Participant Biographies

Exploration of the Implications of Whole Genome Sequencing on the Conduct and Application of Risk Assessment in Food Safety Decision-Making

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Marc W. Allard, Ph.D.
Senior Biomedical Research Services Officer and Research Area Coordinator of Genomics
Center for Food Safety and Applied Nutrition
Food and Drug Administration – DHHS
Marc W. Allard received his Ph.D. in biology in 1990 from Harvard University. Dr. Allard was the Louis Weintraub Associate Professor of Biology at George Washington University for 14 years from 1994 to 2008. Dr. Allard joined the Division of Microbiology in FDA's Office of Regulatory Science in 2008 where he uses Whole Genome Sequencing of foodborne pathogens to identify and characterize outbreaks of bacterial strains, particularly *Salmonella, E. coli,* and *Listeria*. Dr. Allard is a Senior Biomedical Research Services Officer and he specializes in both phylogenetic analysis, as well as the biochemical laboratory methods which generate the genetic information in the GenomeTrakr database, which is part of the NCBI Pathogen Detection web site.

Michael Bazaco, Ph.D., M.S.
Epidemiologist, Division of Public Health Informatics and Analytics
Centers for Food Safety and Applied Nutrition
Food and Drug Administration – DHHS
Michael Bazaco is the emerging infectious disease and food safety lead in the Epidemiology Branch, Division of Public Health Informatics and Analytics, Office of Analytics and Outreach, Center for Food Safety and Applied Nutrition, Food and Drug Administration (FDA). He serves as FDA technical co-lead on the Interagency Food Safety Analytics Collaboration (IFSAC), a tri-agency (FDA, USDA-FSIS, and CDC) analytical partnership focused on attribution of foodborne illness in the United States. Dr. Bazaco leads multiple collaborative food safety- and emerging foodborne pathogen-related projects for IFSAC and for the Epidemiology Branch. After receiving his BS in Biology at Virginia Tech, where he focused on microbiology and immunology, and his MS in Food Microbiology at Virginia Tech, as well, he completed his Ph.D. in Epidemiology at the University of Pittsburgh Graduate School of Public Health.

Karen Becker, D.V.M., M.P.H.
Director, Applied Epidemiology Staff, Office of Public Health Science
Food Safety and Inspection Service – USDA
Since 2013, Karen Becker has served as the Director of the Applied Epidemiology Staff within FSIS's Office of Public Health Science. She earned a Bachelor of Arts from Brown University; a Doctorate of Veterinary Medicine from the University of Illinois's College of Veterinary Medicine, a Masters in Public Health from Johns Hopkins University and is board certified by the American College of Veterinary Preventive Medicine. From 1998-2000, Dr. Becker was a CDC Epidemic Intelligence Service Officer based in North Carolina with a focus on infectious diseases and surveillance during natural disasters such as the major hurricanes North Carolina experienced during her EIS assignment at the health department. In 2000, she joined the Department of Health and Human

Service's Office of Global Heath based in Washington DC as a Preventive Medicine Fellow to focus on international programs such as Foot and Mouth Disease Control, zoonotic disease control and Field Epidemiology Training Programs. Following September 11, 2001 through 2006, Dr. Becker served as a senior public health advisor to the U.S. Department of Health and Human Service's Office of Public Health Emergency Preparedness. From 2006-2010, Karen was on detail by U.S. Department of Agriculture's Foreign Agricultural Service to the U.S. Agency for International Development's Africa Bureau to assist with the prevention and control of avian influenza as well as other zoonotic and livestock disease threats impacting public health and agricultural development. Before joining the Food Safety and Inspection Service, she has also served as a public health advisor to the Department of Homeland Security's National Biosurveillance Program. Since 1987 Dr. Becker has maintained her veterinary clinical license and enjoys integrating clinical and epidemiologic skills into public health practice.

Philip Bronstein, Ph.D.
Director, Science Staff, Office of Public Health Science
Food Safety and Inspection Service – USDA
Philip Bronstein is a microbiologist by training and currently serves as the Director of the Science Staff at the U.S. Department of Agriculture, Food Safety and Inspection Service (FSIS) in the Office of Public Health Science (OPHS). FSIS regulates meat, poultry, and egg products to ensure that they are safe, wholesome, and properly labeled. The Science Staff within OPHS provides scientific support to the agency for a wide variety of microbiological, chemical, and food technology related issues.

Eric Brown, Ph.D., M.Sc., FAAM
Director, Division of Microbiology, Office of Regulatory Science
Center for Food Safety and Applied Nutrition
Food and Drug Administration – DHHS
Eric W. Brown has been with the Food and Drug Administration's Center for Food Safety and Applied Nutrition since 1999 and currently serves as Director of the Division of Microbiology in the Office of Regulatory Science. Here, he oversees a group of 60 food safety microbiology researchers and support scientists engaged in a multi-parameter research program to develop and apply microbiological and molecular genetic strategies for detecting, identifying, and differentiating bacterial foodborne pathogens such as *Salmonella, Listeria,* and shiga-toxin producing *E. coli*. Recently, his laboratory has been instrumental in adapting next-generation sequencing technologies to augment foodborne outbreak investigations and to ensure preventive control and compliance standards at the FDA including the establishment of the GenomeTrakr whole-genome sequencing network for food safety. Dr. Brown received his M.Sc. in Microbiology from the National Cancer Institute/Hood College joint program in the biomedical sciences in 1993 and his Ph.D. in Microbial Genetics from The Department of Biological Sciences at The George Washington University in 1997. He has conducted research in microbial evolution and genetics as a research fellow at the National Institutes of Health, the U.S. Department of Agriculture, and as an Assistant Professor of Microbiology at Loyola University of Chicago. He has been a member of the American Society for Microbiology since 1994 and was recently inducted as a Fellow of the American Academy of Microbiology in 2015. He has co-authored more than 170 refereed publications and book chapters on the

