2016 ANNUAL SYMPOSIUM
Communicating Food Risk in an Era of Social Media

PRECAUTION ADVOCACY
OUTRAGE MANAGEMENT
CRISIS MANAGEMENT

JIFSAN

APRIL 4-5, 2016
- University of Maryland
- Joint Institute for Food Safety and Applied Nutrition (JIFSAN)

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About JIFSAN

About

The Institute is the foundation of public and private partnerships that provides the scientific basis for ensuring a safe, wholesome food supply as well as provide the infrastructure for contributions to national food safety programs and international food standards.

The Joint Institute for Food Safety and Applied Nutrition (JIFSAN) was established between the United States Food and Drug Administration (FDA) and the University of Maryland (UM) in April 1996. The Institute is a jointly administered, multidisciplinary research, education and outreach program.

The Institute fosters the missions of FDA and the University through the creation of partnerships to increase the quantity and quality of research, which will provide the basis for sound public health policy. It promotes food safety, human nutrition, and animal health and production through integrated research, education, and outreach programs. Opportunities exist for collaborative projects with Federal and state agencies, private industry, consumer and trade groups, and international organizations with mutual interests.

Mission

To advance sound strategies to improve public health, food safety, and applied nutrition using risk analysis principles through cooperative research, education, and outreach programs.

Vision

To be a premier source of scientific information and education programs on food safety and applied nutrition that enables the development of sound public health policy and reduces the incidence of food related illness.

Advisory Council

The JIFSAN Advisory Council advises the Director on current issues in areas pertinent to the Institute’s interests and responsibilities. These include issues in food safety, nutrition, and related areas. It also advises on areas in which potential JIFSAN research, education, or outreach programs are needed or for which current programs need modification. The Advisory Council meets twice a year and members are in contact with the Director throughout the year.
Welcome to the 2016 JIFSAN Annual Symposium!

The Joint Institute for Food Safety and Applied Nutrition (JIFSAN) at the University of Maryland was established in 1996 between the University and the US Food & Drug Administration (FDA). The Institute fosters the missions of the University and FDA through the creation of partnerships to promote food safety, human nutrition, and animal health and production with integrated research, education, and outreach programs.

The JIFSAN Advisory Council consists of representatives of industries, academic institutions, and consumer organizations. The Council sponsors an annual symposium on food safety and applied nutrition. The topic of this year’s symposium is “Communicating Food Risk in an Era of Social Media”. The symposium is designed for the entire risk communication team: the front-line team, those with the scientific knowledge, those developing the messages, and the boss who makes the resources available to do very important work. Our communication experts will highlight modernizing food risk communication via social media and why current toolboxes are now inadequate, particularly in crisis situations. We thank the Advisory Council for supporting the symposium and you for participation.

Sincerely,

Jianghong Meng, PhD
Director
Symposium Background

JIFSAN is the Joint Institute of Food Safety and Applied Nutrition at the University of Maryland. The members of JIFSAN’s Advisory Council are esteemed industry scientists, regulatory officials, consumer groups, and food safety consultants.

The 2016 SYMPOSIUM focuses on modernizing food risk communication with social media, particularly in crisis situations.

This symposium is designed for the entire risk communication team: the frontline team, those with the scientific knowledge, those developing the messages, and the boss who makes the resources available to do this very important work.

We encourage you to expand your food risk communication box through:

I. INFORMATION: A panel of experts will give a 360 degree view on the defining principles of food risk communication, emerging food risks issues, crisis situations, and how to modernize them with social media usage.

II. APPLICATION: There will be an emphasis on practical steps and tools - how to plan, gather information, decide what is important, consider different perspectives and craft your messages appropriately.

III. PARTICIPATION: A simulation module will be available to all attendees to provide the opportunity to solve problems, and apply what they’ve learned.

Meet our SPEAKERS and SUBJECT MATTER EXPERTS:

- **Sharon Natanblut**, FDA’s Director of Communication, will talk about the importance and role of risk communication from FDA’s perspective.
- **William Hallman** will talk about risk communication principles, and how to put them in practice, and what has changed in today’s fast-paced media environment. He will also talk about communicating the science behind science communication.
- **Timothy Sellnow** will talk on crisis communication relative to food safety risks.
- **Amy Philpott, Donna Rosenbaum, and Laura Burnworth** with years of practical expertise working on food safety crises and recalls, will share industry, consumer and public health insights.
- **Dominque Broussard** has practical tips on using social media and has a recent publication regarding how social media commentary affects readers.
- Get the latest EU perspective on food risk communication from **Patrick Wall**; hear about connecting with food risk information relevant to your company or organization from TNO, and how FDA collects food risk information from Lyle Canida.
- **Will Daniels**, QA chief at the helm of a momentous produce outbreak, will talk about leadership in food safety...how modernized communication can help you weather a food safety storm.
DAY 1

April 4, 2016

8:00 AM  Registration & Continental Breakfast
Poster Session

9:00 AM  Symposium Opening – Welcome
Jianghong Meng, JIFSAN, Director

Introduction
George Evancho, JIFSAN, Symposium Chair

9:15 AM  The Role & Importance of Food Risk Communication
Sharon Natanblut, Food and Drug Administration, Silver Spring, Maryland

9:45 AM  Are Age-old Risk Communication Principles Standing the Test of Time (and the Internet)? & Risk Communication Isn’t Just for Crises
William Hallman, Rutgers University, New Brunswick, New Jersey

10:30 AM  Break – Poster Session

10:50 AM  Crisis Communication Overview
Timothy Sellnow, University of Kentucky, Lexington, Kentucky

11:30 AM  Symposium Communication Scenario Introduction
Amy Philpott, Watson Green LLC, Washington, District of Columbia
Donna Rosenbaum, Food Safety Partners, Ltd, Northbrook, Illinois

11:50 AM  Lunch – Poster Session

Amy Philpott, Watson Green LLC, Washington, District of Columbia
Donna Rosenbaum, Food Safety Partners, Ltd, Northbrook, Illinois

2:30 PM  Break – Poster Session
Agenda

2:50 PM  Information Overload! Filtering through It All and Then Deciding What is Important  
Patrick Wall, University of Dublin, Ireland

