

CAREER SUMMARY

- Risk assessor and senior scientist specializing in developing and peer-reviewing risk assessments for microbial and other hazards in air, food, and water
- Invited expert on projects with National Academy of Sciences committees and multiple government agencies in the US and abroad to:
 - develop comprehensive, defensible risk assessments from ingestion and inhalation of microbial pathogens and non-pathogens
 - improve scientific support and risk analysis methodology and practice
- Educator in risk analysis and analytic-deliberative process (cycles of analysis and deliberation) to support transparent science-based decisions
- Leader in advancing development of coherent empirical and mechanistic models for more robust microbial risk analysis
- Project manager for grants and contracts with clients from industry, government, foundations, and professional organizations
- Sole proprietor of a woman-owned small business in scientific consulting eligible for SBA Women-Owned Small Business Federal Contract Programs

AREAS OF EXPERTISE

- Microbial ecology, public health
- Biothreat assessments and exercises
- Risk analysis and assessment
- Peer review, project management
- Symposia, training, workshops
- Government, military support

EDUCATION

- MS, Medical Microbiology University of Georgia
- MS, Biology/Biochemistry Utah State University
- BS, Biology/Chemistry SUNY College of Environmental Science & Forestry and Syracuse University

SUMMARY OF QUALIFICATIONS

Microbial Risk Assessor

As a scientist in the consulting industry, and previously in federal government, I lead multidisciplinary teams that assess risk for airborne, foodborne, and waterborne pathogens from natural and intentional releases in the US and abroad. My publications include assessments on:

- Salmonellosis in *Foodborne Pathogens and Disease*, *Journal of Food Protection*, *Quantitative Microbiology*, *Risk Analysis*, and *Veterinary Pathology*

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- Growth of multiple pathogens including *Campylobacter*, *E. coli* O157:H7, *Listeria*, and *Salmonella* species in single and mixed populations in *Risk Analysis* and *J Food Protection*
- Empirical and mechanistic modeling for multiple pathogens including *Salmonella* and *Campylobacter* spp. in *Journal of Toxicology & Environmental Health* and *Quantitative Microbiology*
- Anthrax in *Biothreat and Biosecurity*
- Kinetics of immunological interactions of complement in *Blood*
- Listeriosis in *Journal of Food Protection*
- Microbial ecology of the gastrointestinal tract in *Applied and Environmental Microbiology*
- Qualitative and quantitative risk assessment in *Food Control*
- Science and risk assessment in *Human & Ecological Risk Assessment*
- Trace metals in *Journal of the Association of Official Analytical Chemists*
- Variability in pathogen growth in *International J Food Microbiology*

Subject Matter Expert for Medical Microbiology and Microbial Risk Analysis

For more than two decades, I have been providing expert advice to inter-agency, national, and international committees and work groups charged with conducting microbial risk analysis.

- Analyst or peer reviewer for assessments, modeling software, and reports of US government agencies (Army, EPA, FDA, and USDA)
- Invited participant at ILSI Europe workshop on risk assessment and risk management in Prague, Czechoslovakia
- Invited participant for national and international work groups convened by the European Food Safety Authority, the Codex Committee on Food Hygiene, the Interagency Risk Assessment Consortium, the International Life Sciences Institute, the National Academy of Sciences, and the WHO/FAO
- Invited reviewer for scientific journals and grants

BOARDS AND PROFESSIONAL OFFICES

- Society for Risk Analysis (SRA), Editorial Board for journal *Risk Analysis*, Member
- SUNY College of Environmental Science and Forestry Alumni Board, Member
- Upstate NY Society for Risk Analysis (UNY SRA), President
- SUNY Upstate Medical University Masters in Public Health Board, Member

REVIEWER

- *CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition, Natural Resources*
- *Journal of Association of Official Analytical Chemists*
- *Journal Of Exposure Science And Environmental Epidemiology*
- *Journal of Food Protection*
- *Journal of Food Science*
- *Quantitative Microbiology*
- *Risk Analysis*

