

JULIANA M. RUZANTE

Summary of Professional Experience

Juliana M. Ruzante is a research public health analyst in RTI International's Center for Health and Environmental Modeling. She is a public health veterinarian with over 15 years of expertise in food safety and risk analysis. In her capacity, she develops strategies to expand RTI's work in the area of food safety by fostering partnerships across institutes and organizations. She is responsible for identifying and pursuing new funding and research opportunities. Dr. Ruzante also manages and provides technical advice to several projects in food safety and public health. She works closely with the U.S. federal government and others to support the development of evidence-based policies and practices that prevent foodborne illness from farm to fork. She previously worked for the Food Safety Campaign at The Pew Charitable Trusts where she developed and executed a comprehensive research plan to evaluate the safety of meat and poultry. Prior to joining Pew, she worked at the Joint Institute for Food Safety and Applied Nutrition at the University of Maryland as a Risk Analysis Program Manager where she was responsible for coordinating and managing the food safety risk analysis training programs. Dr. Ruzante was key in developing a multi-criteria risk ranking framework that has been considered by several government agencies as a mechanism to prioritize foodborne pathogens. Dr. Ruzante has authored several reports and peer reviewed papers, and served in advisory committees, including the National Advisory Committee on Microbiological Criteria for Foods, the Food and Drug Administration's Food Advisory Committee, as well as expert meetings organized by the National Academies, The Food and Agriculture Organization of the United Nations, and the World Health Organization. Dr. Ruzante is an adjunct assistant professor at the School of Public Health at San Diego State University.

Education

PhD, Comparative Pathology, University of California, Davis, Davis, CA, 2007.

MS, Preventive Veterinary Medicine, University of California, Davis, Davis, CA, 2007.

DVM, University of São Paulo, São Paulo, Brazil, 2000.

Selected Project Experience

Gastrointestinal Illness Surveillance Through Cloud Based Epidemiology Network of Clinical Laboratories (2018 to date) — *Principal Investigator*. We are examining how data from FilmArray®, a novel culture-independent diagnostic test (CIDT) developed to detect 22 gastrointestinal pathogens can be used to contribute and enhance existing surveillance programs for gastrointestinal diseases in the United States.

Antimicrobial resistance and companion animals and how can it help surveillance and antimicrobial stewardship efforts (2017 – to date) — *Principal Investigator*. We are exploring how data from companion animals obtained from private laboratories can be integrated into AMR surveillance and

antimicrobial stewardship initiatives to protect public health and help control the emergence and spread of AMR.

Peer Review of Swine Slaughter Risk Assessment (2018 to date) — *Principal Investigator*. We are managing a peer review of the swine slaughter risk assessment developed by the United States Food and Inspection Service to modernize swine inspection.

Evaluation of Microbiological Criteria for Salmonella in Chicken Parts (2017 to date) — *Principal Investigator*. We are developing a probabilistic quantitative risk assessment model to evaluate the public health impact of different microbiological criteria (MC) approaches for *Salmonella* in raw chicken parts, in particular concentration-based MCs at lot level, and prevalence-based MCs at establishment level.

Evaluation of Semi-Quantitative Microbiological Criteria for Salmonella in Ground Turkey (2017) — *Collaborator*. We developed a quantitative risk assessment to estimate the public health impact of a semi-quantitative microbiological criteria for ground turkey.

Next Generation of Disease Risk Maps: A platform for disease control and prevention (2016 to 2017)— *Principal Investigator*. This project developed a web-based prediction and mapping prototype to inform risk-based decisions about the control and prevention of vector-borne diseases globally.

The Food and Agriculture Organization Preliminary Guide to Ranking Food Safety Risks at the National Level (2016) — *Principal Investigator*. We developed a preliminary guidance to provide direction to national food safety authorities on how to start ranking the public health risk posed by foodborne hazards and/or foods in their countries. The guidance was based on a 3-day expert meeting and focused on the ranking of microbial and chemical hazards based exclusively on their impact on public health. The application of the proposed framework was illustrated by two hypothetical case studies, one microbial and another chemical.

An Online Integrated Food Safety Risk Analysis Resource to Facilitate National and International Information Exchange (2009 to 2012)—*Principal Investigator*. This project is funded by the Cooperative State Research, Education, and Extension Service of the U.S. Department of Agriculture as part of the Integrated Research, Education, and Extension Competitive Grants Program. Serves as an online integrated food safety risk analysis resource for national and international information exchange.

Professional Experience

- | | |
|--------------|---|
| 2018 to date | San Diego State University, School of Public Health.