Yi Chen, Ph.D.
Research Microbiologist, Office of Regulatory Science
Center for Food Safety and Applied Nutrition
Food and Drug Administration – DHHS
Yi Chen is the subject matter expert for *L. monocytogenes* in the Office of Regulatory Science, Center for Food Safety and Applied Nutrition, Food and Drug Administration. Dr. Chen has been working on the detection, enumeration and whole genome sequencing analysis of *L. monocytogenes*. He has published numerous peer reviewed articles on the method development of *L. monocytogenes*, behavior of *L. monocytogenes* in food matrices, and whole genome sequencing analysis of *L. monocytogenes*, especially those involved in human illnesses. He has generated a lot of microbiological and genomic data that can contribute to the risk assessment of *L. monocytogenes*. He has been the scientific contact for *L. monocytogenes* testing in various FDA field assignments, outbreak investigations and laboratory analyses. He has also been a technical resource for the greater scientific community. He currently serves as a member of ISO *L. monocytogenes* Work Group, the General Referee for AOAC International and editorial board member for *Applied and Environmental Microbiology.*

Stephanie Defibaugh- Chávez, Ph.D.
Senior Microbiologist, Science Staff, Office of Public Health Science
Food Safety and Inspection Service – USDA
Stephanie Defibaugh-Chávez is a Senior Microbiologist with the Science Staff in the Office of Public Health Science at the USDA Food Safety and Inspection Service in Washington, DC. Since joining FSIS in 2010, Stephanie has primarily contributed to the Agency mission as a technical subject matter expert for microbiological issues associated with FSIS-regulated meat, poultry and egg products. In recent years, Stephanie has been an active influence on FSIS efforts to incorporate WGS analyses into regulatory decision-making processes. Before joining OPHS, Dr. Defibaugh-Chávez was an ORISE postdoctoral fellow in the Microbiology Division of the Office of Regulatory Science at the FDA Center for Food Safety and Applied Nutrition working on molecular method development for detection of foodborne pathogens, including *Salmonella* spp. and *Clostridium botulinum* and its associated toxins. She received a B.S. in Chemistry from University of Louisiana at Lafayette in 1999 and attended graduate school at the University of Arkansas in Fayetteville, AR, where she graduated with both M.S. in Chemistry and a Ph.D. in Cell and Molecular Biology.

Sherri B. Dennis, Ph.D.
Director, Division of Risk & Decision Analysis
Center for Food Safety and Applied Nutrition
Food and Drug Administration – DHHS
Sherri Dennis serves as the Senior Advisor for Risk Analysis and Director of the Division of Risk and Decision Analysis in the Office of Analytics and Outreach, Center for Food Safety and Nutrition (CFSAN), Food and Drug Administration. The Division supports Center/Agency strategic initiatives and regulatory decision-making by conducting risk assessment and evaluation of contaminants (microbial and chemical) and naturally occurring toxins in CFSAN-regulated products. Dr. Dennis has facilitated creative improvements in risk assessment research and the development of mathematical models to support science-based risk management and policy decisions. She has been invited to serve on numerous agency, interagency, and international workgroups addressing a wide range of scientific and technical topics including information quality, peer review, avian influenza, *Listeria monocytogenes*, thresholds for allergens and gluten in food, and inorganic arsenic in juice and rice. Currently, Dr. Dennis co-chairs the Interagency Risk Assessment Consortium Policy Council.

Uday Dessai, M.S., M.P.H., Ph.D.
Senior Advisor for Public Health, Office of Public Health Science
Food Safety and Inspection Service – USDA
As the Senior Public Health Advisor in the Office of Public Health Science, Uday Dessai leads major FSIS programs including the National Antimicrobial Resistance Monitoring System (NARMS) and antimicrobial resistance (AMR) activities, whole genome sequencing (WGS) and interagency collaborations, role of science in policy development, strategic planning and adoption of scientific innovations in FSIS. In his previous roles as the Director of Science Staff, Director of Microbiology Division and the Branch Chief in Risk Assessment Division, Dr. Dessai led a number of programs of national significance. These include the national microbiological baseline studies, the national advisory committee on microbiological criteria for foods (NACMCF), microbiological and residue issues with domestic and international implications, and risk assessment and exposure modeling - to inform policy considerations. To accomplish FSIS' food safety - public health goals, Dr. Dessai collaborated with stakeholders and led multidisciplinary teams of experts on highly significant microbiological issues (*E. coli* O157:H7, STECs, *Salmonella*, *Listeria*, *Campylobacter Toxoplasma* and microbiological baselines), BSE and Harvard BSE Risk Assessment, and NACMCF charges and development of recommendations (e.g., FSIS new technology, Agricultural Marketing Service specifications, Norovirus and Department of Defense Microbiological Criteria). Dr. Dessai has had the opportunity to deeply immerse into sciences during his sojourn in academia through advanced training, research and teaching in diverse scientific disciplines. These include agriculture, food and nutritional sciences, microbiology (food, environment), molecular biology and biotechnology (gene constructs/expression, development of transgenic, cell and tissue culture), public health/epidemiology, risk assessment/analysis and information technology. Dr. Dessai currently serves on numerous agency, interagency and international workgroups to address issues related to ARM, NARMS, WGS, and scientific innovations.

Eric Ebel, D.V.M., M.S.
Senior Veterinary Medical Officer, Risk Assessment and Analytics Staff, Office of Public Health Science
Food Safety and Inspection Service – USDA
Eric Ebel is a staff officer with responsibility for conducting quantitative food safety risk analyses. He is board certified in preventive medicine and epidemiology; and is also an Associate in the Society of Actuaries. Dr. Ebel has worked in public practice for nearly 30 years and has been involved in risk modeling for much of his career.