PROFESSIONAL HIGHLIGHTS

Coleman Scientific Consulting, Groton, NY

- Operate woman-owned small business as sole proprietor, with a dynamic team of affiliates who provide multidisciplinary decision support integrating biomedical, mathematical, and engineering data for practical solutions to complex problems
- Provide ongoing technical and management support to military client for reports and manuscripts on data qualification and derivation of ‘safe’ exposure guidelines for biological threats inhaled or ingested by humans
- Provided technical and management support to federal government client for report and manuscript documenting time- and dose-dependent models for aerosolized bacterial spores administered in single and multiple doses to rabbits
- Serve as peer reviewer for three journals (*CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition, and Natural Resources; Journal Of Exposure Science And Environmental Epidemiology; Risk Analysis*) and peer reviewer/ committee member for US clients including the Army, EPA, FDA, the National Academies of Science, and USDA
- Deliver presentations, briefings, and lectures on microbial risk for organizations including the American Association for the Advancement of Science, Weston A. Price Foundation (Wise Traditions Conference), SRA, and federal Interagency Risk Assessment Consortium
- Provide teaching and leadership expertise to academic and professional organizations including Upstate Medical University’s Masters of Public Health program, Upstate NY SRA and the National Academies of Science
- Provided medical microbiology services for international client with responsibility to conduct screening assessments for safety of micro-organisms including pseudomonads released into the environment prior to development of quantitative microbial risk assessment methodologies
- Selected as expert for European Food Safety Authority
- Managed grant from SRA for outreach to universities with partnering regional organizations including Australia/New Zealand, New England, Northern Nevada, and Upstate NY
- Prepared position papers on risk of human health effects from dermal exposure to bacterial spores and use of remote sensing and climate data for predicting adverse human health effects associated with environmental contamination
- Prepared manuscripts for submission to *Human and Ecological Risk Assessment, Military Medicine, and Risk Analysis*
- Developing special collection of manuscripts on the influence of the gut microbiota on human dose-response relationships for salmonellosis for submission to *Human and Ecological Risk Assessment*

ICF, International, Fairfax, VA

- Provided expert consulting in medical microbiology and risk assessment, including problem formulation for land-applied biosolids

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- Supported Department of Homeland Security in planning and evaluation of regional and national table-top exercises for biothreat preparedness (FEMA Anthrax Response Exercise Series)

SRC, Inc., Environmental Science Center, North Syracuse, NY

- Served as project manager for EPA contracts (homeland security; waterborne pathogens; genetically modified organisms) and grants (microbial risk assessment; real time polymerase chain reaction detection of waterborne pathogens)
- Under EPA Microbial Risk Assessment Center of Excellence (M-RACE) grant, managed tasks for National Homeland Security Research Center (NHSRC) on: 1) peer review; 2) anthrax hazard characterization and dose-response; and 3) geospatial links between water quality monitoring and human disease in two upstate NY counties
- Initiated and managed contracts and grants with new military and government clients valued at up to \$750,000
- Published analyses in *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*; *Foodborne Pathogens and Disease*; *Human and Ecological Risk Assessment*; *International J Food Microbiology*; *J Food Protection*; *J Toxicology and Environmental Health*; *Microbe*; *Risk Analysis*; *Veterinary Microbiology*
- Supervised and mentored junior scientists and summer interns from local universities

United States Department of Agriculture, Washington, DC, and other sites

- Supported risk assessments for chemical, physical, and microbial hazards in meat and poultry products. Led *Campylobacter* risk assessment team and participated on teams for *Salmonella* and *Escherichia coli* O157:H7 risk assessment projects
- Served as expert reviewer for grants and projects of the Risk Assessment Consortium and Codex Committee on Food Hygiene
- Designed and conducted bridging experiments and modeled data for Agricultural Research Service at University of Maryland Eastern Shore
- Completed competitive Advanced Study in Microbial Risk Assessment at University of Georgia and addressed subjectivity and bias in early practice of microbial risk assessments
- Served as managing editor of a special collection of manuscripts on predictive microbiology and risk assessment published in *Risk Analysis*
- Provided significant direction as US representative on international work group that drafted and expedited review of guidance document for microbial risk assessment for Codex Committee on Food Hygiene
- Conducted pilot studies for application of new technologies for detection and monitoring of pathogens in meat and poultry processing plants to support technology transfer.
- Provided scientific support for chemical residue program on heavy metals, animal drugs, and pesticides in meat and poultry products.

Dynamac, International, Rockville, MD

- Assessed data for compliance with EPA guidance on pesticide re-registration in the areas of product chemistry, residue chemistry, nature and magnitude of residue in animals and plants, environmental fate, and occupational exposure.

HONORS

- National Association of Professional Women award as woman of the year for professional excellence in scientific consulting (2011)
- SRC leadership award for preparing and publishing multidisciplinary risk analysis work (2007)
- USDA/FSIS Spot Award for excellent work associated with cooperation between Risk Assessment Division and other Risk Assessment Consortium members (2003)
- FDA Group Award as a member of the *Listeria monocytogenes* Risk Assessment Group for outstanding contributions to the FDA and USDA/FSIS public health protection through the development of the *Listeria monocytogenes* risk assessment (2001)
- USDA/FSIS Spot Awards for: providing time and expertise to the FSIS CORE Business Process Project on Assess Risk (September, 1998); and special service act in support of project on risk analysis for pre-mature browning of hamburger (1998)
- FDA Group Recognition Award for exceptional contributions towards improvements in the field of microbial risk assessment and for forging improved inter-agency collaborations (1998)
- USDA/FSIS Certificate of Merit for outstanding performance in improving the capability of FSIS to use risk analysis to improve food safety and reduce foodborne disease (1997)
- USDA/ORACBA Certificate of Appreciation for lecturing in USDA Risk Assessment Workshop (1996)