<u>Adjunct Assistant Professor.</u> |
| 2014 to date | RTI International, Research Triangle Park, NC.

<u>Research Public Health Analyst</u> , Center for Health and Environmental Modeling (2014 to date). Serves as an expert in food safety and public health. Expands RTI's business portfolio by fostering partnerships, applying for grants, and presenting RTI's work to potential clients. |
| 2011 to 2014 | The Pew Charitable Trusts, Washington, DC.

<u>Senior Associate, Food Safety Campaign</u> . Developed, carried out, and managed a comprehensive research plan to evaluate the safety of meat and poultry. Served |

as an expert to the Food Safety Campaign and the Food Team at the Government Performance group for issues related to food safety, risk analysis, and priority setting.

2008 to 2011

University of Maryland, College Park, MD.

Research Associate, Risk Analysis Program Manager, Joint Institute for Food Safety and Applied Nutrition (JIFSAN). Responsible for coordinating and managing the JIFSAN's food safety risk analysis training programs and FoodRisk.org, an online database on food safety and risk analysis. Served as a liaison with the Center for Risk Communication Research at the University of Maryland. Networked with federal agencies and international organizations to leverage funds for capacity development in the area of risk analysis. Served as a faculty member at the Center for Food Safety and Security Systems at the University of Maryland. Served as affiliated faculty at the Department of Food Science and Nutrition at University of Maryland. Represented JIFSAN at national and international meetings and workshops on food safety and risk analysis. Served as a Principal Investigator (PI) and Co-PI of several grant projects that involved multiple institutions across the United States and Europe. Participated and chaired faculty search committees at the University of Maryland. Served as a member of the Graduate Thesis Committee and provided scientific guidance to visiting scientists and undergraduate students.

2007 to 2008

University of Guelph, Guelph, ON.

Postdoctoral Fellow, School of Engineering. Developed and operationalized a multifactorial framework to rank foodborne risks using multi-criteria decision analysis (MCDA). Designed and conducted research in the areas of consumer perception and acceptance of risk, expert elicitation on food source attribution, and burden of illness to support the implementation of the framework. Participated in systematic review projects as a reviewer. Presented the work at several meetings. Wrote grants and reports. Submitted papers to peer-reviewed journals.

2002 to 2007

University of California, Davis, Davis, CA.

Junior Specialist (April to June 2007). Helped the Western Institute for Food Safety and Security (WIFSS) with developing consumer information materials about food safety. Developed technical content for WIFSS's Web site. Represented the WIFSS in meetings and provided technical support in the areas of food safety and animal health.

Graduate Student Researcher (2005 to 2007). Developed the WIFSS agroterrorism training material to spread awareness to farm workers. Co-authored and delivered the course titled Principles of Detection and Diagnosis—Strategies and Technologies, which was part of the WIFSS Agroterrorism Preparedness Curriculum for Frontline Responders. Co-authored “table-top exercises” for public health preparedness training. Organized and participated in several workshops and working groups. Appointed as a University of California, Davis representative. Represented the university at the Food Safety Research Consortium.

Graduate Student Researcher (2002 to 2006). For the Dairy Food Safety Laboratory, designed and optimized a culture method and real-time polymerase chain reaction (PCR) assay for the detection of *Mycobacterium avium* subsp. *paratuberculosis* (MAP) in milk. Designed, managed, and conducted two field trials to investigate the presence of MAP in waste and bulk-tank milk, milk filters, and milk from individual animals in California dairy herds. Authored a U.S. Department of Agriculture (USDA) grant titled The Use of a Multiplex Real-Time PCR Assay for the Screening of Milk Filters and Environmental Samples for *Mycobacterium avium* subsp. *Paratuberculosis*. The grant was a 1-year project and was accepted and funded in August 2005 (\$63,845). Collaborated with the Brazilian Dairy website, MilkPoint, writing articles about animal health. Wrote peer reviewed papers and presented the research results in international meetings.

2000 to 2002

Chapecó Cia Industrial de Alimentos, São Paulo, Brazil.

Quality Control Assistant. Served as a liaison between Marketing and Commercial Departments and the Quality Control Department. Responsible for evaluating the quality and safety complaints associated with the company's products. Performed food safety inspections at retail and warehouses and at poultry and pork processing plants. Coordinated the implementation of the consumer service hotline. Served as a member of the commission from the União Brasileira de Avicultura (UBA, Brazilian Poultry Association) in charge of developing the proposal titled Brazilian Guidelines for Pathogen Reduction in Poultry—from Farm to Fork. Served as the group leader for the Consumer and Retail section of the document.