Eris: An Innovative Information Analysis Tool to Support Early Detection of Food Risks and Issues  
Niels Lucas Luijckx, TNO (Netherlands Organization for Applied Scientific Research), The Netherlands

Using Innovation for Signals and Surveillance  
Lyle Canida, FDA, Center for Food Safety and Applied Nutrition, College Park, Maryland

4:30 PM  Panel Discussion – Dealing with Information Overload  
William Hallman, Food Policy Institute, Rutgers University, New Brunswick, New Jersey  
Moderator  
All Speakers

5:00 PM  Scenario Update  
Amy Philpott, Watson Green LLC, Washington, District of Columbia  
Donna Rosenbaum, Food Safety Partners, Ltd, Northbrook, Illinois

Day 1 Symposium Wrap-Up  
George Evancho, JIFSAN, Symposium Chair

5:20 PM  Adjourn  
Poster Session

EVENING EVENT

6:00 PM  Symposium Participant Networking Reception  
• Meet Symposium Speakers  
• Extended Viewing Hours for Poster Session

8:00 PM  Conclusion of Day 1
DAY 2

April 5, 2016

8:00 AM  Registration & Continental Breakfast
          Poster Session

9:00 AM  Welcome – Day Two
          George Evancho, JIFSAN, Symposium Chair

9:15 AM  Scenario Refresher & Update
          Amy Philpott, Watson Green LLC, Washington, District of Columbia
          Donna Rosenbaum, Food Safety Partners, Ltd, Northbrook, Illinois

9:30 AM  Crafting the Right Message
          Donna Rosenbaum, Food Safety Partners, Ltd, Northbrook, Illinois
          Amy Philpott, Watson Green LLC, Washington, District of Columbia
          Laura Burnworth, Centers for Disease Control and Prevention
          Division of Foodborne, Waterborne, and Environmental Diseases, Atlanta, Georgia

10:30 AM Break

10:45 AM Scenario Development: Applying Messaging Tools & Techniques (Hands-on Exercise)

12:00 PM Lunch – Poster Session

1:00 PM  Message Dissemination: Social Media and Beyond
          Dominique Brossard, University of Wisconsin, Madison, Wisconsin
          Laura Burnworth, Centers for Disease Control and Prevention
          Division of Foodborne, Waterborne, and Environmental Diseases, Atlanta, Georgia

2:15 PM  Leadership: Where Food Risk Communication Begins and Ends
          William Daniels, Watermelon Water, LLC, New York, New York

          All Speaker Panel

3:15 PM  Don’t Declare It Over Without First Learning From It
          William Hallman, Food Policy Institute, Rutgers University, New Brunswick, New Jersey
          Moderator
Agenda

4:00 PM  **Wrap-up Day 2 and Symposium Summary**  
*George Evancho, JIFSAN, Symposium Chair*

**Conclusion**
SPEAKERS AND PRESENTATIONS
Sharon Natanblut is the Director for Strategic Communications Outreach and Public Engagement for the Foods and Veterinary Medicine Directorate at the U.S. Food and Drug Administration. Ms. Natanblut also serves as the Senior Advisor for Strategic Communications to Deputy Commissioner Michael Taylor. She has been with FDA since 2009. She previously worked for FDA as former Commissioner David Kessler as Associate Commissioner for Strategic Initiatives and Deputy Director for the agency’s tobacco control program.
The Role & Importance of Food Risk Communication

Sharon Natanblut

Primary Learning Objectives

- Understand the risk communications environment, constraints and opportunities under which FDA operates with respect to food issues
- Learn about FDA's efforts to strengthen its food related risk communication

Primary Practical Objectives

- Consider ways to work with FDA in communicating to consumers and stakeholders
Dr. Hallman is a professor and Chair of the Department of Human Ecology and former Director of the Food Policy Institute at Rutgers, the State University of New Jersey. He holds a BS (biology, psychology) from Juniata College and a PhD. (Experimental Psychology) from the University of South Carolina. He is a member of the graduate faculties of Psychology, Nutritional Sciences, and Planning and Public Policy at Rutgers. An expert in risk perception and risk communication, he has written extensively on food safety, food security, and public perceptions of controversial issues concerning food, technology, health, and the environment. Dr. Hallman has served as a member of several National Research Council committees focused on food safety, as the Chair of the Risk Communication Advisory Committee of the U.S. Food and Drug Administration, and recently co-authored a handbook on risk communication applied to food safety for the Food and Agriculture Organization of the United Nations and the World Health Organization. He is currently serving on a committee of the National Academy of Sciences on the science of science communication.
Are Age-old Risk Communication Principles Standing the Test of Time (and the Internet)?

William K. Hallman

Primary Learning Objectives

• Understand the basic principles of risk communication
• Understand how risk communication has evolved in the age of social media
• Understand how social media can be used to monitor public perceptions and responses to food safety issues

Primary Practical Objectives

• Identify practical ways that social media tools can be used to advance effective risk communication
• Identify effective uses of social media to enhance an organization's transparency, trust, and credibility
Dr. Sellnow is Professor of Communication in the Nicholson School of Communication at the University of Central Florida. Much of his recent research focuses on strategic communication for mitigating the impact of and maintaining resilience in response to crises dealing with the food supply, crises of organizational reputation, natural disasters, and terrorist events. He has co-authored five books and edited two books on risk and crisis communication. He has also published many refereed journal articles focusing on strategies for effective risk and crisis communication. His most recent book, co-authored with Matthew Seeger, is entitled, Theorizing Crisis Communication. He is also a past editor of the Journal of Applied Communication Research. He has also served as a risk and crisis communication consultant for the Centers for Disease Control and Prevention, The World Health Organization, National Academy of Sciences, United States Geological Survey, and the United State Department of Agriculture.
Presentation Unavailable

Timothy L. Sellnow

Primary Learning Objectives

Objectives unavailable

Primary Practical Objectives

Objectives unavailable
Amy Philpott is vice president of crisis services at Watson Green LLC, a Washington, DC-based public relations firm, where she provides crisis planning and management assistance to companies and associations in the raw agricultural and processed food industries. With more than a decade focusing exclusively on crisis communication in the food industry, Amy understands the changing landscape and environment in which food companies must operate.

