The Canadian Food Safety System
Canada’s food safety system is a shared responsibility among various stakeholders:

- **Industry**
  - Farmers, food manufacturers, food distributors, food service establishments and retailers

- **Consumers**

- **Government**
  - Federal, provincial and territorial (P/T), municipal
Role of Food Industry and Consumers

Industry:
- Produce safe food
- Compliance with regulatory requirements
- Adherence to generally recognized good practices
- Development and implementation of mandatory or voluntary food safety control systems

Consumers:
- Proper food handling, preparation and storage practices at home,
Governments

- Canada’s Constitution allows all levels of government (federal, provincial/territorial and municipal) to enact food safety and quality legislation
- Establish policies, standards, laws and enforce them
- Provide information, guidance
- Provide effective and efficient program delivery
Ministries of Health and Agriculture have complementary responsibilities, similar to the federal level.

Municipal and local responsibilities vary

**General responsibilities:**

- Legislation governing foods produced and sold within their own jurisdictions (laws generally complementary to federal statutes)
- Inspection programs for food processors; food-service establishments; food retailers; hospital, nursing homes and community kitchens, and food-banks
- Food-borne illness surveillance and investigation, in collaboration with federal authorities
- Food handler and consumer education
Key Federal Organizations

Food Safety Roles

Health Canada (HC)

Canadian Food Inspection Agency (CFIA)

PUBLIC HEALTH AGENCY of CANADA (PHAC)

Agriculture and Agri-Food Canada (AAFC)
Federal Government Interactions within the Canadian Food Safety System

Function
- On-farm Food Safety Programs
- Policy and Standards
- Surveillance and Early Warning
- Education and Outreach
- Inspection and Enforcement
- Public Health Surveillance

Accountability

Primary Responsibilities

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<tr>
<th>AAFC</th>
<th>HC</th>
<th>CFIA</th>
<th>PHAC</th>
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<tr>
<td>• Contributes to research and development of on-farm food safety programs</td>
<td>• Establishes food safety policy and standards</td>
<td>• Design and delivery of federal food inspection programs</td>
<td>• Public health surveillance</td>
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<td>• Assesses the effectiveness of CFIA’s food safety activities</td>
<td>• Monitors industry’s compliance with the Acts and regulations</td>
<td>• Leads foodborne illness outbreak investigations with P/T public health officials</td>
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<td>• Conducts health risk assessments in support of food safety investigations</td>
<td>• Undertakes enforcement action as necessary</td>
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<td>• Informs Canadians about potential risks to their health</td>
<td>• Food safety investigation and food recall</td>
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HC
CFIA
PHAC
Food Directorate values engagement with other governments, industry and consumers involved in the Canadian food safety system.

Various mechanisms in place to interact with various partners and stakeholders: committees in place to engage with government partners:

- Committees at federal as well as Federal/Provincial/Territorial levels
- Engagement with other stakeholders via:
  - Ad hoc meetings with industry (bilateral, broader meetings with industry associations)
  - Via advisory committees to the Food Directorate (e.g., Food Regulatory Advisory Committee)
  - Partnerships (e.g., Canadian Partnership for Consumer Food Safety Education)
Health Canada’s Role in Enteric Illness Outbreak Response
Health Canada’s responsibilities include:

- The establishment of policies, regulations and standards related to the safety and nutritional quality of food
- The regulation of pesticides and evaluation of the safety of veterinary drugs used in food-producing animals
- Food Safety responsibilities to First Nation communities
- The HECSB prevents and controls foodborne illness on common carriers (e.g., cruise ships) and ancillary services (e.g., flight kitchens), as well as outbreaks on international vessels
Health Canada’s Role

The Health Products and Food Branch (HPFB) and the Pesticide Management Regulatory Agency (PMRA) provides, upon request, health risk assessments on food-related hazards to the CFIA or other stakeholders (e.g., provincial governments)

Within HPFB:

• The Food Directorate within HPFB focuses on issues relating to microbial pathogens, chemical contaminants, food additives, packaging materials and food allergens or other potential health hazard in foods

• the Veterinary Drugs Directorate focuses on issues related to veterinary drug residues exceeding the legal limits

The PMRA provides HRAs on pesticide residues exceeding the legal limits.
Other Activities

The Food Directorate also provides:

• Scientific advice and analytical surge capacity for analyzing microbiological contaminants, chemical contaminants, food additives, food packaging materials and incidental additives, and food allergens in food and clinical samples.