Honors and Awards

RTI Early Career Author Award, 2015

Comparative Pathology Fellowship, 2003, 2004, 2005, 2006, and 2007

Baron Fellowship, 2006

Department of Homeland Security Fellowship, 2006

Graduate Student Support Program, School of Veterinary Medicine, University of California, Davis, 2006

Institute on Global Conflict and Cooperation Fellowship to attend a meeting titled Public Policy and

Biological Threats: Training the Next Generation, 2006

Johne's Disease Integrated Program Award, 2005

Helping Hand Fellowship from the International Association of Paratuberculosis, 2005

Graduate Studies Travel Award, University of California, Davis, 2005

Graduated Studies Summer Fellowship, University of California, Davis, 2003

Martin Tyler Foundation Award, 2000

Professional Associations

International Association of Food Protection, 2008 to date

Society of Risk Analysis, 2008 to date

Professional Service

- Member, International Network on Risk-Benefit Assessment of Foods (RBA Network), 2018 to date.
- Member, U.S. Food and Drug Administration's Food Advisory Committee, 2014 to 2016
- Member, National Advisory Committee on Microbiological Criteria for Foods, 2013 to date
- Member, National Research Council's Committee on a review of USDA's Agricultural and Food Research Initiative, 2013 to date
- Member, Standing Committee on the Use of Public Health Data in Food Safety and Inspection Service's (FSIS's) Food Safety Programs from National Research Council and Institute of Medicine, 2008 to 2013
- Member, Microbial Modeling and Risk Analysis Professional Development Group at International Association of Food Protection, 2009 to 2011
- Member, National Research Council Committee on the Evaluation of the Food Safety Requirements of the Federal Purchase Ground Beef Program, 2010
- Committee member, for the review of methodology proposed by FSIS for follow-up surveillance of in-commerce business from the National Academies, Institute of Medicine 2009
- Committee member, for the review of use of process indicators in FSIS Public Health Risk-based Inspection System from the National Academies, Institute of Medicine, 2008 to 2009
- Served as an expert on the meeting organized by the Food Agriculture Organization and the World Health Organization on the risks associated with in follow-up formula, 2008
- Member, Food Safety Research Consortium Steering Committee, 2006 to 2007

Computer Skills

Palisade Decision Tools with @Risk, Statistical software SPSS and Minitab, Decision-Lab, and Decision analysis.

Languages

Spanish and Portuguese (fluent in both)

Country Experience

Guelph, Canada, 2007 to 2008
São Paulo, Brazil, 2000 to 2002

Books, Book Chapters, and Monographs

- Ruzante, J. M., Whiting, R. C., Dennis, S. B., & Buchanan, R. L. (2012). Microbial risk assessment. In M. P. Doyle, and R. L. Buchanan (Eds.), *Food microbiology: Fundamental and frontiers* (5th ed.). Washington, DC: ASM International.
- Davidson, V. J., Ruzante, J. M., & Donoso, C. D. (2011). Multi-factorial assessment of microbial risks in foods: Merging engineering, science and social dimensions (Chapter 7). *Food engineering at the interfaces*. New York: Springer.
-

-
- Yan, X., Peng, Y., Meng, J., Ruzante, J., Fratamico, P. M., Huang, L., et al. (2011). Ontology selection and semantic web to an integrated information system for food-borne diseases and food safety (Chapter 76). *Software tools and algorithms for biological systems*. New York: Springer.
- Ruzante, J. M. & Cullor, J. S. (2009). Biosecurity. *The 5-minute veterinary consult: Ruminant*. In Haskell, S. R. R. (Ed.). Philadelphia, PA: Lippencott Williams & Wilkins.
- Ruzante, J. M. (2009). On-farm pasteurization. *The 5-minute veterinary consult: Ruminant*. In Haskell, S. R. R. (Ed.). Philadelphia, PA: Lippencott Williams & Wilkins.
- Ruzante, J. M. (2009). Body score for dairy goats. *The 5-minute veterinary consult: Ruminant*. In Haskell, S. R. R. (Ed.). Philadelphia, PA: Lippencott Williams & Wilkins.

