses reported by local public health units and authorities for a set of diseases
PulseNet Canada	PHAC (National Microbiology Laboratory), province public health laboratories, 2 federal laboratories	• Critical surveillance to quickly identify and respond to foodborne outbreaks • Electronic network connects databases and computers from provincial and some federal public health laboratories. • Performs close to real time molecular subtyping.

Source: https://www.canada.ca/en/public-health/services/food-borne-illness-canada/surveillance-food-borne-illness-canada.html

Foodborne Illness – Industry

- Quality assurance programs
  - e.g. tests for foodborne pathogens, indicator microorganisms in facilities, products
  - information can assist identification and traceability, but also aid in understanding the ecology of pathogens
- Food safety data gathered during inspections can help to understand potential weaknesses

Source: Doyle MP, Erickson MC, Alali W, Cannon J, Deng X, Ortega Y, Smith MA, Zhao T. The Food Industry's Current and Future Role in Preventing Microbial Foodborne Illness Within the United States. Griffin PM, editor. Clin Infect Dis. 2015 Jul 15;61(2):252–9.

Foodborne Illness – Current Collaboration

- VoluntaryNet
  - CDC with University of Georgia's (UGA) Center for Food Safety and food companies
  - Engages industry in enhancing foodborne illness surveillance and outbreak response activities
  - Provides food industry partners with indirect access to PulseNet data
  - Companies can share testing results anonymously with other food companies and CDC
- PulseNet
  - International Molecular Subtyping Network
  - PulseNet U.S.
  - PulseNet Canada

Source: FSMA Surveillance Working Group. Annual Report to the Secretary, Department of Health and Human Services. CDC, U.S. 2016; and http://www.pulsenetinternational.org

Why data sharing and scientific collaboration is relevant

Disjointed Science

Examples:

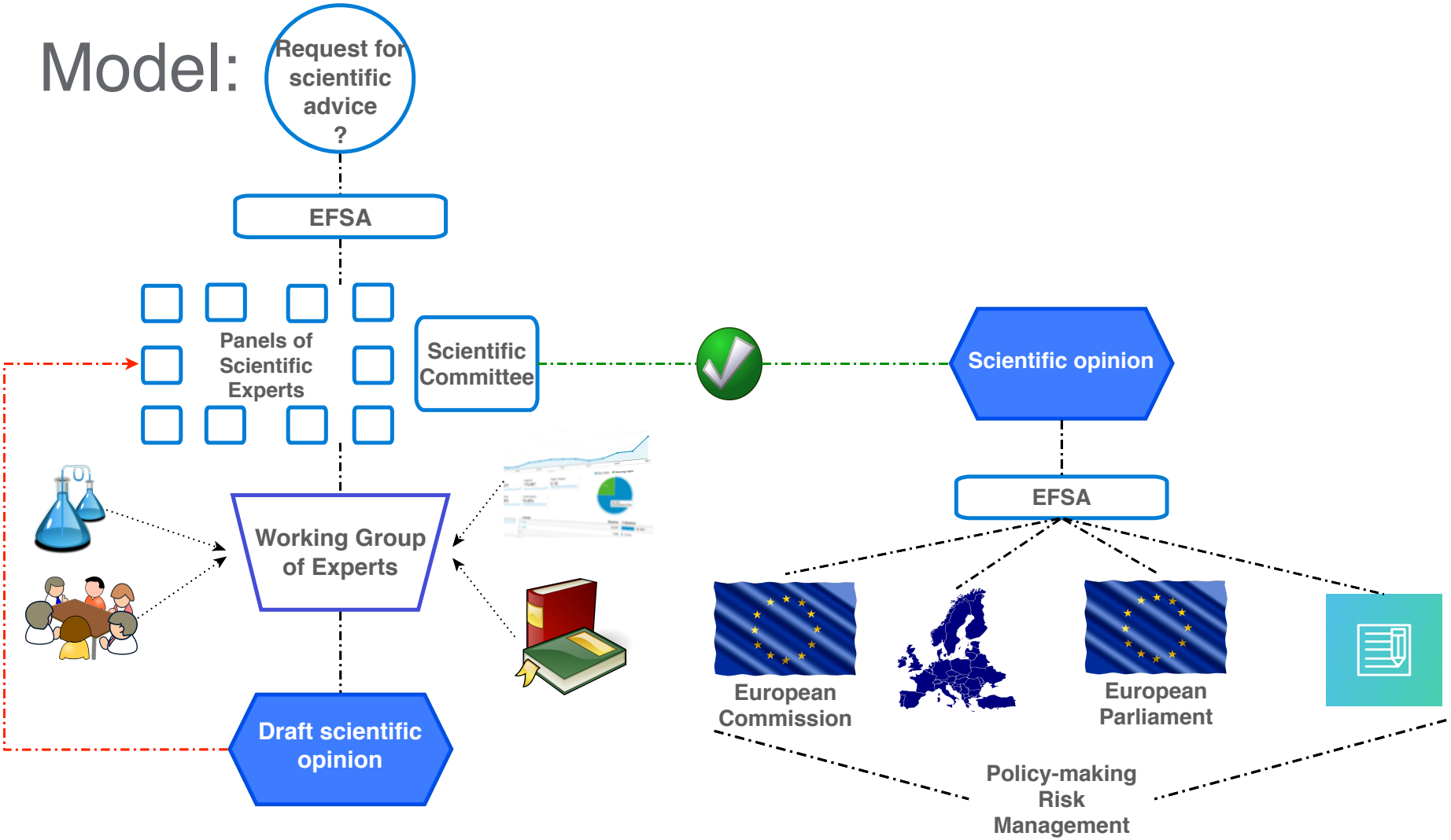
- Listeria in RTE food
- GRAS approval process
- Allergens - Canada recognizes sesame, shellfish, mollusks and mustard
- Methodologies for pathogen testing
- New technology / product approvals

