

# Can Eating be a Risk-Free Activity?

## Conceptualizing Public Policy Initiatives Aimed at Improving Food-Related Health Outcomes

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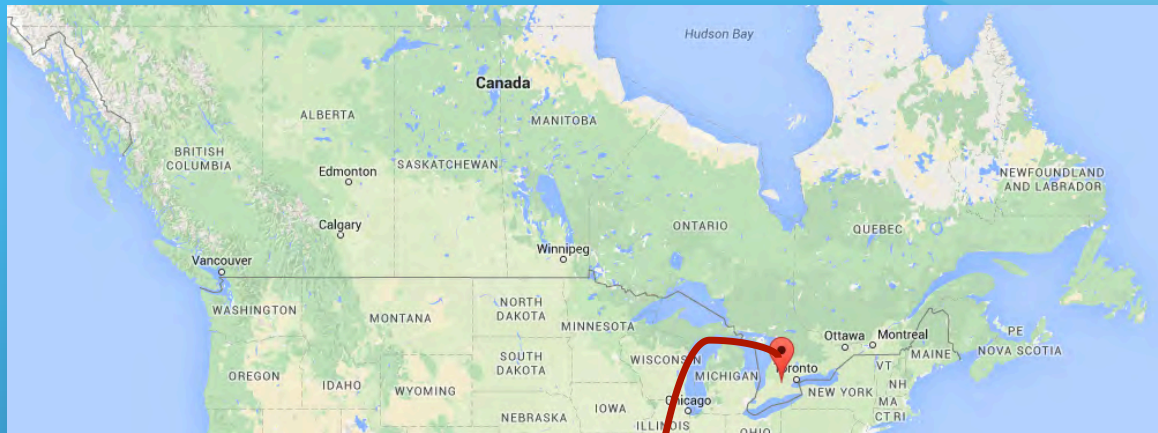
<sup>1</sup> School of Public Health and Health Systems

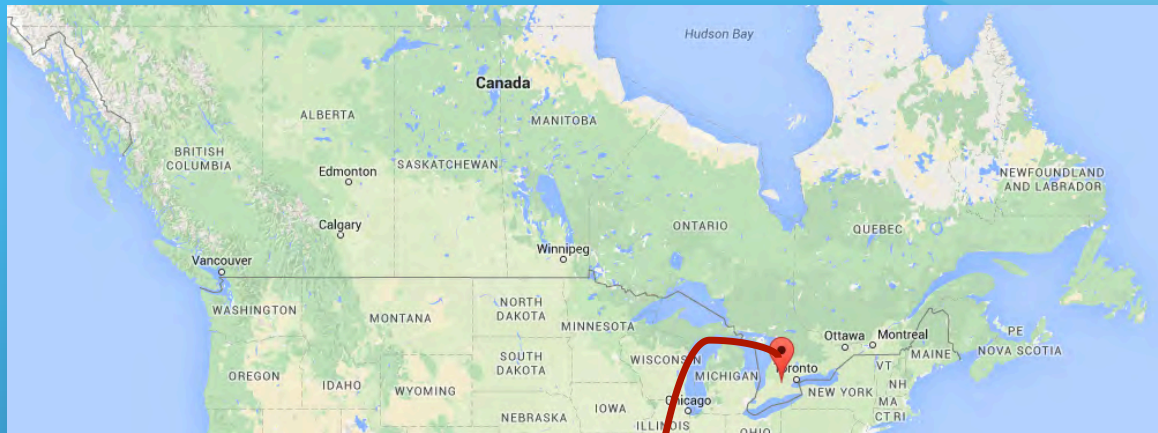
<sup>2</sup> Social Development Studies, Renison University College

<sup>3</sup> Propel Centre for Population Health Impact

<sup>4</sup> Geography and Environmental Management









# Background

What we eat is influenced by a complex web of individual, environmental, and societal drivers:



*culture and preference*  
*socioeconomic status*

*politics*

*legislation*

*built and natural environments*

*...*

## Multistate Outbreak of Shiga Toxin-producing *Escherichia coli* O157:H7 Infections Linked to Organic Spinach and Spring Mix Blend (Final Update)

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Damian Carrington and George Arnett  
The Guardian, Friday 11 July 2014 13.57 BST

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Vegetables and Fruit	4	5	6	7	8	7-8	8-10	7	7
Grain Products	3	4	6	6	7	6-7	8	6	7
Milk and Alternatives	2	2	3-4	3-4	3-4	2	2	3	3
Meat and Alternatives	1	1	1-2	2	3	2	3	2	3

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HOW DO PESTICIDES CONTRIBUTE TOWARDS FOOD SECURITY?