PROFESSIONAL AND GOVERNMENTAL ORGANIZATIONS

- SRA (1996 to present)
- American Society for Microbiology (2004 to present)
- The Society of Federal Health Professionals (AMSUS; 2013 to present)
- Founding member of Interagency Risk Assessment Consortium and leader on work groups including Dose-Response, Risk Analysis Clearinghouse, Microbial Risk Assessment Framework, Comparative Risk Ranking, and International Conference Program (1998-2004)

SELECTED PUBLICATIONS/REPORTS

- 2016. Coleman, M.E., H.M. Marks, T. Bartrand, D.W. Donahue, S. Hines, S. Taft. Modeling rabbit responses to single and multiple aerosol exposures of *Bacillus anthracis* spores. Manuscript submitted to *Risk Analysis*
- 2016. McClellan, G.E., M.E. Coleman, D. Crary, A. Thurman, B. Thran. Human dose-response data for *Francisella tularensis* and a dose- and time-dependent mathematical model of early-phase fever associated with tularemia after inhalation exposure. Manuscript in preparation for submission to *Military Medicine*
- 2015. Technical Guide 316 Supplement E3: Interim biological military exposure guidelines for aerosolized *Francisella tularensis* causing pneumonic tularemia. Report prepared for US Army Public Health Command
- 2015. Technical Guide 316 Supplement E2: Data qualification report for the interim biological military exposure guidelines for aerosolized *Francisella tularensis* causing pneumonic tularemia. Report prepared for US Army Public Health Command
- 2012. Modeling rabbit responses to single and multiple aerosol exposures of *Bacillus*

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anthracis spores. Report prepared for US EPA/NHSRC

- 2010: Coleman, M.E. Reviews of Food Safety Risk Analysis and Food-Borne Microbes: Shaping the Host Ecosystem. Invited book reviews, *Risk Analysis* 30(5):866-871
- 2008. Coleman, M.E., B. Thran, S.S. Morse, M. Hugh-Jones, S. Massulik. Inhalation anthrax: Dose response and risk analysis. *Biosecurity Bioterrorism: Biodefense Strategy, Practice, and Science* 6(2): 147-160
- 2007. Coleman, M.E., B. K. Hope, H.G. Claycamp, and J.T. Cohen. Microbial risk assessment scenarios, causality, and uncertainty. *Microbe* 2(1):13-17
- 2005. Marks, H.M., and M.E. Coleman. Presenting scientific theories within risk assessment, *Human and Ecological Risk Assessment* 11(2):271-287
- 2005: Marks, H.M., and M.E. Coleman. Accounting for inherent variability of growth in microbial risk assessment, *International J Food Microbiology* 100(1-3):275-87
- 2003. Coleman, M.E., M. Tamplin, J. Phillips, B. Marmer. Influence of sub-optimal growth of the enteropathogen *Escherichia coli* O157:H7 on risk assessment, *International J Food Microbiology* 83(2):147-160
- 2003. Coleman, M.E. S. Sandberg, S. Anderson. Impact of microbial ecology of meat and poultry products on predictions from exposure assessment scenarios for refrigerated storage, *Risk Analysis* 23(1):215-28
- 2000. Coleman, M.E. and H.M. Marks. Mechanistic modeling of salmonellosis, *Quantitative Microbiology* 2:227-247

RECENT PRESENTATIONS AND WORKSHOPS

- 2015. SRA, Arlington, VA, organized and co-chaired round table panel symposium on the influence of the microbiota on microbial dose-response relationships
- 2015. WAPF Wise Traditions, Anaheim, CA, invited lecture on risk beyond numbers of foodborne illnesses: understanding data, gaps, and assumptions
- 2014. SRA, Denver, CO, presentation on exploring disagreements regarding health risks of raw and pasteurized human and bovine milk
- 2013. SRA, Baltimore, MD, presentation on modeling rabbit responses to acute and multiple aerosol exposures of *Bacillus anthracis* spores
- 2012. USAMRIID, Frederick, MD, workshop facilitator for data qualification to support exposure guidelines for tularemia
- 2012. SRA, Syracuse, NY, facilitator of SRAonCampus risk analysis and fracking event
- 2011. SRA, Charleston, SC, organizer and convener of symposium on dose response for biotreats and workshop on advancing mechanisms of mucosal interactions to inform microbial dose-response assessment

COMPLETE LIST OF PUBLICATIONS/ PRESENTATIONS AVAILABLE UPON REQUEST