Emilio Esteban, D.V.M., M.B.A., M.P.V.M., Ph.D.
Executive Associate for Laboratory Services, Office of Public Health Science
Food Safety and Inspection Service – USDA
Emilio Esteban oversees the activities of the U.S. Department of Agriculture, Food Safety and Inspection Service (FSIS) laboratories including the disciplines of microbiology, chemistry and pathology. The data that is generated by the labs is the foundation for documenting the effectiveness of FSIS' food safety policies. Laboratory data provides empirical verification of HACCP control, identification of violations, and support of recall activities. Under his tenure, the laboratories have maintained the high quality of the analytical results while increasing the throughput. He has focused on streamlining the sampling process from the collection point at the plant to the reporting of results. Under his leadership the laboratory system is also reducing the number of independent data management systems allowing for a more flexible and responsive IT infrastructure. Dr. Esteban is also the Chair for the Codex Alimentarius Commission Committee on Food Hygiene. This committee is where international food hygiene standards are defined for international trade.

Peter Evans, Ph.D.
Consumer Safety Officer, Risk and Innovation Management Staff, Office of Policy and Program Development
Food Safety and Inspection Service – USDA
Peter Evans serves as a risk manager, focusing on policy and program development including microbiological sampling programs to verify establishment controls, and procedures to use subtyping data , including WGS, to allocate and manage resources in the field. Dr. Evans received his Ph. D in Molecular Biology from the University of Wisconsin-Madison in 1998, a M.P.H. from the Johns Hopkins Bloomberg School of Public Health in 2004. In addition to his work at USDA, he contributed to the establishment of GenomTrakr network of distributed laboratories sharing a centralized database to use WGS for pathogen detection, a national pilot project to use WGS in real time to enhance Listeriosis Outbreak Detection and Investigation, and he leads a team developing an international standard for using WGS in food microbiology.

Sofia Santillana Farakos, Ph.D.
Interdisciplinary Scientist, Office of Analytics and Outreach
Center for Food Safety and Applied Nutrition
Food and Drug Administration – DHHS
Sofia Santillana Farakos is an Interdisciplinary Scientist and Project Manager in the Risk Analysis Branch of the Office of Analytics and Outreach (Division of Risk and Decision Analysis) at the U.S. Food and Drug Administration (FDA), Center for Food Safety and Applied Nutrition. Sofia joined FDA in September 2013. Her areas of expertise include predictive modeling, risk assessment and food microbiology and more specifically modeling *Salmonella* in low moisture foods. She holds a Ph.D. in Food Science from The University of Georgia and a Master of Science in Food Science from Wageningen University.

Sheila Fleischhaker, Ph.D., J.D.
Senior Advisor of Nutrition and Food Safety
Office of the Chief Scientist – USDA
Sheila Fleischhacker is a Senior Advisor of Nutrition and Food Safety at the US Department of Agriculture Office of the Chief Scientist, on detail from the National Institute of Diabetes and Digestive and Kidney Diseases Office of Nutrition Research. She specializes in identifying public health nutrition research opportunities and gaps with an emphasis on the role of environmental and policy strategies for promoting healthy eating and reducing health disparities. Dr. Fleischhacker received a B.S. (2000) and J.D. (2007) with a Certificate in Health Law from Loyola University Chicago and Ph.D. in Integrative Biosciences/Nutritional Sciences from The Pennsylvania State University (2004).

Kathleen F. Gensheimer, M.D., M.P.H.
Medical Officer, Division of Public Health Informatics and Analytics
Center for Food Safety and Applied Nutrition
Food and Drug Administration – DHHS
Gensheimer serves as a Medical Officer with the Epidemiology Branch, Division of Public Health Informatics and Analytics, Office of Analytics and Outreach, Center for Food Safety and Applied Nutrition, Food and Drug Administration (FDA). She provides authoritative medical and epidemiological advice, guidance, assistance, interpretation, and recommendations regarding food safety, as well as working to promote collaboration with multiple partners from within and outside of FDA, including laboratory, public health, agriculture, and regulatory partners at the state and local level. In addition to serving on the Advisory Board of the One Health Initiative and the Editorial Advisory Board of *Infectious Disease News*, Dr. Gensheimer is an Associate Editor for *Emerging*

Infectious Diseases. Dr. Gensheimer previously served for 5 years in the FDA Office of Foods and Veterinary Medicine as Chief Medical Officer and Director of the Coordinated Outbreak Response and Evaluation Network, where she oversaw foodborne outbreak investigations, and for 28 years as State Epidemiologist in Maine, where much of her work involved surveillance, response, and prevention of foodborne-related issues of public health concern. She received her medical degree from the University of Rochester School of Medicine and completed her Master of Public Health at Harvard University.

David Goldman, M.D., M.P.H.
Assistant Surgeon General and Chief Medical Officer, U.S. Public Health Service
Assistant Administrator, Office of Public Health Science, Food Safety and Inspection Service – USDA
David Goldman serves as the Assistant Surgeon General and Chief Medical Officer for the U.S. Public Health Service (USPHS) Commissioned Corps and concurrently as the Assistant Administrator for the Office of Public Health Science (OPHS) at the U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS). As Assistant Administrator for OPHS, Dr. Goldman has led the creation and implementation of a comprehensive scientific agenda that focuses on the Agency's most significant needs, including updating the National Residue Program, analyzing environmental contaminants, developing a plan to meet the Healthy People 2020 goals for *Salmonella* illness reduction, and communicating scientific measures to mitigate the risk of *Listeria* contamination at retail. Dr. Goldman serves the Agency's point person during foodborne illness outbreaks, collaborating and coordinating with other public health leaders throughout government to support a swift and effective response. Among his other duties, Dr. Goldman is a co-lead for USDA's participation in the One Health initiative, a worldwide strategy for expanding interdisciplinary collaborations and communications in all aspects of diseases for humans, animals and the environment. One Health seeks to advance health care for the 21st century and beyond by accelerating biomedical research discoveries, enhancing public health efficacy, and expeditiously expanding the scientific knowledge base for zoonoses. In August of 2013, the USPHS named Dr. Goldman as its new Chief Professional Officer for the medical category. In this capacity, Dr. Goldman serves as the primary point of contact between the Office of the Surgeon General and the 800+ physicians in the PHS.