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#### ALLERGY ALERT

Mme [redacted] class

- Peanuts
- Tree Nuts
- Eggs, Milk
- Sesame Seeds
- Beans,peas,chickpeas, lentils, pineapple, kiwi, potatoes

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# Background



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Age in Years	Children 2-5		Youth 6-13		Adults 14-18		Adults 19-50		Adults 51+	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
2-5	4	5	6	7	8	7-8	8-10	7	7	7
6-13	3	4	6	6	7	6-7	8	6	7	7
14-18	2	2	3-4	3-4	3-4	2	2	3	3	3
19-50	1	1	1-2	2	3	2	3	2	3	3



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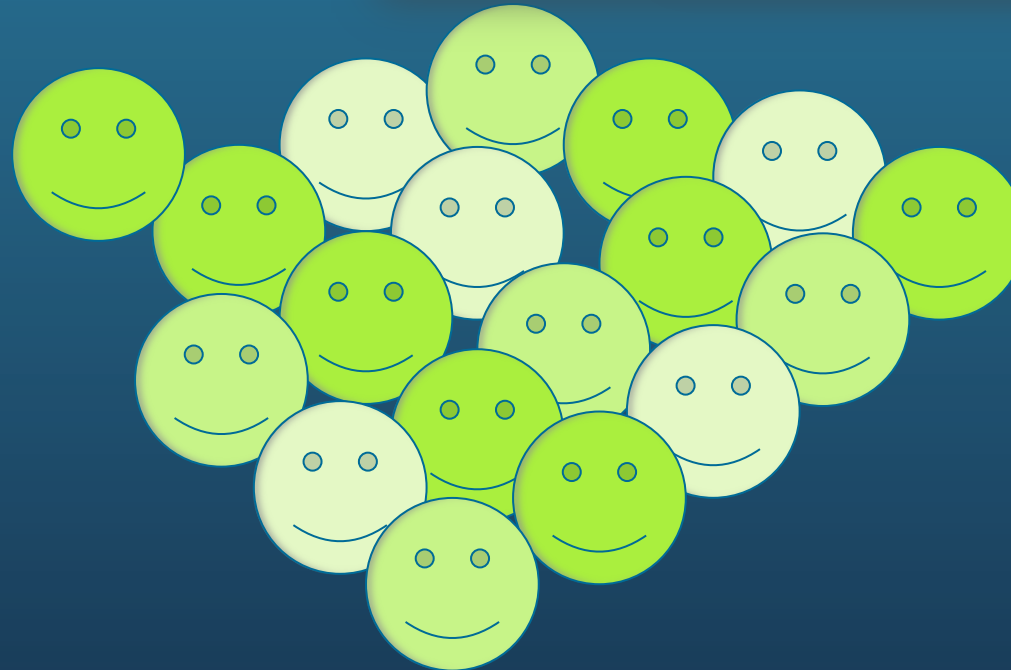
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# Background

What does this mean  
for how we "do"  
food-related public health?

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# Overall Objective and Approach

Apply a systems lens to explore the intersections between public health efforts in the areas of food safety, food security, obesity, allergy, and other food-health issues.

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Apply a systems lens to explore the intersections between public health efforts in the areas of food safety, food security, obesity, allergy, and other food-health issues.

*Shared drivers?*

*Potential synergistic or antagonistic interactions  
between public policies?*

*Unintended consequences of a given policy?*

# Specific Objectives

1. Model the shared drivers of five food-health issues in Canada:
  - foodborne disease
  - toxicological contamination of food
  - food security
  - obesity
  - food allergy
2. Apply the model from (1) to two or three specific public health policies/actions, to illustrate the potential for synergism, antagonism, and "unintended" consequences