Amy helps clients use strategic communications to protect their brands, reputations and business relationships in both domestic and foreign markets. In addition to product recalls and recall planning, Amy has helped companies communicate about other potentially volatile issues such as labor concerns, food safety events, GMOs, pesticide residues and negative financial reports. She has also acted as the primary spokesperson for companies facing public scrutiny.

Before joining Watson Green she managed communications for the United Fresh Produce Association, handling the association’s communications during several high-profile, food borne illness outbreaks. Prior to that, Amy served as the international marketing director at the U.S. Dry Bean Council and before that at the California Table Grape Commission where she oversaw the groups’ international marketing programs and trade policy issues in more than 25 countries.

Amy is a co-contributor to the International Food Information Council’s 2015 Food Safety: A Communicator’s Guide to Improving Understanding, recently presented at a workshop in Beijing, China. She served on a joint United Nations’ FAO/WHO working group that developed a global risk communication guide for food safety – this highlights her awareness that food plays unique familial, religious and cultural roles in people’s lives and therefore, communicating about food can differ depending on the country and culture. Amy is fully accredited in public relations (APR).
Primary Learning Objectives

• Understand the various components of a crisis communication plan

Primary Practical Objectives

• Identify the types of checklists, tables and templates that make a plan useful
Donna E. Rosenbaum

Food Safety Partners, Ltd

Donna Rosenbaum is the CEO and lead consultant for Food Safety Partners, Ltd. of Northbrook, Illinois. Food Safety Partners is a national food safety consulting firm that specializes in customized consumer information projects. Donna is a 2013 graduate of the Master of Science in Communication program at Northwestern University; recent studies include issues in change management, leadership and decision making, global strategies, contemporary media in business and government, managing information for innovation, crisis management, and public persuasion. She became devoted to food safety in 1992 when E. coli disease claimed the life of her daughter’s best friend as the first victim in the Jack in the Box outbreak.

Donna has over twenty years of advocacy expertise on consumer food safety issues including having personally worked with thousands of foodborne illness victims and on several consumer coalitions. She also worked for three years on the development of the Food Safety Modernization Act (FSMA), and on traceability requirements for food products. Recent endeavors include consultation on the development of traceability software, consultation on foodborne illness cases involving allergens as well as pathogens, development of food safety material for white papers, creating educational material for management of recalls and outbreaks for a food industry insurance group, media work with national journalists, and media and social media outreach platforms on consumer food safety information for interested corporations.
Crafting the Right Message

Donna E. Rosenbaum

Primary Learning Objectives

• Learn how to convey risk effectively by understanding the effect of perceptions, vocabulary, delivery channels and even internal team dynamics
• Learn how to adapt key messages to various delivery mechanisms, including social media

Primary Practical Objectives

• Learn how to craft risk messages through practice
• Realize that there are multiple ways to effectively convey the same risk

Scenario Development: Applying Messaging Tools and Techniques

Primary Learning Objectives

• Understand how important it is to be prepared with a modernized communication plan ready to deal with social media while relying on sound communication theory
• Learn how to focus on good decisions in the moment when faced with the fast pace of the news cycle due to social media

Primary Practical Objectives

• Apply principles learned throughout symposium by working on several exercises that focus on the strategic communication response to a food safety crisis
• Develop a takeaway planner of lessons learned and actions to take, both personally and at the workplace
Patrick Wall  
University of Dublin

Dr. Wall is Professor of Public Health in University College Dublin and the Deputy Director of the UCD Institute for Food and Health. (http://www.ucd.ie/foodandhealth/).

His research areas include food safety, nutrition and managing lifestyle related disease through behavioral change. He was the Principal Investigator on Foodrisc, a pan EU project looking at optimum strategies for risk and benefit communication, using both conventional and new media. http://www.foodrisc.org.

He is a Director of University College Dublin’s Masters in Public Health and a co-director of the Joint Masters in Public Health being undertaken with Penang Medical School in Malaysia. He runs the UCD postgraduate module on Risk Perception and Behavioral Change and currently he has three PhD students working on projects in the areas of risk communication and consumer perception.

He was the head of the Foodborne Diseases Division of the UK CDSC 1994-1996. He was the first Chief Executive of the Irish Food Safety Authority and contributed to the setting up of this science based consumer protection agency (http://www.fsai.ie) created in response to the BSE crisis. He was a founder member of management board, and the second Chairperson, of the European Food Safety Authority. http://www.efsa.europa.eu, based in Parma in Italy. Both organizations have the role of Risk Communication and strive to be open and transparent with the public.

He is currently one of the management board of the Food Safety Authority of Ireland and is a member of their Crisis Management Team. He is a director of Agri-Aware http://agriaware.ie/ an organization set up to improve the public understanding of, and confidence in, modern agriculture and food production.

He was one of seven non-Chinese nationals on the committee advising on food safety arrangements for the 2008 Beijing Olympics and is currently one of six non Chinese nationals on the International Scientific Advisory Committee of the newly founded Chinese National Centre for Food Safety Risk Assessment, which is the Chinese equivalent of the European Food Safety Authority http://www.cfsa.net.cn/. He is one of the experts retained by CFSA under the 523 program to aid with capacity building in the area of Risk Communication.

He is chairman of Independent Milk Laboratories, http://www.imlabs.ie, a joint venture between Progressive Genetics, an Irish bovine breeding company and the UK National Milk Records Group and runs a national milk quality laboratory in Ireland. He is a Director of Luxcel Bioscience, http://luxcel.com, which develops rapid diagnostics for the food and pharmaceutical industry. He is a member of the team involved in the China-Ireland Dairy Science and Technology Centre.

Since 2012, he is Chairperson of Horse Sport Ireland, the national federation overseeing equestrian sport in Ireland. http://www.horsesportireland.ie/.

