



# Food Safety Research Consortium FSII Project: Phase 1

*Exploring Opportunities to Improve the Nation's Food Safety Information Infrastructure*

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## Project Description

### Summary

**Project Title** – FSII Project – Phase 1: Exploring Opportunities to Improve the Nation's Food Safety Information Infrastructure (FSII).

**Sponsor** – The Food Safety Research Consortium (FSRC), a collaboration among seven research institutions to improve public health by developing the tools for a more science- and risk-based food safety system, working in collaboration on this project with the Public Health Informatics Institute.

**Scope** – For this project, “food safety information infrastructure” means all of the many public and private institutions, programs, and processes through which data and information are collected, made accessible, and actively shared to improve food safety, including the activities of federal and state regulatory and research agencies, the CDC, state health departments and laboratories, the food industry, academic institutions and researchers, and public health and consumer organizations.

### **Goals**

1. Elevate understanding across the food safety community of the current food safety information infrastructure and its public health importance,
2. Identify and analyze issues affecting how data are currently collected, made accessible, and actively shared, and
3. Explore opportunities for collaboration among key institutions and stakeholders to improve the information infrastructure.

**Approach** – Active dialogue and consultation across the food safety community, including interviews, surveys, workshops and public meetings, supported by research and analysis contributed by the project's staff; this project is the first phase of a long-term effort to address the scientific, technical, legal, policy, business, and resource issues that affect how food safety data are collected, made accessible, and actively shared.

**Funding** – A grant from the Robert Wood Johnson Foundation to the University of Maryland School of Medicine.

**Project Website** – <http://www.rff.org/fsrc/fsii/>

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## **Background**

Foodborne illness is an important public health problem in the United States and imposes economic costs in the billions of dollars annually. Food companies, federal regulators and researchers, state and local health departments, and other players across the food and public health system devote substantial effort to the prevention of illness. These efforts are motivated by the health consequences of foodborne illness and by the disruptive effects of outbreaks on families, communities and the food marketplace. It is widely recognized, however, that past prevention efforts have not been fully effective and that most foodborne illness remains preventable.

As a general matter, effective public health programs to reduce rates of illness depend on accessing and integrating data and other information required to identify, prioritize, and implement solutions. Foodborne illness is a classic case. Illness rates are affected by diverse natural factors and human behaviors across the complex system of food production, processing, transport and storage, retail and consumer handling, and consumption. Effective and efficient prevention of foodborne illness requires analysis and understanding of: (1) causative factors and their interaction across the system, (2) relative risks associated with particular hazards and behaviors, (3) opportunities to prevent or reduce the risk and health consequences of illness through research, education, regulation, improved food production and processing practices, and improved community health practices, and (4) the relative cost and effectiveness of available risk reduction and health protection interventions and strategies.

With this understanding, public health officials, private sector risk managers, and the health care community can take actions, including the deployment of scarce resources, in ways that make the greatest contribution to preventing foodborne illness and minimizing its public health impact.

Much of the information needed to build a system-wide understanding of foodborne illness and its prevention already exists, or is currently being generated, by a dozen or more federal agencies, state and local health departments, academic researchers, and the food industry. Existing information is not as accessible and widely shared as it could be, however, among federal agencies, between the federal government and the states, and between the public and private sectors. Moreover, much necessary information is lacking, due in part to the lack of a broadly inclusive mechanism for defining data needs and designing approaches to data collection on a system-wide basis, but due also to the absence of an established and accepted framework within which generated information could be used effectively to prevent foodborne illness on a system-wide basis. The FSRC is working to create a conceptual framework for making good use of data, as well as the analytical and decision tools required to prioritize opportunities to reduce foodborne illness and allocate resources accordingly.

This project is intended to build upon and advance the work of the FSRC and the many government and private sector institutions that collect food safety data and are working in diverse ways to improve food safety. The food safety community widely shares the objective of improving food safety through a more risk-based and data-driven approach to understanding food safety problems, targeting interventions, and setting priorities. Achieving this objective requires a food safety information infrastructure that helps ensure the right data are generated and that relevant data are widely shared and made accessible to government policymakers and private sector risk managers alike.

## About the FSRC and the PHII

The Food Safety Research Consortium ([www.rff.org/fsrc](http://www.rff.org/fsrc)) is a multi-disciplinary collaboration among six universities and one non-profit think tank committed to reducing the public health burden of foodborne illness by developing decision tools to better identify and prioritize opportunities to reduce risk across the food system and allocate food safety resources accordingly. The FSRC members have expertise in the wide array of natural and social science disciplines relevant to prevention of foodborne illness and broad practical experience in the leadership, management, and analysis of both public and private sector food safety programs. The FSII Project: Phase 1 is based at one of the FSRC member institutions, the University of Maryland School of Medicine.

The Public Health Informatics Institute ([www.phii.org](http://www.phii.org)) supports the transformation of the public health information infrastructure from a narrow, categorically oriented set of isolated systems into a sustainable, integrated enterprise system capable of improving disease prevention and promoting health through strategic application of information technologies and use of information. The Institute focuses exclusively on establishing the rationale (business case) for new public health information systems, translating general needs into comprehensive system requirements, and establishing performance metrics that assure information systems actually serve their intended public health goals. The Institute seeks to accomplish these goals through collaborative projects that leverage experience, expertise and resources. The Institute is working to establish methodologies validated through real-life projects for collaboration around requirements that yield more impactful public health information tools and, more importantly, more impactful public health programs. From this base of experience, the PHII will play an advisory role in the design and conduct of the FSRC's interaction with the public health community.