Since 2005, Dr. Goldman has served as the Surgeon General's Policy Advisory Committee representative for USDA to represent any needs of FSIS to the Department of Health and Human Services with respect to 22 officers detailed here. Dr. Goldman spent 10 years in the US Army Medical Corps in both family practice and preventive medicine. He then spent 3 ½ years at the Virginia Department of Health, first as a District Health Director, then briefly as the Deputy State Epidemiologist, before joining the Public Health Service. He is board-certified in both Family Medicine and General Preventive Medicine/Public Health and continues to see patients 1 day per month at a free clinic in Virginia. He received his Bachelor of Arts from the University of Virginia in 1979, a Doctor of Medicine degree from the University of Virginia in 1988, and his Master of Public Health in Epidemiology from the University of Washington in 1996.

Brett J. Green, Ph.D.
Research Biologist, National Institute for Occupational Safety and Health
Centers for Disease Control and Prevention – DHHS
Brett Green serves as a Research Biologist in the Health Effects Laboratory Division in the National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention. The Division is the primary laboratory research arm of NIOSH tasked to scientifically establish causes and mechanisms of disease and injury in the workplace. Dr. Green's laboratory-based research program is at the forefront of occupational allergen characterization and microbial biohazard assessment research. Bioaerosol exposure assessment methods

including ITS amplicon sequencing have been used in support of NIOSH Health Hazard Evaluations. Currently, Dr. Green serves on a number of agency, interagency, domestic and international workgroups addressing topics including occupational health, allergen exposure, indoor air quality, mold, aerobiology, and biohazard monitoring.

Robert H. Hall, Ph.D.
Programs Officer, National Institute for Allergy and Infectious Diseases
National Institutes of Health -- DHHS
Robert Hall is a Program Officer in the Enteric and Hepatic Diseases Branch, Division of Microbiology and Infectious Diseases, National Institute for Allergy and Infectious Diseases within the National Institutes of Health. He is responsible for programs in cholera, other vibrioses, and diagnostics for enteric and hepatic diseases; including research and product development efforts directed towards basic research, epidemiology, and the development of novel vaccines, therapeutics, and diagnostics. He was previously in the Center for Food Safety and Applied Nutrition of the Food and Drug Administration, where he conducted research and developed detection methods for food-borne pathogens. Robert is U.S. secretariat for the U.S. Japan Cooperative Medical Sciences Program Panel on Cholera and Other Bacterial Enteric Infections, and he is co-Editor in Chief for the journal *JMM-Case Reports.* Robert obtained his degree in microbiology from the University of Aberdeen (Scotland) and his doctorate from University College, London (England). He is an elected fellow of the Royal Society for Public Health and the Royal Society of Tropical Medicine and Hygiene.

Wendy F. Hall, D.V.M., Ph.D.
Assistant Chief, Environmental and Risk Analysis Services
Animal and Plant Health Inspection Service – USDA
Wendy Hall serves as an Assistant Chief for Environmental and Risk Analysis Services within Policy and Program Development, Animal and Plant Health Inspection Service (APHIS), where she leads the Environmental Analysis Support staff. The EAS staff primarily provides analytical support, including human health risk assessments, spatial analyses and environmental justice considerations in support of APHIS environmental compliance documentation. Dr. Hall earned her doctorate in Zoology focusing on evolutionary ecology. She is also a licensed veterinarian and has worked in small animal/exotic private practice. Dr. Hall applies her broad base of academic and work experience to engage scientists and professionals from diverse backgrounds to collaborate on issues of mutual interest and concern. Dr. Hall represents APHIS on several collaborative interagency technical groups, covering relevant interdisciplinary topics such as invasive species, environmental justice, climate change adaptation, and food safety. While she represents APHIS on the Interagency Risk Assessment Consortium, her work with the consortium preceded her tenure at APHIS; it started in 1999 when she created the Food Safety Risk Analysis Clearinghouse (now known as Foodrisk.org) for the Joint Institute for Food Safety and Applied Nutrition.

Maria Hoffmann, Ph.D.
Genomics Research Microbiologist, Division of Microbiology, Office of Regulatory Science
Center for Food Safety and Applied Nutrition
Food and Drug Administration – DHHS
Maria Hoffmann received her master degree in Food Chemistry from the University of Hamburg in 2007 and her Ph.D. in Microbial Evolution/Systematics/Population Genetics from the University of Hamburg in 2012. She did a postdoctoral fellowship at the U.S. Food and Drug Administration's Center for Food Safety and Applied Nutrition since 2013. Dr. Maria Hoffmann is a Genomics Research Microbiologist with expertise in the field of public

health microbiology, foodborne infectious diseases and the evolution and genetics of human foodborne pathogens. Her focus is to develop and apply microbiological and molecular genetic strategies for detection, identifying, and differentiating bacterial foodborne pathogens such as *Salmonella*, *Vibrio*, and *Escherichia coli*. She works primarily on next generation sequencing projects to show how whole genome sequencing is important in source tracking of foodborne contamination events and she applies 3rd generation sequence technology to completely close bacterial genomes and their plasmids. Her research goals are to improve the ability to predict an apply key phenotypic and genomic characteristics of recurring isolates from food industry and farms to ultimately assist in preventive controls.

Barry Hooberman, Ph.D., M.P.H.
Team Lead, Risk Analytics Staff, Office of Foods and Veterinary Medicine
Food and Drug Administration – DHHS
Barry Hooberman serves as the Team Lead for the Risk Analytics Staff in the Office of Foods and Veterinary Medicine (FVM). The mission of the Risk Analytics Staff is to: 1) establish risk-informed priorities that drive FVM Program decision-making, resource allocation, and performance measures; 2) to ensure that risk information is consistently analyzed, widely communicated, and easily accessible across the FVM program; and 3) conduct descriptive and predictive analytics to support FVM Program activities. Dr. Hooberman has worked extensively on risk analysis issues relating to the use of antimicrobials in food-producing animals, the regulation of genetically engineered animals, animal cloning, and animal feed safety.