He qualified in Veterinary Medicine in University College Dublin in Human Medicine in Royal College of Surgeons of Ireland, has an MSc in Infectious Diseases from University of London and an MBA from the Michael Smurfit School of Business UCD and a Diploma in Corporate Governance from the UCD Centre of Corporate Governance. He is a Fellow of IUFoST, the international Union of Food Science and Technology and is the Chair of the Scientific Panel for their upcoming International conference which will be held this year in Ireland. http://www.iufost2016.com.
Primary Learning Objectives

• Understand what we are trying to achieve through risk communication
• Understand the differences between crisis and peacetime communications.
• Understand what is realistically achievable

Primary Practical Objectives

• Review several case studies to identify the risk communication challenges
• Understand the requirement for accompanying risk assessment and risk management strategies to increase the likelihood of achieving the desired outcome
After finishing his study in Biology, specializing in toxicology, at Utrecht University in 1990, Niels Lucas Luijckx moved from research and desk research to (senior) policy officer at the Netherlands Ministry of Health, Welfare and Sports and later at the Ministry of Agriculture, Nature Management and Fisheries. The most important dossiers were (chemical) food safety, incident management and consumer concern. He was involved in national, European and international (Codex Alimentarius) standard setting and food safety policy.

Niels Lucas Luijckx has acquired practical experience in (risk) communication and behavioural sciences through his work at Schuttelaar & Partners, communication consultants, and the Netherlands Institute for Health Promotion and Disease Prevention.

Since October 2004 he works at TNO Quality of Life for the Risk Management team. He divides his daily work into consultancy for the food industry and research on risk management. His broad experience allows him to bridge between the different sides of the multidisciplinary world of risk management in the food chain. The focus of his work is on Emerging Risk Identification Support, Allergen Cross Contact and Risk Ranking.
Primary Learning Objectives

- Understand the use of information analysis to support risk management
- Learn how to integrate it in practice and with other risk management systems
- Understand the philosophy of foresight and scenario analysis

Primary Practical Objectives

- Acquired enlarged awareness and alertness on early signal detection
- Apply information analysis in everyday work
LCDR Lyle Canida is the Branch Chief for the Signals Management Branch in the Office of Analytics and Outreach at CFSAN. He is a Commissioned Corps officer with a Doctor of Pharmacy, a Master of Science in pharmacoepidemiology, and is Certified in Public Health. He previously worked in the Office of Surveillance and Epidemiology and Office of Clinical Pharmacology at the Center for Drug Evaluation and Research prior to his current position as Branch Chief.
Primary Learning Objectives

- Understand how FDA applies innovative technologies to disparate and large data streams in order to identify safety hazards signals and enhance surveillance activities

Primary Practical Objectives

- Learn how to apply innovative tools and methods to harmonize large structured and unstructured data sets and provide extracted information to signals managers and safety reviewers
Laura Burnworth, MPH, is a health communication specialist in the Outbreak Response and Prevention Branch (ORPB) within the Division of Foodborne, Waterborne, and Environmental Diseases at the Centers for Disease Control and Prevention (CDC). ORPB works to ensure rapid and coordinated surveillance, detection, and response to multistate outbreaks caused by enteric bacteria, including Salmonella, Escherichia coli, and Listeria. Since 2012, Laura has led all ORPB activities related to emergency communications during outbreaks, including the development of real-time risk communication messages for consumers and other stakeholders. Laura develops web postings, talking points, and handles media inquiries during these investigations. Before joining CDC, she studied behavioral science and health education at the Rollins School of Public Health at Emory University where she received her MPH in 2009. Laura has previous experience working in various areas of public health, including vaccine-preventable diseases, hospital infection control, and pediatric patient education. She received a BS in Psychology from the University of Georgia in 2007.
Message Dissemination: Social Media and Beyond

Laura Burnworth

Primary Learning Objectives

- Understand the CDC decision-making process for releasing foodborne outbreak information
- Learn how CDC food risk messaging has adapted to the age of social media

Primary Practical Objectives

- Identify the practical challenges of CDC in creating and disseminating effective food risk messages that protect public health while keeping up with fast pace of the communication cycle and social media.
Dr. Brossard is professor and chair in the Department of Life Sciences Communication at the University of Wisconsin-Madison and an affiliate of the UW-Madison Robert & Jean Holtz Center for Science and Technology Studies, the UW-Madison Center for Global Studies and the Morgridge Institute for Research. Her teaching responsibilities include courses in strategic communication theory and research, with a focus on science and risk communication. Brossard's research agenda focuses on the intersection between science, media and policy with the Science, Media and the Public (SCIMEP) research group, which she co-directs. A fellow of the American Association for the Advancement of Science and a former board member of the International Network of Public Communication of Science and Technology, Brossard is an internationally known expert in public opinion dynamics related to controversial scientific issues. She is particularly interested in understanding the role of values in shaping public attitudes and using cross-cultural analysis to understand these processes. SCIMEP's recent work has focused on scientific discourse in online environments, such as Twitter (SCIMEP lab work is presented here). She has published numerous research articles in outlets such as Science, Science Communication, the International Journal of Public Opinion, Public Understanding of Science, and Communication Research and has been an expert panelist for the National Academy of Sciences on various occasions.

Brossard has a varied professional background that includes experience in the lab and in the corporate world. Notably, she spent five years at Accenture in its Change Management Services Division. She was also the communication coordinator for the Agricultural Biotechnology Support Project II (ABSPII), a position that combined public relations with marketing communication and strategic communication.

Brossard earned her M.S. in plant biotechnology from the Ecole Nationale d’Agronomie de Toulouse and her M.P.S and Ph.D. in communication from Cornell University.
Presentation Unavailable

Dominique Brossard

Primary Learning Objectives

Objectives unavailable

Primary Practical Objectives

Objectives unavailable
William Daniels

Watermelon Water, LLC

Will Daniels is the Senior Vice President of Operations and Supply Chain with WTRMLN WTR. In his role, Will is responsible for the company’s supply chain, manufacturing and distribution of their cold pressed watermelon juice. Prior to WTRMLN WTR, Will was with Earthbound Farm from 1999 until 2014. He helped the company grow from a small, regional salad producer to the nation’s largest grower, packer and shipper of organic produce. As Earthbound Farm’s Chief Food Integrity Officer, Daniels was responsible for food safety, food quality and the company’s organic integrity program.