• National reference diagnostic services for foodborne botulism, listeriosis, parasites and viruses.

• Risk management advice, including public communication.
Foodborne Illness Outbreaks

- In Canada, responsibility for responding to foodborne illness outbreaks is shared by local and regional health authorities, P/T governments and federal officials.
- When federal or P/T officials suspect that a foodborne outbreak may span across more than one province or territory, close collaboration and coordination is required at all levels of governments to mitigate the impacts of the outbreak on human health.
- Health Canada’s involvement and assistance in foodborne illness outbreak investigations, is described in Canada’s Foodborne Illness Outbreak Response Protocol (FIORP).
Food Safety Investigations

- In addition to supporting foodborne illness outbreaks, Health Canada is mandated to provide health risk assessments associated with food safety investigations/incidents.

- The majority of cases that Health Canada provides health risk assessments are food safety incidents that have no associated illness.
Definition:

Foodborne microbial hazards include (but are not limited to) pathogenic bacteria, viruses, algae, protozoa, fungi, parasites, prions, toxins and other harmful metabolites of microbial origin

[Principles and Guidelines for the Conduct of Microbiological Risk Management (MRM), CAC/GL 63 – 2007]
Health Risk Assessments (HRAs)

**Definition:** Determination of the likelihood that a specific adverse health effect will occur in an individual or a population, following exposure to a hazardous agent

- The HRA process is based on guidelines developed by the FAO/WHO Codex Alimentarius Commission
  - Hazard Identification, Exposure Assessment, Hazard Characterization and Risk Characterization

- Food Directorate provides the 24/7 availability of HRA teams in support of CFIA food safety investigations
Health Risk Assessments (HRAs)

- Data and information gathered during a food safety investigation is considered in the HRA for the determination of the level of risk posed by a food

- HRAs are completed in a rapid and timely manner (8-48 h), depending on the potential level of risk, in order to ensure that appropriate risk management decisions are taken to prevent hazard in food

- Decisions and rationales are conveyed to the requesting inspection authorities who depend on such assessments, and are also shared with an outbreak investigation coordinating committee
Health Risk Assessments (HRAs)

Food Directorate has a consistent approach

- Food Directorate Standard Operating Procedures for Providing Health Risk Assessments to the CFIA in the Context of Food Safety Investigations
  - Guidance on FD Procedures to follow when CFIA requests HRAs
  - Service Time Standard
  - Health Risk Definitions
  - Templates
Implementing the Strategy

Selecting a Strategy

Identifying and Analysing Options

Assessing Risks/Assessing Benefits

Identifying Issues and Putting Them into Context

Partners and Other Stakeholders

Evaluating Results

Selecting a Strategy

Identifying and Analysing Options

Risk Management

Risk Assessment

HC’s Decision-Making Framework

Risk Communication
Legislation and Guidelines

The Food Directorate derives its mandate from the Food and Drug Act and Regulations, the Department of Health Act and the CFIA Act.

In addition, HC draws on a number of guidance documents, e.g.,

- *Listeria policy* in RTE foods
- *E. coli O157:H7* in raw beef
- *Sprouts; Unpasteurized juice*
- *Interpretive Summary*
Outbreak Management

Laboratory Testing: (hospitals & provinces, surge capacity, culture characterization, etc.)

