



## **Food, bug must be linked to cut foodborne illness, think-tank says**

As it continues work on a model designed to target methods to reduce foodborne illness risks, the think-tank Resources for the Future said it still lacks data in a critical area: which foods are causing what illnesses?

RFF, an arm of the Food Safety Research Consortium, held a briefing last week in Washington, D.C. to give food safety officials a progress report on its computer model, unveiled last summer, for ranking the risks of various food/pathogen combinations (see *FCN* Aug. 25, page 29).

The risk ranking system involves comparing the relative public health and economic burdens of various foodborne illnesses.

At the briefing, RFF was also seeking input on how to proceed with the next phase of the program: prioritizing opportunities to reduce foodborne illness risks. Funded by USDA, this part of the plan focuses on all of the factors along the food chain that contribute to the causation and prevention of a foodborne illness, such as practices on a poultry farm, controls at the processing plant, and how chicken is stored and prepared in the home, said RFF Senior Fellow Michael Taylor.

RFF's computer model is intended as a tool for policymakers in deciding how to divide up scarce resources by highlighting which pathogens exact the highest toll in terms of hospitalizations, deaths and overall costs to the healthcare system, and which points in the food chain present the best opportunities to stop a pathogen in its tracks.

"You have to start by focusing on where the biggest problems are, and then on where we can get the most risk-reducing bang for the buck," Taylor told Food Chemical News. He said that, while policymakers base their decisions on risk assessment to some degree, there is very little data-driven analysis of what the most important risks are.

Taylor told attendees of the briefing that the RFF model might eventually be applied to emerging health crises, such as the mad cow disease scare. For example, the system could shed light on whether an investment of a half-billion dollars for testing all cattle for the disease would yield a significant public health benefit, he said.

## **The missing link**

But while the risk ranking model's "top down" approach — which focuses first on foodborne illness incidence data — has begun highlighting which of 28 foodborne pathogens are causing the most havoc to public health, it has also underscored another troubling truth: there is a serious lack of data on food attribution, or which foodborne pathogens can be traced to particular foods.

This data is a central piece of the risk-reducing puzzle, because RFF's system is designed to first assess the incidence of a particular foodborne illness, then attribute each illness to the foods causing it, so resources can be allocated accordingly.

While FoodNet data from the Centers for Disease Control on foodborne disease incidence has given researchers a reliable way to "cost out" a disease like Salmonella in terms of its public health impact, these data do not indicate whether 50% or 75% of those Salmonella cases are coming from poultry, said J. Glenn Morris, a professor at the University of Maryland School of Medicine, a FSRC member.

Without the crucial data on food attribution, RFF's risk ranking model can only yield a partial picture of which foods are providing illness-causing bacteria with the paths of least resistance, Morris noted.

For example, the model points to produce as the major cause of Campylobacter infection, but that's because tainted produce is to blame for most foodborne illness outbreaks, he said. But that outbreak data might not be truly representative of a foodborne illness's actual sources, and doesn't factor in the possibility of cross-contamination, he said.

## **Poultry or produce?**

Morris stressed that cross-contamination is a "huge issue" in allowing researchers to determine if a bacteria such as Campylobacter is coming largely from produce, or if chicken is contaminating the produce. "We also need data on what's coming into households. Most [researchers] have ignored this factor," Morris said.

"Interventions tend to be product-related," he pointed out, "but unless you have food attribution data, it's hard to figure out where the social and economic impact [of a foodborne illness] is."

Taylor agreed, telling meeting attendees, "The last thing we want to do is say we have answers to the question [of how to reduce foodborne illness]. We have nothing yet for policy-making. We need to solve the data problems."

He said one of RFF's goals is to encourage studies to fill in these gaps, but he told FCN that he was unaware of specific institutions currently taking on the task.

## **The role of non-meat sources**

However, CDC medical epidemiologist John Painter told FCN that his agency has created a task force to use foodborne illness outbreak data to calculate estimates of food attribution. That initiative is being carried out separately from CDC's FoodNet data collection system, he added.

Noting that CDC's first estimates could be completed this year, Painter said, "We're intrigued by the idea that non-meat sources (including cantaloupes and sprouts) may contribute to an important part of foodborne illness."

Some meeting participants suggested that better collaboration between regulatory agencies and industry might be key to getting more data. Other attendees said that the concept of "risk perception" should be incorporated into the RFF model, since public perception of risk and consumer confidence in the safety of food often drives policy.

## **Neglected culprits**

So once RFF's resource-targeting machine is in place and the major data gaps filled in, which foodborne illnesses might emerge as serious health risks that are currently neglected in terms of study and health care dollars?

According to University of Maryland's Morris, the pathogen *toxoplasma gondii* — a fetal neurotoxin which is particularly a health risk in pork — and foodborne menaces such as the Norwalk and Norwalk-like viruses, might be the biggest surprises.

Helen Jensen, head of food and nutrition policy research at Iowa State University, a member of FSRC, said that a number of research institutions are planning workshops on the issue of reducing foodborne illness rates, including one on risk modeling approaches set for April at the University of California at Davis, and another on economic measures planned for the fall at the University of Massachusetts.

RFF took on its current project in response to calls from the National Academies of Science, the General Accounting Office and others for a more science-based and risk-based food safety system that makes the best use of resources, Taylor said.

According to CDC statistics, there are about 76 million cases of foodborne illnesses each year, resulting in 5,000 deaths and 325,000 hospitalizations.

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