Will is a sought-after speaker and has addressed key issues in food safety in the produce industry at meetings of the National Academy of Sciences, the National Restaurant Association, the Institute of Food Technologists, and the International Association for Food Protection. He was the keynote speaker at the 2013 Food Safety Summit in Washington, DC, was one of the Packer 25 annual list of produce leaders for 2013 and was named one of the food industry’s top food safety leaders by Marler/Clark’s Food Safety News in 2013. He has also been featured in a variety of national news stories on food safety with media such as The New York Times, and ABC News’s Good Morning America; and is the author two chapters, “Effectively Managing through a Crisis,” in the book Microbial Safety of Fresh Produce, published by Wiley in 2009 and “Pathogen Testing in Fresh Produce: Earthbound Farm,” in the book Global Safety of Fresh Produce; A handbook of best practice, innovative commercial collations and case studies, published by Woodhead Publishing in 2014. An active leader in the food industry, Will serves on a variety of boards and technical committees.
Leadership: Where Food Risk Communication Begins and Ends

Will Daniels

Risk communication comes in many forms. Quality and safety professionals may communicate risk to their supervisors, hazard analysis communicates risk, executives must communicate risk to their shareholders, and companies to their consumers. What constitutes good communication? How much should one share? When?

This session is designed to take the audience through the many ways risk is communicated in industry, how that risk is evaluated and when action should be taken based on that communication/evaluation. In the age of constant communication through social media, the challenge of transparency, accuracy and intent has become increasingly more difficult.

**Primary Learning Objectives**

- Learn the fundamentals of risk communication; why is it important and how can it best be utilized.
- Learn all the areas that risk communication can be applied

**Primary Practical Objectives**

- Develop methods to communicate risk appropriately
POSTER SESSION ABSTRACTS
Internalization of *Listeria monocytogenes* in Cantaloupes

Anna Wooten, Minji Hur, Seonjae Bae, Antonio De Jesus, Yi Chen, and Dumitru Macarisin
University of Maryland
College Park, Maryland

Abstract

Listeriosis is a life-threatening food-borne disease that creates significant challenges to food industry. During 2011 *Listeria monocytogenes* cantaloupe outbreak, in several listeriosis cases the onset of symptoms took place within 24h after consuming the fruit, suggesting that victims ingested an extremely high pathogen dose. We hypothesized that *L. monocytogenes* can infiltrate cantaloupes in the process of hydro-cooling and/or dump washing and colonize the fruit internally.

Purpose

Evaluate the effect of hydro-cooling and dump washing on *L. monocytogenes* ability to infiltrate into cantaloupes and develop large bacterial population in edible portions of the fruit.

Methods

Cantaloupes, both freshly harvested and purchased from a local grocery market, were used in the study. Fruit temperatures were calibrated to 42 ºC for 24h. Hydro-cooling and dump washing was conducted at 6 ºC and 18ºC, respectively, for 30 min by a submersion of cantaloupes into water containing Acid Blue 9 dye (100 mg/ml) and 3 Jensen farm outbreak *L. monocytogenes* strains (6 log CFU/ml). After inoculation fruits were stored at 3 ºC. On day 7 and 14 after hydro-cooling 3-5 fruits of each cultivar were surface disinfected by a submersion in 0.5% sodium hypochlorite solution for 15 min. Different areas of fruit mesocarp (variable depths and distances from stem scar) were aseptically extracted and analyzed for bacteria internalization.

Results

Dye uptake by cantaloupes in the process of hydro-cooling and dump washing demonstrated that from the stem scar water is distributed within the fruit through the vascular system primarily in hypodermal mesocarp, and reaches the calix. Water influx spreads through the mesocarp via secondary xylem vessels. Under experimental conditions, *L. monocytogenes* internalized into cantaloupes during the process of hydro-cooling and dump washing. Populations of internalized *L. monocytogenes* colonized edible portions of the fruit exceeding 6 Log/g within two weeks after hydro-cooling at storage temperature of 3 ºC.

Significance

Identification of postharvest practices leading to melon contamination will improve preventative control measures and improve food safety of cantaloupes.
Evaluation of the Growth Potential of *Listeria Monocytogenes* in Milkshakes Prepared with Contaminated Ice Cream Linked to a Listeriosis Outbreak and Left at Room Temperature

Minji Hur
University of Maryland
College Park, Maryland

Abstract

A multistate listeriosis outbreak in the U.S. in 2015 was traced back to naturally contaminated ice cream. Some of the case-patients consumed this ice cream in the form of a milkshake from a Hospital in Kansas. Therefore, we investigate whether possible temperature abuse would allow for significant increase in *L. monocytogenes* populations over the low initial levels in the ice cream by determining the growth potential of *L. monocytogenes* in three flavors of milkshakes left at room temperature. The ice cream used in the milkshakes was naturally contaminated and linked to the same multistate listeriosis outbreak mentioned above. The milkshakes were blended and left at room temperature for 14 hours and plated hourly to construct growth curves. Over all, the results showed that *L. monocytogenes* populations in milkshakes prepared from contaminated ice cream, linked to the listeriosis outbreak, do not significantly increase during the day of serving if left at room temperature. The data also provided valuable information towards the improved assessment of risk for listeriosis in highly susceptible populations as well as the importance of focusing on the prevalence and level of *L. monocytogenes* in the contaminated food.
Incidence and characterization of *Listeria monocytogenes* in the Stone Fruit Pre-Harvest and Post-harvest Environments

Minji Hur, Anna Wooten, Ishani Sheth, Antonio De Jesus, Yi Chen, and Dumitru Macarisin
University of Maryland
College Park, Maryland

Abstract

Introduction: Recent recalls due to contamination by *Listeria monocytogenes* and listeriosis outbreaks due to consumption of caramel apples and stone fruits indicate a need for a better understating of the incidence and behavior of this pathogen in the fruit production continuum.

Purpose: To obtain environmental surveillance data on the incidence and prevalence of *L. monocytogenes* on stone and pome fruits in pre-harvest and post-harvest fruit production environments.

