Food Access, Nutrition, & Food-Safety Risk: A Workshop

- Sponsored by the Interagency Risk Assessment Consortium (IRAC) -

Workshop Summary

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Summary
The purpose of the meeting was to provide an opportunity for Federal Agencies to discuss the interrelationships among food access, nutrition, and the risk of foodborne illness, based on current studies and the emerging science of the microbiome. Participants represented USDA agencies, HHS agencies and the US Agency for International Development (USAID), and included scientists, policy makers, researchers and educators.

Three broad areas were addressed:

- **Relationships among Socioeconomic Status, Nutrition, and Susceptibility to Foodborne Illness:** This session explored national and international studies on lower socioeconomic status, the link to nutrition and risk of infection from foodborne pathogens
- **Emerging Science: Microbiome – a Link between Nutrition and Health:** This session explored the role that diet, including pre- and probiotics, plays in influencing the microbiome, and the subsequent impact on obesity, chronic diseases and foodborne diseases
- **Use of Food-Nutrition and Food-Safety Information – Opportunities in Community Outreach:** This session addressed current efforts to better understand and address complex challenges of improving the health of underserved communities through federal programs. This session also addressed the current data and information needed to better target federal public health resources to improve community health.

Key findings from the workshop include:

- Improving our understanding of the microbiome and nutritional biomarkers will be important to elucidate the relationships among nutrition status, food safety and health
- Better data are needed on the relationship between socioeconomic status and food safety to make meaningful conclusions to improve health
- We need to communicate nutrition and food safety messages more effectively with the public, to achieve desired behavior changes
• Greater collaboration among USDA, HHS and USAID will help improve public health
• Future research should integrate the individual, environmental, community, and policy levels of public health to maximize outcomes

Participants identified opportunities for enhanced collaboration and coordination among federal food-nutrition and food-safety professionals, and anticipate that this will lead to an ongoing dialogue among food nutritionists and food safety professionals on cross-cutting issues related to food access, nutrition, and food safety. This may lead to improved food safety and nutrition policies and better communication strategies, resulting in improved health.

Next steps

Opportunities for enhanced collaboration and coordination
• USDA and HHS agencies could collaborate more closely with USAID, to share information on best practices for controlling foodborne and waterborne illnesses along the food supply chain
• Nutrition and food safety professionals could collaborate to examine the role of increasing diet diversity – for example – adding more fruits and vegetables to improve nutritional status, on the potential to increase foodborne illnesses, and develop mitigation strategies that would allow improvements in health/ reduced stunting while reducing the likelihood of foodborne illness.
• Nutrition and food safety professionals could collaborate to examine the role of salt and sugar as preservatives to prevent foodborne diseases versus nutrition and health concerns to develop appropriate government policies and advice for consumers
• Agencies should collaborate on how to reduce food loss and food waste
• Collaborations encouraging data sharing and increased use of open data sets should be facilitated among agencies as these have the potential to lead to new discoveries

Research needs

Many research needs were identified during the meeting. Key research needs include:
• Future studies should investigate the relationships between nutrition and food safety (e.g., role of sodium, access to fruits and vegetables, and access to healthy AND safe foods).
• The relationships between nutritional status and resiliency to pathogens should be investigated
• There is a need to strengthen the evidence base underpinning the role of diet, nutrition and control of foodborne contaminants on prevention of stunting in children,
  o What are the key foods/nutrients needed to reduce stunting in children
  o Does increasing diet diversity lead to an increase in exposure to contaminants such as mycotoxins and microorganisms?
  o What is the impact of contaminants on the gut microbiome and do they affect the ability to absorb nutrients from the gut?
• Strategies are needed to reduce contamination of foods along the whole value chain
  o Improve control strategies for mycotoxins, other chemical contaminants and microorganisms on foods, especially fruits and vegetables
Investigate the effect of mycotoxins and microbial pathogens in animal feed and animal food products on human health

- Additional information is needed on the influence of diet, including pre- and probiotics, antibiotics, bioactive compounds, etc. on the function of human gut microbiome, and subsequent impact of its metabolites on human health
  - Safety and efficacy of probiotics and other dietary supplements
  - Effect of fermented foods on the gut microbiome, its metabolites and human health
  - Role of gut microbiome on changes in the glycemic index after eating specific foods

- More information is needed on the role of personalized nutrition to improve health
  - Role of stress and lifestyle on health
  - Role of “omics” such as Genomics and/or Phenomics on human health
  - Better understanding of the effect of food on mood and cognition.

- Effective strategies are needed to reduce food loss and food waste
- Information is needed on food safety risks associated with food deserts, food from corner retail stores, food trucks, temporary food options, etc.
- Studies are needed on the impact of food safety and nutrition policy changes – are they effective as intended?

Data Needs

- Improved data are needed on the relationship among socioeconomic status and prevalence foodborne disease, especially among children
- Improved data sets are needed for the Global Open Data for Agriculture and Nutrition initiative
- More data are needed on access of low income children to healthy diets, including fresh fruits and vegetables, and incidence of foodborne diseases

Education/ Communication Needs

- Improved access to nutrition and food safety education is needed in local languages and culturally appropriate for ethnic minorities in the US
- There is a need to communicate nutrition and food safety messages more effectively with the public, to achieve behavior change