Andy Hwang, Ph.D.
Research Food Technologist, Eastern Regional Research Center
Agricultural Research Service – USDA
Andy Hwang is a research scientist with the Residue Chemistry and Predictive Microbiology Research Unit of the Eastern Regional Research Center in the Agricultural Research Service (ARS) at the U.S. Department of Agriculture. His research mainly focuses on the development of microbiological models that are incorporated into the USDA Pathogen Modeling Program (PMP). The PMP contains approximately 60 predictive models that can be used to predict the growth and inactivation of foodborne bacteria, primarily pathogens, under various intrinsic and extrinsic environmental conditions and has seen applications in food product and process development, regulatory compliance, and risk assessment. Andy is also involved in research to develop intervention technologies and new methodologies for developing predictive models. Before joined ARS, Dr. Hwang was a research microbiologist with Nestle Product Technology Center. Dr. Hwang is ARS technical representative in the IRAC and an Institute of Food Technologist certified Food Scientist and serves as associate editor for the Food Safety and Microbiology section of the Journal of Food Science.

Julie Ann Kase, Ph.D.
Research Microbiologist, Office of Regulatory Science
Center for Food Safety and Applied Nutrition
Food and Drug Administration – DHHS
Julie Ann Kase is a research microbiologist in the Division of Microbiology in the Office of Regulatory Science, Center for Food Safety and Nutrition (CFSAN), Food and Drug Administration (FDA). The Division supports Center/Agency strategic initiatives and regulatory decision-making by developing and validating methods for the detection and characterization of various microorganisms in CFSAN-regulated products. For nearly 20 years, Dr. Kase has worked as a bench-level environmental and food microbiologist. Eight of those years have been spent at the FDA focusing on improving the FDA's ability to detect and characterize non-O157 Shiga toxin-producing *E*.

coli (STEC) and *Brucella*. She is an author of several FDA Bad Bug Book chapters and currently serves as a subject matter expert on STEC. In addition, she has been involved in many agency and cross-FDA Center collaborations including real-time PCR training courses, method validations, and technical workgroups. Dr. Kase has served on the FDA BAM Council since 2010 and was appointed as a technical expert to the National Advisory Committee on Microbiological Criteria for Foods in 2015.

Janell Kause, M.P.P., M.P.H.
Scientific Advisor for Risk Assessment, Office of Public Health Science
Food Safety and Inspection Service – USDA
Janell Kause serves as the Scientific Advisor for Risk Assessment at the U.S. Department of Agriculture, Food Safety and Inspection Service (FSIS). She provides leadership and guidance on the development, adaptation and application of risk assessment to guide federal food safety policies and programs. She has primarily focused on strengthening interagency collaboration and stakeholder engagement in the conduct of food safety risk assessments, enhancing transparency of the data and underlying science used to guide decisions, and promoting increased collaboration among federal partners, industry, academia and consumer groups to collectively address food safety concerns. She has been invited to serve on numerous agency, interagency, and international workgroups addressing topics ranging from public-private partnerships and enhanced science-based decision-making to risk-informed approaches to prevent foodborne illness. Currently, she co-chairs the Interagency Risk Assessment Consortium Policy Council and, since March 2015, serves as FSIS's Agency Scientific Integrity Officer.

Arthur P. Liang, M.D. M.P.H.
Senior Advisor for Food Safety, National Center for Emerging and Zoonotic Infectious Diseases
Centers for Disease Control and Prevention – DHHS
Art Liang is currently the Senior Advisor for Food Safety, Division of Foodborne Waterborne & Environmental Diseases at the Centers for Disease Control and Prevention (CDC). He is the former Director of the CDC Food Safety Office. He has been a CDC Epidemic Intelligence Service officer and the Chief of the Communicable Disease Division, Hawaii Department of Health. He currently serves on the Executive Committee of the National Advisory Committee on Microbiological Criteria for Foods. He is also serves on the Center for Produce Safety Board of Directors and the Food Safety Summit Education Advisory Board, and is a Fellow of the American College of Preventive Medicine. He is board certified in General Preventive Medicine and Public Health. He has a BA from Oberlin College, an MPH in International Health and Epidemiology from the University of Hawaii; and MD from the University of Maryland.

Randall Levings, D.V.M., Ph.D., M.S.
Scientific Advisor, Science, Technology & Analysis Services, Veterinary Services
Animal and Plant Health Inspection Service – USDA
Randall L. Levings serves in a technical project lead and representation role for Veterinary Services. His past positions include Director, National Veterinary Services Laboratories (U.S. national reference veterinary diagnostic laboratory) and Director, Center for Veterinary Biologics Laboratory (testing laboratory for the sole regulatory authority for veterinary vaccines and commercial diagnostics in the U.S.). Dr. Levings co-led the development and led operation of the National Animal Health Laboratory Network (a multi-state network testing for high-consequence diseases). He also co-led the development of the National Centers for Animal Health (co-locating animal disease diagnostic, biologics evaluation, and research). He was involved in multiple animal disease outbreak responses. His current research interest is comparative humoral immunity. He

received a B.A. (Biology) from the University of Missouri-Columbia, and his D.V.M., M.S. (Immunology) and Ph.D. (Veterinary Microbiology) degrees from Iowa State University.

André Markon, Ph.D., M.P.H.
Epidemiologist, Division of Public Health Informatics and Analytics
Center for Food Safety and Applied Nutrition
Food and Drug Administration – DHHS

Dr. Markon is international lead in the Epidemiology Branch, Division of Public Health Informatics and Analytics, Office of Analytics and Outreach, Center for Food Safety and Applied Nutrition, Food and Drug Administration (FDA). He specializes in infectious diseases epidemiology, including food- and vector-borne diseases, as well as analytical methods and metrics innovations for food safety-related studies. Dr. Markon joined the Epidemiology Branch after a Presidential Management Fellowship that included participation on the White House Office of Science, Technology, and Policy's Innovation Toolkit: Design Thinking Team and collaboration with the FDA Office of the Commissioner, Office of Public Health Strategy and Analysis on veterinary antimicrobial resistance and pharmacoepidemiology projects. He completed his MPH and PhD at the University of Michigan Rackham Graduate School/School of Public Health.