Peer-Reviewed Journal Articles

- Ruzante, J. M., Grieger, K. D., Lambertini, E., & Kowalcyk, B. (2017). The use of multi-criteria decision analysis in food safety risk-benefit assessment. *Food Protection Trends, March/April*, 132–139.
- Davidson, V. J., Ravel, R., Nguyen, N. T., Fazil, A., & Ruzante, J. M. (2011). Food-specific attribution of selected gastrointestinal illnesses: Estimates from a Canadian expert elicitation survey. *Foodborne Pathogens and Disease*, 8(9), 983–995. doi:10.1089/fpd.2010.0786
- Ruzante, J. M., Majowicz, S. E., Fazil, A., & Davidson, V. J. (2010). Hospitalization and deaths for select enteric illnesses and associated sequelae in Canada. *Epidemiology and Infection*, 139(6), 937–945. doi:10.1017/S0950268810001883
- Ruzante, J. M., Lombard, J. E., Wagner, B., Fossler, C. P., Karns, J. S., Van Kessel, J. A. S., et al. (2010). Factors associated with *Salmonella* presence in environmental samples and bulk-tank milk from U.S. dairies. *Zoonoses and Public Health*, 57(7–8), e217–e225. doi:10.1111/j.1863-2378.2010.01333.x
- Ruzante, J. M., Davidson, V. J., Caswell, J., Fazil, A., Cranfield, J., Henson, J., et al. (2010). A multi-factorial risk prioritization framework for food-borne pathogens. *Risk Analysis*, 30(5), 724–742. doi:10.1111/j.1539-6924.2009.01278.x
- Ravel, R., Davidson, V. J., Ruzante, J. M. & Fazil, A. (2010). Foodborne proportion of gastrointestinal illness: Estimates from a Canadian expert elicitation survey. *Foodborne Pathogens and Disease*, 7(12), 1463–1472. doi:10.1089/fpd.2010.0582
- Ruzante, J. M., Gardner, I. A., Cullor, J. S., Kirk, J. H., Smith, W. L. & Adaska, J. M. (2008). Detection of *Mycobacterium avium* subsp. *paratuberculosis* in pre and post-pasteurized waste milk delivered to California calf ranches. *Foodborne Pathogens and Disease*, 5(5), 681–686. doi:10.1089/fpd.2008.0082
- Jaravata, C. V., Smith, W. S., Rensen, G. R., Ruzante, J. M. & Cullor, J. S., (2007). Survey of ground beef for the detection of *Mycobacterium avium* subsp. *paratuberculosis*. *Foodborne Pathogens and Disease*, 4(1), 103–106.
- Ruzante, J. M., Smith, W. L., Gardner, I. A., Thornton, C. G. & Cullor, J. S. (2006). Modified culture protocol for isolation of *Mycobacterium avium* subsp. *paratuberculosis* from raw milk. *Foodborne Pathogens and Disease*, 3(4), 457–460.
-

- Jaravata, C. V., Smith, W. L., Rensen, G. J., Ruzante, J. M. & Cullor, J. (2006). Detection of *Mycobacterium avium* subsp. *paratuberculosis* in bovine manure using Whatman FTA card technology and lightcycler real-time PCR. *Foodborne Pathogens and Disease*, 3(2), 212–215.
- Rensen, G. G., Smith, W. L., Ruzante, J. M., Sawyer, M., Osburn, B. & Cullor, J. (2005). Development and evaluation of a real-time fluorescent polymerase chain reaction assay for the detection of bovine contaminates in cattle feed. *Foodborne Pathogens and Disease*, 2(2), 152–159.
- Rodrigues, P. H. M., Ruzante, J. M., Senatore, A. L., Lima, F. R., Melotti, L. & Meyer, P. M. (2004). Evaluation of microbial inoculation on nutritional and fermentative quality of corn silage. *Revista Brasileira de Zootecnia*, 33(3), 538–545.