Sources: Gendel SM. Comparison of International Food Allergen Labeling Regulations. Regul Toxicol Pharmacol. 2012 Jul;63(2):279–85.
Rivera D, et al. Approaches to Empower the Implementation of New Tools to Detect and Prevent Foodborne Pathogens in Food Processing. Food Microbiol. 2017 Jul 14.

How to integrate risk assessment in North America?

European Food Safety Authority (EFSA)

Model:



Source: Modified from EFSA's Scientific Process. A step-by-step guide. European Food Safety Authority. Available at: https://www.efsa.europa.eu/interactive_pages/scientificprocess/ScientificProcess

Food Standards Australia-New Zealand

- FSANZ is responsible for standard setting, developing and maintaining the Australia-New Zealand Food Standards Code
  - Labelling, composition and contaminants, food safety (AU), MRLs (AU), primary production and processing (AU).
- Ensures standards are based on risk analysis

Risk assessment → decision-making (Code modifications) → communication

Sources: Risk Analysis in Food Regulation. Food Standards Australia New Zealand, 2013. Available at: http://www.foodstandards.gov.au/publications/riskanalysisfoodregulation/Pages/default.aspx

Working History: Canada-U.S.

Source: Risk and Reward: McAlpine, R., Robach, M. Food Safety and NAFTA 2.0. CAPI/ Wilson Center. 2017 Sept.

FSSRA

Food Safety Systems Recognition Arrangement:

- FDA, CFIA and Health Canada
- Increases the exchange of information
- Promotes a formal mechanism for scientific exchange and collaboration
- Opens new opportunities for collaboration on risk-informed decision-making
- Enhances regulatory cooperation
- Excludes:
  - meat, poultry, processed egg products, catfish, grade A milk/products, raw bivalve molluscan shellfish, dietary supplements and natural health products

Source: http://www.inspection.gc.ca/food/safe-food-production-systems/recognition-arrangement/eng/1461855282008/1461855380043

Conclusion

Food Safety Risk Assessment Organization

FSRAO would promote:

- Exchange of scientific information and collaboration between both countries during the risk assessment stage
- Independence
- Innovation in both countries by keeping pace with science, industry and society
- Strong, well established network of experts for cooperation and exchange of knowledge
- Improved and consistent risk assessment practices that can be used throughout Canada, U.S. and eventually NA

Sources:

It's about Harmonization…

- Starting from a common foundation, based on common science, Canada and the U.S. can build towards a higher degree of regulatory harmonization
- This will help reduce:
  - unwarranted and contradictory regulatory requirements
  - redundant applications of similar requirements by different authorities
  - administrative burdens and costs for industry and government in both countries

Sources:

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