Evelyne Mbandi, Ph.D.
Acting Director, Science Staff, Office of Public Health Science
Food Safety and Inspection Service – USDA

Evelyne Mbandi is a food microbiologist by training and currently serves as the Acting Director of the Science Staff at the U.S. Department of Agriculture, Food Safety and Inspection Service (FSIS) in the Office of Public Health Science (OPHS). The Science Staff within OPHS provides scientific support to the agency for a wide variety of microbiological, chemical, and food technology related issues.

Evelyne graduated from Wayne State University in Detroit MI in 2003 with a PhD in food science, and was a post-doctoral fellow at the Department of Food Science/Center for Integrative Toxicology at Michigan State University from 2003-2005, before joining FSIS/OPHS as a Food Safety Fellow in 2005. She served as the Deputy Director of the FSIS Office of Policy and Program Development's Risk, Innovations, and Management Staff for 6 years, where she managed and supervised a diverse professional workforce of management, technical, and administrative personnel. She is a Subject Matter Expert (SME) on *Lister monocytogenes* (*Lm*) and *Salmonella* in ready-to-eat (RTE) meat and poultry products, domestic and international food safety related policies. She has been involved in Strategic planning, budget formulation, ensuring that policy development and policy delivery are well coordinated and meets the Agency's strategic plan. She also served as the FSIS representative on the National Advisory Committee on Microbiological Criteria for Foods (NACMCF) from 2013 to 2017, and is currently the director of the NACMCF Executive Secretariat.

Sherri McGarry, M.S.
Senior Health Scientist and CDC Liaison to FDA
Division of Food, Water, and Environmental Diseases
National Center for Emerging and Zoonotic Infectious Diseases
Centers for Disease Control and Prevention – DHHS

Ms. McGarry recently joined CDC's National Center for Emerging and Zoonotic Infectious Diseases, Division of Food, Water, and Environmental Diseases, as their Liaison to the Food & Drug Administration (FDA). In this role, she works with agency leadership and technical experts to strengthen collaborations and communications on food safety policy, outbreak response, genomic testing, and antimicrobial resistance. In addition to food safety,

she assists CDC in navigating other areas of collaboration with FDA including the safety of drugs, devices, and biologics. Before joining CDC, Ms. McGarry gained over 20 years of experience working in the food safety arena at FDA with more than half of those actively involved in emergency preparedness and foodborne outbreak response. These activities involved coordination with other federal agencies, industry, states, foreign governments, and other stakeholders, the use of incident command structures, and traceback and produce farm investigations. She also served as the Senior Advisor to the Director of Resource Planning and Strategic Management in FDA's Office of Foods and Veterinary Medicine where she dedicated her efforts to policy development and implementation of the FDA Food Safety Modernization Act and served as the Agency Lead for Product Tracing.

Steven Musser, Ph.D.
Deputy Center Director for Scientific Operations
Center for Food Safety and Applied Nutrition
Food and Drug Administration – DHHS
Steven Musser is the Deputy Center Director for Scientific Operations at the U.S. Food and Drug Administration's (FDA) Center for Food Safety and Applied Nutrition (CFSAN). In addition to managing the Center's scientific operations, he oversees the Center's activities in cosmetics safety, color certification, pre-market review of food additives, food contact notifications and foods derived from bioengineered plants. He has directed the Center's research in precedent setting areas of food and cosmetic safety research, which include food allergen detection, methods for detecting chemical contaminants, dietary supplement analysis, and the use of whole genome sequencing during foodborne illness outbreak investigations. He has authored or co-authored more than 90 articles in the peer reviewed scientific literature and regularly speaks on CFSAN's research at national and international scientific meetings.

Dr. Musser received his B.S. degree in Biology from Millersville University, his Ph.D. in Medicinal Chemistry from the University of Maryland-Baltimore, and completed a post-doctoral research fellowship at the National Institutes of Health, National Cancer Institute. He started his career at FDA in 1991 as a research chemist, moving into regulatory science management six years later as the Chief of the Instrumentation and Biophysics Branch. Prior to his current appointment, Dr. Musser was the Director of the Office of Regulatory Science at CFSAN.

Hao Pang, Ph.D.
Office of Analytics and Outreach
Center for Food Safety and Applied Nutrition
Food and Drug Administration – DHHS
Hao Pang is currently an ORISE fellow with the Risk Analysis Branch of the Division of Risk and Decision Analysis at the U.S. Food and Drug Administration's Center for Food Safety and Applied Nutrition. His areas of expertise include food safety risk modeling, microbial risk assessment, and food microbiology. Dr. Pang received his PhD and Master of Science in Food Science from the University of Maryland.

Cary Parker, M.P.H.
Epidemiologist, Division of Public Health Informatics and Analytics
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Cary Parker is a cross-cutting research and outreach lead in the Epidemiology Branch, Division of Public Health Informatics and Analytics, Office of Analytics and Outreach (OAO), Center for Food Safety and Applied Nutrition (CFSAN), Food and Drug Administration (FDA). Her responsibilities include serving as FDA communications lead and FDA technical co-lead on the Interagency Food Safety Analytics Collaboration (IFSAC), a tri-agency (FDA, USDA-FSIS, and CDC) analytical partnership focused on attribution of foodborne illness in the United States. In addition, she is working on analyses of the temporal and geospatial flow of imported foods in multi-state outbreaks, as well as investigations of the characteristics of different consumer types (such as consumers of unpasteurized milk products), among several other food safety-related projects. Cary previously conducted policy-oriented research at the FDA CFSAN OAO DPHIA Consumer Studies Branch and post-marketing pharmaco-epidemiological reviews of adverse events related to new drug products at the FDA Center for Drug Evaluation and Research. Prior to joining FDA, Cary completed a two-year fellowship at CDC, where she worked on surveillance of foodborne disease outbreaks. Cary received her BS in Psychology and Certificate in Human Development from Duke University. She completed her MPH in Epidemiology at The George Washington University – Milken Institute School of Public Health.