Methods: Stone fruit collection in the orchards and environmental sampling at the Penn State Fruit Research and Extension Center stone fruit packing and storage facility was conducted during 2014 and 2015 seasons. *L. monocytogenes* detection and identification was conducted following FDA BAM protocols. Whole genome sequencing of 6 *L. monocytogenes* isolates was completed via Illumina platform. Multi locus sequence (MLST) and core genome MLST analyses were performed to compare these isolates with other fully sequenced *L. monocytogenes* strains.

Results: Overall, 15.3 % (n = 216) of the postharvest environmental samples were positive for Listeria; however, no *L. monocytogenes* was found in the fruit packing and storage facility. The incidence of the *L. monocytogenes* on intact stone fruits in the orchards was 1.1% (n = 540). MLST analysis identified 3 isolates belonging to sequence type (ST)368 and 3 other belonging to a novel ST. Core genome MLST identified the isolates with ST368 closely related to a strain from natural environment (sidewalk) with 12 allele differences. The isolates with the novel ST were not closely related to any of the fully sequenced strains and the closest match was a strain from an animal source with 556 allele differences.

Significance: Identification of the biological and environmental factors leading to stone fruit contamination by *L. monocytogenes* will facilitate the development of preventive control strategies to significantly reduce the number of recalls and foodborne listeriosis associated with consumption of stone and apple fruits.
Comparative Analysis of *Listeria monocytogenes* Strains from Cantaloupe Outbreak and its Production Environment

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**Abstract**

*Listeria monocytogenes* causes human listeriosis which has high mortality rates in susceptible populations. In 2011, the worst listeriosis outbreak in the United States was linked to contaminations of cantaloupe. This project was designed to better understand the phenotypic and genotypic characteristics of outbreak-associated L. monocytogenes strains. Whole genome sequencing and phenotype microarray were used to identify the genotypes and phenotypes of one strain from cantaloupe farm A (associated with listeriosis outbreak) and two strains from cantaloupe farm B (not associated with any illness). Raw sequencing data were assembled using de novo approach and fasta sequence files were annotated using RAST (Rapid Annotation using Subsystem Technology). Phenotype MicroArray was used to investigate the growth or survival of the L. monocytogenes strains in approximately 2,000 substrates and conditions. Growth curve data were analyzed using Biolog OmniLog software with a cut-off value of ±3,000 OmniLog units. RAST sequencing analysis identified two unique regions with lengths of 39 and 42 kbp in the outbreak strain. Twenty-one putative proteins, including three membrane transport proteins and two invasion/intracellular resistance proteins, were identified in the outbreak strain. The outbreak strain displayed an increased resistance to three osmotic conditions and 16 antimicrobial agents, along with an increased growth in ten peptide nitrogen substrates. However, the outbreak strain exhibited a decreased resistance to 24 other antimicrobial agents and 11 pH conditions. These results provide useful phenotypic and genotypic information that might be associated with the virulence of the outbreak-related strains. This data should also enable us to design more effective methods to control this pathogen in the food processing facility.
Solanum lycopersicum (tomato) hosts robust phyllosphere and rhizosphere microbial communities when grown in various soil amendments

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Abstract

Due to the intimate association between plants and their microbial symbionts, an assessment of the influence of agricultural practices on microbial community structure and diversity will lead to a more comprehensive view of plant health and produce safety. To assess whether organic fertilizer type impacts rhizosphere and phyllosphere microbial communities associated with tomato plants, microbiome analysis was performed for tomato cv. ‘BHN602’ grown in Maryland soils amended with various fertilizers. Culture independent DNA was extracted from washes of tomato roots, blossoms and ripe fruit. PCR amplicons of hypervariable regions of the 16S rRNA gene were sequenced with Illumina MiSeq. Bioinformatic analyses with QIIME revealed that root, blossom, and fruit surfaces supported distinct bacterial communities as analyzed by principal coordinate analysis and perMANOVA. Use of microbiologically diverse organic fertilizers did not influence the overall diversity, microbial community structure, or relative abundance of specific taxa on any plant organ surface. However, physiochemical soil characteristics did drive changes in community structure in the rhizosphere and phyllosphere, suggesting that edaphic field characteristics drive agricultural microbiomes more than soil amendment application.
Susceptibility of Environmental Salmonella Strains to Medium and Long Chain Fatty Acids Found Naturally in Tomato Fruit
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Abstract
Tomato fruit produce a wide variety of saturated and unsaturated fatty acids, which vary by cultivar and maturity. A number of fatty acids can have antimicrobial activity. Serotypes of Salmonella enterica show differential growth on tomato fruit, possibly in response to tomato fruit and fruit exudate chemical composition.

Purpose: The susceptibility of tomato outbreak-associated Salmonella serotypes to medium and long chain fatty acids known to be present in tomato fruit and exudates was assessed to determine whether fatty acids play a role in S. enterica fruit surface colonization.

Methods: Minimum inhibitory concentrations (MIC) of the fatty acids pelargonic (C9:0), lauric (C12:0), myristic (C14:0), palmitic (C16:0), margaric (C17:0), stearic (C18:0) and oleic (C18:1) acids against Salmonella serotypes Newport, Javiana and Typhimurium were determined. The environmental test microorganisms were isolated from mid-Atlantic tomato farms. Stock solutions were suspended in water, water containing 0.001% Quillaja saponin or dimethyl sulfoxide (DMSO). The resazurin microtiter assay was used to determine MIC. Concentrations of 1M, 500mM, 250mM, 125mM and 62.5mM were suspended in Isosensitest Broth containing resazurin in 96-well plates and inoculated with 6 LogCFU/ml Salmonella. The plates were incubated for 16-18 h at 37°C. Color change indicated bacterial growth. The lowest concentration of fatty acid where no color changed was observed was considered the MIC.

Results: Differences in MIC were observed based on fatty acid, serotype and suspension medium. All serotypes demonstrated highest sensitivity to pelargonic acid. In water, water with saponin and DMSO, S. Newport showed MICs of 125mM, 187.5(±88.4) mM, and 62.5mM, respectively. S. Javiana demonstrated MICs of 250mM, 62.5mM and 31.25mM, respectively and S. Typhimurium exhibited MICs of 250mM, 62.5mM, and 46.875(±22.1) mM, respectively. In presence of saponin, lauric acid (1M) also inhibited Salmonella.

