

## *Health Policy Research Program Summary of Research Results*

<b>Title:</b>	<b>Regulation in the 21st Century: Building a Framework for Policy Research in Microbial Food Safety</b>
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### *Summary*

The primary goal of microbial food safety (MFS) policy is to improve public health by minimizing the risk of illness due to foodborne disease. Designing and implementing policies to reduce foodborne illness requires knowledge of the biology of the microbial agent. However, there are additional constructs that will impact policy development and implementation. These include, but are not limited to, the cognitive domain (an individual's perception of risk and their values related to approaching risk and risk reduction), the social domain (cultural, ethnic, and behavioural practices), economic factors (both related to cost-benefit of interventions and trade issues), and political context. There is a growing recognition that a consideration of these constructs is necessary when determining policy priorities, options, and implementations.

A two-day workshop to begin developing a framework for microbial food safety policy research was held March 7-8, 2005 in Ottawa, Canada. The invited participants included researchers from academia and government with a wide diversity of disciplinary expertise as well as policy decision makers from agriculture and human health groups in provincial and government organizations.

An initial series of presentations provided background on microbial food safety policy in Canada, overviewed food safety policy goals in Canada and internationally, introduced concepts related to a multi-construct research approach, and provided illustrative examples of non-biological inputs to microbial food safety policy. The concept of a population health approach that addresses the entire range of health determinants and examples of the repercussions of not having such an approach were presented. The format of the workshop consisted of presentations, breakout groups, and full group

discussion sections for summarization of ideas generated by breakout group discussions. A series of questions were used to stimulate discussion and to work towards the development of a framework for microbial food safety policy research. Specifically, participants discussed the construct inputs needed to address food safety goals, the constraints to producing safe food, data sources and knowledge gaps, and opportunities. The final afternoon was spent on the development of a framework for microbial food safety.

To provide a starting point, it was proposed that the constructs important to microbial food safety research include biological, social, cognitive, economic, and political factors. It was noted that the constructs are, in many cases, interrelated. The purpose was not to “fit ideas into boxes,” but to stimulate discussion of a wide range of potentially important perspectives. The breakout and group discussions led to the modification of several of the proposed constructs and the identification of additional constructs. The constructs thus included:

- 1) Biological (bio-environmental)
- 2) Economic
- 3) Socio-cultural (a combination of “social” and “cognitive”)
- 4) Political (geo-political)
- 5) Ethical

Governance, health systems, and communication/education also were recognized as important inputs.

Constraints and limitations to the development and implementation of MFS policy were discussed. The constraints identified in this discussion were both knowledge-based and process-based. Key constraints included a lack of available data, lack of funding, lack of coordination/communication within and between disciplines, complexity of industry structures, liability issues, time pressures, conflicting expectations at various levels of government, lack of explicit ethical consideration in food safety policy, and communication and education constraints in both the general public and at all levels of the “farm to fork” continuum.

Microbial food safety research contributes to making good policy; therefore there is a need for credible and accessible information and data. It is important to identify both the uses of and concerns relating to currently available data. In doing so, data “gaps” can be identified that, if filled, would lead to enhanced MFS policies. The participants identified a large number and range of potential data sources. However, it was noted that some of the data collected are either not accessible or not used to the extent possible. The data gaps identified included both data specific to a construct area and across multiple constructs.