Tamika Payne, Ph.D.
Microbiologist/Interdisciplinary Risk Assessor,
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Tamika Payne is a Microbiologist and Interdisciplinary Risk Assessor with the Risk Assessment and Analytics Staff in the Office of Public Health Science at the USDA Food Safety and Inspection Service. In her role at FSIS, Tamika provides the foundation for scientifically sound, evidence-based and data-driven decisions concerning FSIS-regulated food products. Before joining RAAS in 2015, Tamika was a Postdoctoral Fellow in the Division of HIV/AIDS Prevention at the Centers for Disease control. Tamika earned her Bachelors of Science in Biological Science from the University of Maryland, Baltimore County and her Ph.D. in Molecular Genetics and Microbiology from Duke University. Her dissertation work focused on genetic regulation of the CD8+ T cell response to HIV-1 infection.

Aurelie Pohl, D.V.M.
ORISE Fellow, Risk Analysis Branch
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Aurelie Pohl is an ORISE Fellow in the Risk Analysis Branch, Division of Risk and Decision Analysis in the Office of Analytics and Outreach (OAO), Center for Food Safety and Nutrition, Food and Drug Administration. She is a public health veterinarian whose research interests include foodborne pathogens, food safety risk assessments and epidemiology. Previously she completed a two-year American Association for the Advancement of the Sciences Science and Technology Policy Fellowship with the Risk Assessment and Analytics Staff at the US Department of Agriculture's Food Safety and Inspection Service. Prior to her fellowship she was a clinical veterinarian for 9 years. She is a 2005 graduate of Virginia-Maryland Regional College of Veterinary Medicine in Blacksburg, VA and a 2001 graduate of McGill University in Montreal, Canada with a Bachelor's of Science in biology. Currently, she is completing a Masters of Public Health program with the University of Florida.

Kis Robertson Hale, M.P.H., D.V.M.
Deputy Director, Applied Epidemiology Staff, Office of Public Health Science
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Kis Robertson Hale is the Deputy Director of the Applied Epidemiology Staff (AES) in the Food Safety and Inspection Service's Office of Public Health Science. Before her current position, she served as a Senior Epidemiologist in AES for several years, providing scientific leadership on projects related to foodborne outbreaks, consumer complaint surveillance, and undeclared allergens. She is also a Captain in the U.S. Public Health Service. CAPT Robertson Hale obtained her Bachelor of Science degree from the Georgia Institute of Technology, her veterinary degree from Tuskegee University, and Masters in Public Health from the University of Minnesota. In 2008, she participated in the Centers for Disease Control and Prevention's Epidemic Intelligence Service program and in 2010, she worked in the Maryland Department of Health and Mental Hygiene as a CDC Preventive Medicine Fellow.

Gurinder Saini, Ph.D.
Acting Director, Risk Assessment and Analytics Staff
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Gurinder Saini serves as the Branch Chief for applied analysis group in the office of Data Integration and Food Protection at the U.S. Department of Agriculture, Food Safety and Inspection Service (FSIS). He provided leadership and guidance on various type of data analysis and development of the automated tools to do the data analysis related to the development of food safety policies and programs. After joining the Risk Assessment and Analytics Staff, he is working on various risks assessment models and collaborating with other offices within FSIS to develop of new analytical tools.

Tod Stuber, B.S.
Computational Biologist
National Veterinary Services Laboratories
Animal and Plant Health Inspection Service – USDA
Ten years as Microbiologist at NVSL leading the molecular development and diagnostic testing for our Mycobacteria and Brucella section. Followed by six years as Computational Biologist working with whole genome sequencing (WGS) where we have two MiSeq and one Ion Xpress instrument providing a steady flow of data. In the last six years my focus has been testing new programs, growing computational resources, script development, validation, reporting, and educating end users and those new to managing and handling WGS. Script development has included pipelines which automate and provide sample identification, and high resolution genotyping for bacterial and viral isolates.

Errol Strain, Ph.D.
Director, Biostatistics and Bioinformatics Staff
Center for Food Safety and Applied Nutrition
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Errol Strain is the Director of the Biostatistics and Bioinformatics Staff in the Office of Analytics and Outreach at U.S. Food and Drug Administration's Center for Food Safety and Applied Nutrition. He received his Bachelor of Science degree in Biochemistry from Purdue University in 1998 and his Ph.D. in Bioinformatics from North Carolina State University in 2006. Dr. Strain's research at the FDA is focused on developing statistical models for characterizing genome sequence evolution in enteric pathogens.

Berhanu Tameru, Ph.D.
Risk Analyst, Risk Assessment and Analytics Staff
Office of Public Health Science, Food Safety and Inspection Service – USDA

Berhanu Tameru is a risk analyst working in the U.S. Department of Agriculture, Food Safety and Inspection Service's (FSIS) Office of Public Health Science (OPHS), Risk Assessment and Analytics Staff (RAAS). Prior to his current position, Dr. Tameru served as a faculty member at the rank of a full tenured professor in the College of Veterinary Medicine, Tuskegee University. Dr. Tameru served as the director of the Center of Computational Epidemiology, Bioinformatics & Risk Analysis and Biomedical Information Management Systems. In addition, Dr. Tameru taught risk analysis, biostatistics, and epidemiology (mathematical and computational). Dr. Tameru's research interests are in the areas of Risk Analysis; Computational Epidemiology; and Statistics. The overall goal of his research interests is to develop models that can be used as tools in the epidemiologic problem-solving and decision-making processes for human and animal diseases. Dr. Tameru has published more than 50 articles in referred and peer reviewed scientific journals, four book chapters, several abstracts for national and international presentations and conferences. He serves as a member on editorial boards of several scientific journals. Dr Tameru was a member of the Tuskegee team that developed with Harvard the 2001 Risk Assessment of Bovine Spongiform Encephalopathy (Mad Cow Disease). Dr. Tameru earned his PhD in Mathematics from Auburn University, Auburn AL.