## Terminology

For purposes of this project, the following terms are used as indicated:

**Food Safety Information Infrastructure:** Includes all of the many public and private institutions, programs and processes through which data and information are collected, made accessible, and actively shared to protect and improve food safety.

**Food Safety:** Involves consideration of all hazards, unintended or intended, arising along the farm-to-fork continuum, including but not limited to pathogens, toxins, chemicals, and physical objects.

**Data Collection:** Encompasses acquisition of quantitative and qualitative information at any point along the farm-to-fork continuum related to food safety, and includes at least three types of activity:

**Data generation:** Activities that result in primary information collected at the source of food safety activities or in experiments, such as microbial contamination data collected through inspection or data from animal toxicity tests.

**Data assembly:** Activities that result in compilation of primary food safety information, such as outbreak reports, microbial databases, and food additive petitions.

**Data analysis:** Analytical activities that use both primary information and compilations to yield insights relevant to protecting or improving food safety, such as exposure or risk assessments and risk rankings.

**Data Access:** Means food safety information is *passively* made available to the food safety community, such as through posting of information on websites or publication of food safety information in journals.

**Data sharing:** Involves food safety information being *actively* shared for a specific purpose, such as state-federal data sharing during an outbreak investigation or the food industry providing information to a government agency or academic researcher for inclusion in a risk assessment.

### **Long-Term Vision and Goals**

Improving the food safety information infrastructure requires a long-term effort and the bringing together of diverse parties in the public and private sectors. These include a dozen or more federal agencies with significant food safety regulatory or research responsibilities; state and local health departments and regulatory bodies that devote significant resources to investigating illness outbreaks and inspecting retail establishments; food producers, processors and retailers who collect extensive food safety data on their own operations; food safety researchers in government and academia; and organizations that represent the consumer's interest and role in the food safety system.

Sustained improvement in the food safety information infrastructure requires a collaborative, long-term effort by these groups to:

1. Build broad understanding and agreement on the purposes for which food safety data and information are and should be collected, made accessible, and shared;
2. Define the categories and depth of data needed in light of the diverse ways they can be used to improve food safety;
3. Develop cost-effective strategies for compiling existing and collecting new data, taking into account the roles of both public and private institutions;
4. Identify and resolve legal, policy, and institutional obstacles to collaboration, data access, and data sharing among food safety stakeholders;
5. Determine the information management technology and systems required to make existing data accessible and useful;
6. Establish the ongoing, sustainable mechanisms for financing and managing food safety data collection, access, and sharing.

While the FSRC can play a catalytic role in bringing the food safety community together to work on these goals, their ultimate achievement will depend on the buy-in and active collaboration of a sufficient, representative cross-section of the food safety community, especially at the federal and state levels of government and in the food industry. This initial phase of the long-term effort will thus focus on working within the community to define the need, objectives, and feasibility of an improved food safety information infrastructure, including specific and realistic opportunities for improvement; identify issues and obstacles that must be addressed; and build buy-in for further collaboration among key institutions and individuals.

If this first phase is successful, subsequent efforts will include resolving issues and obstacles and actually building the understandings, procedures, and technical arrangements that would comprise a better functioning information infrastructure for food safety. The ultimate vision is for an improved food safety information infrastructure to be embraced by the community, become self-perpetuating through public and private sector financing, and contribute to real change and improvement in the way foodborne illness is managed in the United States.

## Scoping Project Activities

This FSII Scoping Project includes four sequential but overlapping areas of activity:

- *Background research* by the FSII project staff concerning the current status of food safety data collection and sharing, including issues affecting the utility of current efforts and possibilities for improvement;
- *Active dialogue and consultation* with and among the food safety community, including interviews, surveys, workshops, and public meetings;
- *A stakeholder conference* to present and discuss possibilities for improvement and gauge buy-in for further work;
- *A final report* documenting current practices and opportunities for improving the nation's food safety information infrastructure.

## The Project Team

The project team combines the food safety experience and expertise of the FSRC with the expertise and experience of PHII in working with the public health community on information infrastructure issues. The team includes from the *University of Maryland*: Mike Taylor (project director), Glenn Morris, Jan Powell, Michael Batz, Judy Cooksey, Marin Schweizer, Cori Annapolen, and Kassy Santoni; from the *Public Health Informatics Institute*: David Ross, Alan Hinman, Mark Rosenberg, Anita Renahan-White, and Terry Marie Hastings; and from the *University of Georgia*: Michael Doyle.

## Conclusion

Improving the food safety information infrastructure in the United States is essential to making the best use of available knowledge and resources to prevent foodborne illness. This project will be successful to the extent it helps foster such improvement and supports the food safety and illness prevention efforts being under taken daily by the food safety system's diverse players in both the public and private sectors.

The FSRC welcomes questions and comments concerning this project or any aspect of its program. Please feel free to contact:

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