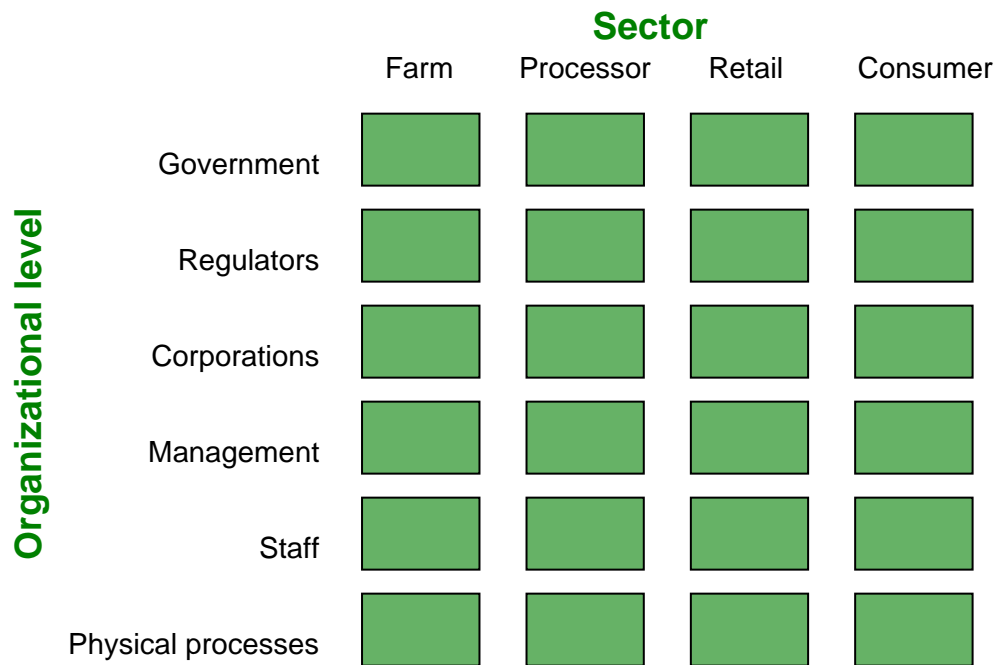
Participants then were asked to identify opportunities for advancing microbial food safety research. A number of ideas emerged. These included the creation of interdisciplinary and multi-jurisdictional groups to integrate the multiple constructs into a common

approach. This approach was identified not only as a research opportunity, but also as an opportunity to improve communication and create training opportunities.

Several of the opportunities identified involved the expansion of existing research approaches, such as risk assessment and surveillance, to encompass not only biological and economic issues but also socio-cultural and political constructs. It was suggested that lessons could be learned from other health areas and from the experiences of other countries. It was noted that the broad expertise of the participants could be captured in advisory committees or as a register of experts.

The final afternoon of the workshop was spent developing a framework for microbial food safety policy research. Two approaches to a microbial food safety policy research framework emerged. One of the frameworks described a systems approach that seeks to define the underlying structure of food production and policy and the interactions between the component parts. The other framework was process oriented and described the necessary research inputs to the policy decision making process.

The systems approach starts with identifying necessary organizational levels. Specific to MFS, there is a continuum of food production that includes discrete sectors (i.e. farm to fork). Inherent to each sector are each of the organizational levels. This results in a complex matrix, as shown in the following figure.



The food production system can thus be seen not just as a one-level continuum but also as a matrix of “organizational cells” where there is vertical organization of cells within each sector and a horizontal organization of cells at the same organizational level between

sectors in the food production continuum. This framework facilitates identifying how decisions affecting MFS at the level of one cell in the system can affect other indirectly linked cells in the system.

The process framework by which microbial food safety research can provide input to policy decision making is outlined as follows:

1. Identify the issue and put it into context
2. Identify researchers from different construct areas to assemble a multidisciplinary team to provide input into the research needed for risk assessment and policy development and implementation
3. Clearly identify the target audience for the research results (i.e. those to whom the results should be communicated)
4. The multidisciplinary team identifies the research constructs appropriate to the specific issue
5. Identify the research methodologies to address the issues and concerns from all of the relevant constructs. These may be construct specific (e.g. an economic cost-benefit analysis) or may require multiple construct inputs
6. Determine the most appropriate means of dissemination of the research results (i.e. how the research results should be communicated).

This process is flexible enough to apply to any research question relevant to MFS policy while maintaining transparency, inclusiveness and accountability.

The development of these frameworks represent preliminary efforts and need to be further refined. There is potential for the two approaches to be integrated. The process framework is applicable to the research initiatives of individual organizational cells within the structural framework and could potentially be used to determine the interactions between organizational cells. A refined version should be discussed by potential contributors and users to obtain further input on the applicability of the framework(s). Application of the frameworks to address specific food safety issues will allow for validation of the models and illustrate their usefulness to the policy process.

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In addition to the above summary, the full report can be accessed in the following ways:

- The print version of the full report can be obtained in the language of submission from the Health Canada Library through inter-library loan.
- An electronic version of the full report in the language of submission is available upon request from Health Canada by contacting the Research Management and Dissemination Division.

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