Max Teplitski, Ph.D.
National Program Leader, Institute of Food Safety and Human Nutrition
National Institute for Food and Agriculture – USDA

Max Teplitski is a National Program Leader in Food Safety and Microbiology at the U.S. Department of Agriculture (USDA), National Institute for Food and Agriculture. Prior to joining USDA, he was a professor at the University of Florida, a G.E. Burch Fellow in Theoretical Medicine at the Smithsonian Institution and a Fulbright Specialist in Agriculture. He authored over 70 publications on ecology of human pathogens, genetics and genomics of interactions between microorganisms and their hosts.

Ruth E. Timme, Ph.D.
Research Microbiologist and Data Coordinator for GenomeTrakr
Center for Food Safety and Applied Nutrition
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Ruth Timme is a Research Microbiologist at the Food and Drug Administration's (FDA) Office of Regulatory Science. She received her Ph.D. in 2006 in Plant Biology at the University of Texas at Austin. Her research background is focused mainly on utilizing comparative genomics and phylogenetics methods to answer evolutionary questions. Although her training is in botany, her published research spans a diversity of organisms, including sunflowers (*Helianthus*), Dinoflagellates, Charophyte green algae, and *Salmonella*. At the FDA, Dr. Timme is implementing phylogenomic methods for tracking foodborne pathogens through the U.S. food supply. In addition, she is the coordinator for GenomeTrakr, an international pathogen surveillance network using whole genome sequence data.

Jane Van Doren, Ph.D.
Branch Chief, Risk Analysis Branch, Division of Risk and Decision Analysis, Office of Analytics and Outreach
Center for Food Safety and Applied Nutrition
Food and Drug Administration – DHHS
Jane Van Doren is Branch Chief of the Risk Analysis Branch within the Division of Risk and Decision Analysis at the Center for Food Safety and Applied Nutrition. She leads an interdisciplinary team that is involved in developing innovative risk assessments and decision analyses to inform regulatory decision making by the U.S. Food and Drug Administration Foods Program. Examples include quantitative microbial risk assessments that evaluate public health risk in both typical and atypical situations and quantify the impact of mitigations and implementation compliance, risk-based ranking models that support FSMA implementation, and development of interactive risk assessment and decision analysis tools that enhance Agency capacity to tackle complex, emerging, or recurring food safety issues. Dr. Van Doren joined the Division in 2010, is the author of more than seventy refereed publications in the scientific literature, and has received numerous awards, fellowships, and grants, throughout her career. Dr. Van Doren holds a doctorate in Chemical Physics and was a professor of chemistry for 16 years prior to joining FDA.

Danah Vetter, D.V.M.
Veterinary Medical Officer, Science Staff, Office of Public Health Science
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Danah Vetter is the Office of Public Health Science co-lead for the *Salmonella* and *Campylobacter* Coordination Group. As a staff officer she works on the design and implementation of sampling projects conducted by the Food Safety and Inspection Service. Prior to joining the Office of Public Health Science, she worked for the Office of Field Operations as a Public Health Veterinarian, Enforcement Investigative and Analysis Officer, and a Recall Management Staff Officer.

Lindsay Ward-Gokhale, M.S., M.P.H.
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Lindsay Ward-Gokhale is a Toxicologist and Interdisciplinary Risk Assessor with the Risk Assessment and Analytics Staff in the Office of Public Health Science at the USDA Food Safety and Inspection Service. In her role at FSIS, Lindsay supports the agency's efforts in addressing emerging issues concerning FSIS-regulated food products, with a primary focus on chemical hazards. Before joining RAAS in 2015, Lindsay worked in technical consulting for a toxicology firm in Washington, DC. Lindsay earned a B.A. in Molecular Biology and English from Colgate University (NY) and M.S. and M.P.H. degrees in Environmental Health Sciences/Toxicology from the University of Michigan (Ann Arbor).

Wanda Wilson, D.V.M., M.P.H., Dipl. ACVPM
Veterinary Epidemiologist; Team Leader, National Antimicrobial Resistance Monitoring System (NARMS),
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Wanda Wilson is a veterinary epidemiologist and team leader of the FSIS NARMS program, on the Applied Epidemiology Staff (AES) in the Food Safety and Inspection Service's Office of Public Health Science. She is also a Commander (CDR) in the U.S. Public Health Service. In her current position, CDR Wilson leads a multi-disciplinary team of public health professionals that address NARMS national and cross-agency goals. She also serves as a

NARMS liaison and works with other federal partners, including the Food and Drug Administration (FDA) and the Centers for Disease Control and Prevention (CDC) to coordinate national initiatives. CDR Wilson obtained her Bachelor of Science degree from Delaware State College University and her veterinary degree from Tuskegee University, and Masters in Public Health from the University of Iowa.

Mike Williams, M.S, M.S, Ph.D.
Mathematical Statistician, Risk Assessment and Analytics Staff
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Mike Williams currently serves as a senior risk analyst with responsibility for conducting quantitative food safety risk analyses He has held staff positions in Forest Service Research and the Veterinary Services Division of the Animal and Plant Health Inspection Service, as well as risk assessment positions in within the Food Safety and Inspection Service.

Jie Zheng, Ph.D.
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Jie Zheng currently serves as a Research Microbiologist in the Molecular Methods and Subtyping Branch within the Division of Microbiology at the Food and Drug Administration (FDA) Center for Food Safety and Applied Nutrition (CFSAN). Dr. Zheng received her Ph.D. in Food Science from University of Maryland at College Park, MD in 2006. Dr. Zheng joined the laboratories at CFSAN in 2008 after her two-year post-doc training at UMD. She has been engaged in development of SNP-based detection, identification and subtyping methods for various phyletic and pathovar divisions of pathogenic *Salmonella*. Dr. Zheng is one of the PIs on the newly formed Human Pathogens on Plants research group where she focuses on her research in *Salmonella* adaptation in food matrix and plant using next generation sequencing technology and development of related intervention strategies.