Significance: Fatty acids in tomato fruit could result in inhibition of Salmonella growth in a serotype-dependent manner.
Salmonella Phylogenetics in the Sequencing Era: Making Sense of 20,000+ Genomes

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Abstract

The recent increase in the accessibility of sequencing technologies for routine lab work has led to the mass-sequencing of foodborne pathogens. The FDA’s GenomeTrakr Network currently maintains a database of more than 20,000 sequenced Salmonella genomes of differing qualities and from different sources. We are using these sequences to create an updated phylogenetic analysis for Salmonella based entirely on whole-genome sequences from more than 300 serotypes.
Enhancement in Thermal Inactivation of Cronobacter sakazakii by Inclusion of Parabens

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Abstract

Introduction: Cronobacter sakazakii has been linked to fatal invasive infections in infants associated with low-level contamination of powdered infant formula. It is controlled through effective pasteurization of infant formula prior to dehydration. Parabens are a group of p-hydroxybenzoic acid esters, which possess both antioxidant and antimicrobial activity. Past research has established that the relative antimicrobial activity of parabens in food increase with the length of alkyl side chain. In addition, parabens have antimicrobial activity over a broad pH range, i.e. 4-8.

Purpose: The purpose of this study was to evaluate the enhanced thermal inactivation of Cronobacter sakazakii by the inclusion of “parabens” and to ultimately develop mathematical models that describe the relationship between heating temperature, parabens identity, and parabens concentration.

Methods: C. sakazakii 607 (heat-resistant) was subjected to five parabens (methyl, ethyl, propyl, butyl, heptyl) in various concentrations under three temperatures (52°C, 55°C, 58°C). Thermal inactivation was conducted in a submerged coil apparatus using Brain Heart Infusion as the heating menstruum. Cells were surface plated on tryptic soy agar (TSA) and MacConkey agar (MA). After enumeration, survivor curves were plotted and compared using ANOVA. Primary and secondary models were developed using OriginPro etc.

Results: Parabens produced a significant enhancement of thermal inactivation that was concentration dependent and increased with increasing alkyl chain length. For example, at 58°C butyl-paraben, at concentration of 0 ppm, 31.25 ppm, 62.5 ppm, 125 ppm, resulted in log reductions of 2.5, 4.0, 5.5, >7.0, respectively, within 900 seconds. At a concentration of 125 ppm in conjunction with heating at 58°C, methyl, ethyl, propyl, butyl, and heptyl parabens produced log reductions of 3.0, 3.5, 5.5, 7.0, and >7.0, respectively. The comparison of TSA vs. MA counts indicated 0.5-2.0 log of injury. The three parameters (concentration, alkyl side chain length, and heating temperature) acted synergistically on thermal inactivation of C. sakazakii 607, even at temperatures that little impact was observed with the 0 ppm controls.

Significance: These data suggest that pasteurization can be enhanced through synergistic action of mild heat treatments and inclusion of parabens. These data can be used to develop mathematical models that effectively describe how these three process parameters can be applied in the industry.
Prevalence, Isolation, and Genetic Characterization of *Toxoplasma gondii* in Chickens from the United States

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Abstract

*Toxoplasma gondii* is a protozoan parasite that is responsible for approximately 24% of all deaths attributed to foodborne pathogens in the U.S. with an estimated 327 deaths per year, thus making this parasite as a serious food safety concern. Consumption of raw or undercooked meat is the primary infection route for *T. gondii*. Chickens are important vehicles for *T. gondii* and as they are generally fed from the ground, they are used as good indicators for the environmental *T. gondii* oocysts contamination. In this study, we sought to investigate the safety of free-range chickens that are available to purchase by consumers in the U.S. Chicken hearts were sampled from the local markets in Maryland and from farms in Maryland and Amish community in Ohio. Each seropositive (modified agglutination test (MAT) positive) heart was bioassayed using Swiss Webster (SW) mice and examined for *T. gondii* infection. In addition, thirteen cryopreserved isolations from previous studies were revived and ten PCR-RFLP markers were used to genotype those isolates. One hundred fifty from a total of 997 samples (15.0%) were found seropositive for *T. gondii*. No viable *T. gondii* was isolated from chicken hearts that were sampled. All seropositive (150) samples were from a total of 912 samples purchased from local markets. The results suggest that *T. gondii* oocysts could present in the environment and infect the food animals. *T. gondii* prevalence in chicken hearts could reflect the environmental contamination of *T. gondii* and prevalence information can be used to manage *T. gondii* infection risk.
Abstract

Because egg allergens are proteins, their detection in processed foods using immunochemical methods is a challenging task. We aimed to compare the recovery/solubility of processed egg proteins extracted with different buffers, and the detectability of processed whole egg and individual egg allergenic proteins with in-house established polyclonal antibodies generated against raw and processed egg proteins. Egg proteins from raw, boiled and fried whole chicken eggs were extracted using five different buffers. Purified native and processed (boiled, and dry heat-treated at 200oC for 10 minutes) ovalbumin and ovomucoid were also dissolved in the same buffers. Protein quantitation showed that the buffer containing detergent and reducing agent extracted more proteins from whole boiled egg and improved solubility of purified boiled ovalbumin. However, phosphate-buffered saline was the most suitable buffer for native and processed ovomucoid when compared to other buffers. Overall, boiling had a more negative impact on solubility of egg proteins than frying. Antibodies against native/raw egg proteins consistently detected high amount of proteins in all extracts of raw and processed samples by enzyme linked immunosorbent assay (ELISA), with the exception of boiled egg samples. The detection of egg proteins processed by boiling was maximized using an extraction buffer containing detergent and a reducing agent. Detection of purified native and processed ovalbumin was optimal using antibodies generated against raw/native antigens, whereas antibodies against processed antigens were optimal for ovomucoid detection. Using a mixture of antibodies generated against both raw and processed egg yielded averaged detection of egg allergens compared to antibodies against raw and processed antigens separately. These results indicate that the procedural steps of ELISA can be optimized for a specific target to give the best estimation of allergenic protein content in processed foods.
Detection and Quantification of Hydrolyzed Gluten in Fermented Products