## Methods (Objective #1)

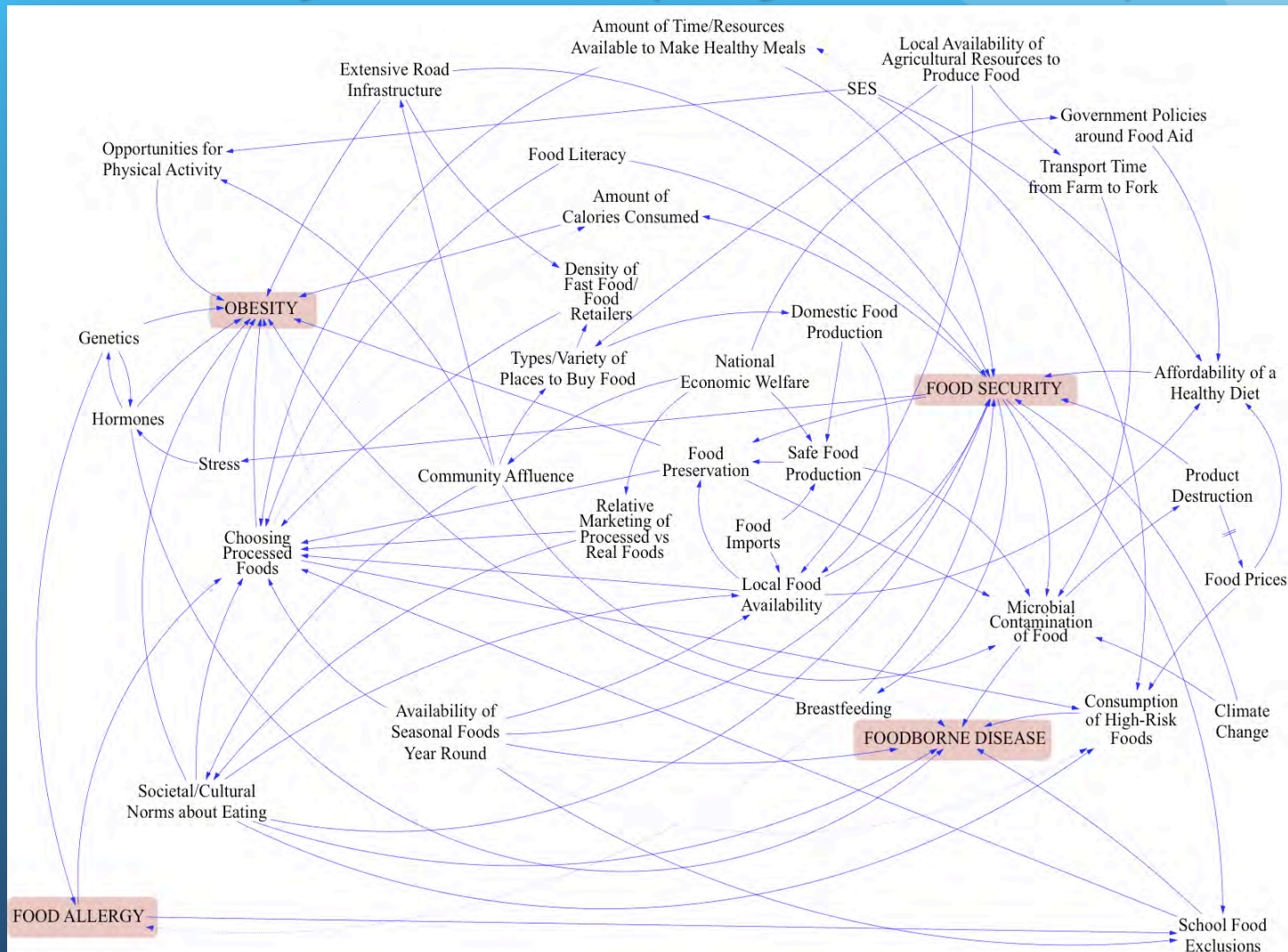
1. Peer-reviewed literature searched for review papers and “causal diagrams” describing drivers of each of the five issues
2. Drivers of the five individual issues extracted:
  1. Automated text analysis of articles
  2. Integration of existing causal diagrams
  3. Expert synthesis
3. Drivers common to two or more outcomes integrated into an overarching causal diagram using group model building

## Preliminary Results (Objective #1)

Preliminary assessment of causal diagrams for foodborne disease, food security, obesity, food allergy

- 31 “causal diagrams” identified
- Literature focused primarily on obesity and food security, with few published diagrams for food allergy and foodborne disease
- Drivers ranged across physiological factors, societal influences, and economic and environmental factors

# Preliminary Results (Objective #1)



## Next Steps

- Triangulated driver identification, extraction, and group model building
- Application of the final integrated model to policy examples (TBD: salt reduction? backyard chickens?), to identify:
  - (a) potential synergistic / antagonistic policy levers
  - (b) potential 'unanticipated' impacts of policies
  - (c) benefits / challenges of transdisciplinary approach
- Model potential intended, unintended consequences of possible actions:
  - Forecasting, narratives
  - (Quantitative models)



# Considerations Moving Forward

## Systems Perspective

- The system is complex, even if you ignore the complexity
- The system produces the behaviour it's designed to produce; to change the behaviour, change the system
- Optimizing system behaviour may mean sub-optimal conditions at points within system
- Sustainable changes require multi-pronged, multi-partner approaches
- Need to change focus from attribution to adaptation
- Redundancy can be a strength

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## Public Health Practice

- The media, the public, and policy makers want a simple message (a 'three bullet point solution')
- The systems image can cause despair: "How can I ever influence this?"
- Evidence-informed decision making values evidence that is clear (typically linear 'cause-effect' data)
- When weighing different courses of action, certainty of outcomes is valued
- Prudent use of public funds supports minimizing redundancy, uncertainty, and risky ventures that may fail

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Dairy	1	1	1-2	2	3	2	3	2	3

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## QUESTION:

What current policies / public health practices could benefit from being assessed using this kind of systems lens?

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For more information:

Shannon Majowicz

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 @ProfMajowicz



**UNIVERSITY OF WATERLOO**  
FACULTY OF APPLIED HEALTH SCIENCES  
School of Public Health and Health Systems

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