- *C. botulinum* Reference Service
- *Listeria* Reference Service
- Food Virology Reference Service
- *Vibrio* Reference Service
- Food Parasitology Reference Service
Health Risk Assessments

- Performed by the Evaluation Divisions, Bureau of Microbial Hazards and Bureau of Chemical Safety
- HRAs determine whether a health hazard exists or whether there is potential for a hazard to exist
- Potential health hazards are chemicals, foodborne pathogens or injurious extraneous material in food
- A formal request for an HRA, plus all the data available are provided to the scientific evaluator in written format
- In outbreaks, PHAC may be requested to assess or interpret the epidemiological evidence.
- Requests are received from the CFIA, FPT, etc.
HRA – The Process

Situation Summary or Purpose

Analysis of Hazards
  • Hazard Identification
  • Hazard Evaluation

Exposure Assessment
  • Dose-Response Assessment
  • Hazards Exposure Characterization

Risk Characterization (Estimation)

Determination of Health Risk (1, 2, or Category 3)

Communication / Follow up

Reference/ Documentation
Internal Communication

Communication within the Outbreak Investigation Coordinating Committee (OOICC/OICC)

- Participant in initial OICC
- Receive written request from the CFIA for an HRA
- Direct communication to: DG, ADM/DM, CFIA, PHAC
- Apply weight-of-evidence
Weight of Evidence

- Decision Diagrams
- Sections
  - Intact and Non-Intact Sample Information
  - Clinical Match Evidence
  - Epidemiological Evidence
  - Traceback/Traceforward
  - Health Risk Assessment
  - Risk Management Actions
  - Public Advisory
HRA Process Flow

HRA Request
- Scientific evaluator is contacted
- Formal written request is submitted accompanied by all relevant information
- Review Evidence
- In outbreaks, PHAC assesses or interprets the epidemiological information

Weight of Evidence
- Food Safety Investigation evidence
- Microbiological (Laboratory) evidence
- Epidemiological evidence
- Weight is determined for the totality of evidence

HRA
- Situation Summary
- Analysis of Hazards
  - Hazard ID & Hazard Evaluation
- Exposure Assessment
  - Dose-Response & Hazard Exposure Characterization
- Risk Characterization

Output
- Determination of Health Risk (1, 2, or Category 3)

Communication
- Provide written HRA to requestor
- Internal communication to senior management
Examples - Case Studies

1. Well-defined situations, e.g., *L. monocytogenes* in a RTE food, *E. coli* O157:H7 in raw ground beef

2. More responsive situations where we are presented with evidence, and we have to assess in the absence of a pre-defined policy/guidance, e.g., *Salmonella* spp. in raw ground beef
L. monocytogenes in a RTE food

- Request from the CFIA: Yes or No
- Interpretation
  - Current HC Listeria Policy
  - Growth/No Growth
  - Category 1, 2A/2B
- **Action**: As per the HC Listeria Policy
<table>
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<tr>
<th>Stream of Evidence</th>
<th>HRA 1418</th>
<th>HRA 1421</th>
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<tr>
<td><strong>Microbiology [Laboratory Investigation]</strong></td>
<td><strong>Weak</strong> No Enumeration No PFGE or other typing of food isolate</td>
<td><strong>Strong</strong> High counts in implicated food PFGE match of food and clinical isolates</td>
</tr>
<tr>
<td><strong>Epidemiology</strong></td>
<td><strong>Weak</strong> No epidemiological assessment</td>
<td><strong>Strong</strong> Epidemiological assessment implicates specific lot</td>
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<tr>
<td><strong>Food Safety Investigation</strong></td>
<td><strong>Weak</strong> Food is not RTE Poor handling at food service</td>
<td><strong>Strong</strong> Food is not RTE Poor handling at food service Traceback of implicated lot to 3 food service locations where product served and illnesses confirmed</td>
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External Communication

[Communication outside the Outbreak Investigation Coordinating Committee, i.e., with public, industry, media]

**Public:** - General education information (Can Fight-Bac)
  - Vulnerable groups through health care professionals
  - Internet access to HC website

**Media:** - Contact through Communications group
  - Expert spokespersons provided for radio/TV interviews

**Industry:** *Not* directly
Summary

- Health Canada has the responsibility for doing risk assessments
- Follows a detailed, structured approach and uses all the available weight of evidence
Thank you
Merci beaucoup