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Abstract

Currents methods for detecting gluten in food products relies on intact protein biomarkers, however, gluten undergoes hydrolysis during fermentation and may still pose a problem for those with Celiac Disease. This project is focused on determining the reliability of using current methods on fermented and hydrolyzed foods and how this data may be used to develop alternative standards and methods.
**Determination of Omega-3 Polyunsaturated Fatty Acids in Fish Oil Supplements Using a Mid Infrared Spectroscopic Method and Partial Least Squares Regression**

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**Abstract**

Dietary supplements containing long chain omega-3 polyunsaturated fatty acids (PUFA), such as fish oil (FO) supplements, are frequently consumed in the United States (US) because they offer potential health benefits. The increased demand for FO supplements has required rapid, robust and accurate quality control analytical techniques. Fourier transform infrared (FT-IR) spectroscopy is a promising tool that provides numerous advantages for the food industry. The determination of fatty acids by FT-IR spectroscopy is a widely used rapid and nondestructive technique.

The objective of the present study was to predict the concentrations of eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), other fatty acids (FAs), and FA classes (for example, n-3 PUFA) in FO supplements, by using mid-IR spectroscopy and chemometrics. Supplements were purchased (n=37; FO, FO concentrate, algal oil, fish/plant oil) from US-based online retailers. A total of 154 calibration samples were prepared gravimetrically from mixtures of neat supplements. The validation set consisted of 39 neat omega-3 PUFA supplements and the three FO Standard Reference Material (SRM) 3275 from the National Institute of Standards Technology (NIST). FT-IR spectroscopic measurements were carried out by using a Cary 630 portable device (Agilent Technologies). Chemometrics analysis was performed using PLS_Toolbox software (ver 8.0.1, Eigenvector). Primary reference data for FAs were determined by gas chromatography with flame ionization detection (GC-FID) by using a 200 m SLB-IL111 ionic liquid column (Supelco).

A broad-based single calibration set was used to build separate calibration models for each type of FA using partial least squares regression (PLSR). PLSR calibration models showed good performance as indicated by high coefficients of determination for EPA (R²>0.97) and DHA (R²>0.99) and satisfactory root mean square error of prediction (RMSEP) values. FT-IR spectroscopy and PLSR were successfully applied to the rapid determination of FAs and FA classes in dietary supplements containing long chain omega-3 PUFA.
Validation of a Novel Method for Quantification of Omega-3 Polyunsaturated Fatty Acids (PUFA) in Chewable Gummy Dietary Supplements

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Abstract

This poster will present a novel, validated method for quantifying omega-3 polyunsaturated fatty acids in chewable gummy dietary supplements.
Risk Communication and Computational Toxicology: Analyzing EPA’s ToxCast data and its Potential Implications on Food Safety Assessment

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Abstract

Understanding toxicity of foods is of significant importance in food risk assessment. Risk assessments are primarily informed using in vivo toxicity data, but in the future could combine the use of in vitro/in silico toxicity data. ToxCast is one of the many initiatives launched to evaluate chemicals through high-throughput in vitro assays. Here we describe the analysis of a subset of CFSAN substances within the ToxCast space. Our analysis has allowed us to better understand the bioactivity profiles of our substances and has confirmed previous findings of our substances. This insight may help us to identify the potential role of ToxCast in impacting regulatory decisions.
Food Safety Information in the U.S.: Trends on Sources and Seeking and Sharing Behaviors

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Abstract

We will present a series of analyses conducted by the University of Maryland Center for Health and Risk Communication based on the 2010 FDA Food Safety Survey to address the following questions:

A. Where do U.S. consumers obtain their food safety information?
B. Are there differences in the types of information sources used by U.S. consumers of different socio-demographic background?
C. RQ3: Are there differences in the types of information sources used by U.S. consumers with differing levels of food safety risk perceptions, specifically perceived susceptibility to foodborne illnesses and perceived severity of food contamination?
D. To what extent are perceived risk and fatalistic belief predictors of food safety information seeking and sharing. Findings of the analyses provide insights into effective food safety risk communication.
Abstract

Introduction: Escherichia coli serotype O157:H7 was first recognized in 1982 as a human pathogen associated with outbreaks of bloody diarrhea in the United States and is now considered a major cause of foodborne infections. A large outbreak of E. coli O157:H7 occurred in 1993 prompted major changes in the US food safety system.

Purpose: To provide a historical reference for comparison for newly isolated EHEC strains, and to look at the genetics of O157:H7 in the time period of the first outbreaks, we sequenced a collection of EHEC isolates from years 1985 to 1993, isolated from food and animal fecal samples. This date range is important because it includes strains after the first identification of O157:H7 and after the first outbreak in 1993.

Methods: 60 strains were sequenced by using next-generation sequencing (Illumina Miseq). 12 of these strains were isolated from food, included milk, salami, meat and mayonnaise. 48 of these strains were isolated from livestock fecal samples.

Results: 54 of 60 samples were positive for O157:H7, 6 of 60 samples were not E. coli O157:H7, with 2 of these 6 being E.coli serotype O78:H10. 10 of the 54 O157:H7 strains isolated from food samples, while 44 of 54 the O157:H7 strains isolated from livestock fecal samples. 40 strains carried stx1, 46 strains carried stx2, and total of 35 strains carried both stx genes that these strains isolated from these dates are highly similar to more recent isolations. Furthermore, single nucleotide polymorphism analysis was used in this study to define 60 E.coli O157:H7 strains. It showed the same results as previous study that 6 strains were not E.coli O157:H7. 16 of them were classified as clade 7 through 29 SNPs; 12 of these strains were closely related to strains representing clade 2; 14 of them were closely related to clade 3 strains.

Significance: These new historical reference sequences can be useful references library and valuable resources for further research of E.coli O157:H7. These strains have probably been causing disease even before the major outbreaks, but mostly unreported because we do not see evidence for a major evolutionary shift in the years between the recent expansion of whole genome sequencing and this reference library.