Presentations and Proceedings

- Lambertini, E., Kowalczyk, B., & Ruzante, J. M. (2017, December 12). *Assessing the impact of different microbiological criteria for Salmonella in raw poultry products*. Presented at the Society for Risk Analysis Annual Meeting, Arlington, VA.
- Ruzante, J. M., & Eskin, S. E. (2013). *Too slow: An analysis of the 2011 Salmonella ground turkey outbreak and recommendations for improving detection and response*. Poster presented at the Annual Meeting of the American Public Health Association, Boston, MA.
- Ravel, R., Davidson, V. J., Fazil, A., & Ruzante, J. M. (2010). *Divergence among Canadian experts on human illness food attribution*. Poster presented at International Conference on Emerging Infectious Diseases (ICEID), Atlanta, GA.
- Ruzante, J. M. (2010). *Building capacity in risk analysis and food safety through partnerships*. Presented at the Annual Meeting of the International Association of Food Protection, Anaheim, CA.
- Ruzante, J. M. (2010). *Overview of JIFSAN and food safety risk analysis*. Presented at the French National Institute for Agricultural Research (INRA), Paris, France.
- Ruzante, J. M. (2009) *FoodRisk.org: An online resource in risk analysis*. Presented at the Joint Symposium of the Interagency Risk Assessment Consortium (IRAC), the Society for Risk Analysis (SRA), the Center for Biologics Evaluation and Research (CBER), and the Joint Institute for Food Safety and Applied Nutrition (JIFSAN) titled New Tools, Methods, and Approaches for Risk Assessment, Baltimore, MD.
- Ruzante, J. M. (2009). *Overview of JIFSAN and food safety risk analysis*. Presented at Pan American Health Organization (PAHO) Agência Nacional de Vigilância Sanitária (ANVISA, National Health Surveillance Agency) training, Brasilia, Brazil.
- Ruzante, J. M. (2009). *The use of multi criteria decision analysis (MCDA) in food safety and public health*. Presented at Pan American Health Organization (PAHO) Agência Nacional de Vigilância Sanitária (ANVISA, National Health Surveillance Agency) training, Brasilia, Brazil.
- Ruzante, J. M. (2009). *Overview of Risk Analysis*. Presented at MARS Inc. Food Safety Symposium, Hackettstown, NJ.
- Ruzante, J. M. (2009). *Understanding foodborne disease outbreak*. Presented at MARS Inc. Food Safety Symposium, Hackettstown, NJ.
-

-
- Ruzante, J. M. (2009). *FoodRisk.org: An online resource in risk analysis*. Presented at a Food Safety and Inspection Service's lunch seminar, Washington, DC.
- Ruzante, J. M. (2009). *The use of multi criteria decision analysis (MCDA) in food safety and public health*. Presented at the Center for Food Safety and Applied Nutrition and U.S. Food and Drug Administration's Risk Analysis Seminar, Washington, DC.
- Ruzante, J. M. (2009). *Overview of risk analysis. Hot topics in risk analysis workshop*. Presented to the Asian Pacific Economic Cooperation (APEC), Singapore, Singapore.
- Ruzante, J. M. (2009). *The use of multi criteria decision analysis (MCDA) in food safety and public health*. Presented to the National Academies, Washington, DC.
- Ruzante, J. M. (2009). *FoodRisk.org: An online resource in risk analysis*. Presented to the Advisory Council of the Joint Institute for Food Safety and Applied Nutrition (JIFSAN), Washington, DC.
- Ruzante, J. M. (2009). *Overview of JIFSAN and food safety risk analysis*. Presented to the Food and Agriculture Organization of the United Nations (FAO), Rome, Italy.
- Ruzante, J. M. (2009). *FoodRisk.org: An online resource in risk analysis*. Presented at the MedVetNet Meeting, Berlin, Germany.
- Ruzante, J. M., Gendell, S., & McKillop, K. (2009). *FoodRisk.org: An online resource on food safety risk analysis*. Poster presented to the Society of Risk Analysis, Baltimore, MD.
- Fazil, A., Ruzante, J. M., Davidson, V. J., Cranfield, J., Henson, J., Caswell, J., et al. (2008). *A multi-factorial risk prioritization framework for food-borne pathogens*. Poster presented to the Society of Risk Analysis, Boston, MA.
- Ruzante, J. M., Davidson, V. J., Fazil, A., Cranfield, J., Henson, J., Caswell, J., et al. (2008). *A multi-factorial risk prioritization framework for foodborne pathogens*. Poster presented to the International Association of Food Protection, Columbus, OH.
- Ruzante, J. M. (2008). *FoodRisk.org: An online resource in risk analysis*. Presented at the Quarterly Meeting of the Interagency Risk Assessment Consortium, Washington, DC.
- Ruzante, J. M., Davidson, V. J., Fazil, A., Cranfield, J., Henson, J., Caswell, J., et al. (2007). *A multi-factorial risk prioritization framework for food-borne pathogens*. Poster presented at Guelph Food Safety Seminar, Guelph, Ontario, Canada.
- Ruzante, J. M. (2007). *Principles of detection and diagnosis*. Presented at 1-day training, Tulare, CA.
- Ruzante, J. M., Smith, W. L., Gardner, I. A., Thornton, C., & Cullor, J. S. (2005). *New culture protocol for isolation of Mycobacterium avium subsp. paratuberculosis in raw milk*. Poster presented at the 8th International Colloquium of Paratuberculosis, Copenhagen, Denmark.
- Ruzante, J. M., Smith, W. L., Jaravata, C., Gardner, I. A. & Cullor, J. S. (2005). *Application of a rapid extraction method with real-time PCR for the detection of Mycobacterium avium subsp. paratuberculosis in raw milk*. Poster presented at the 8th International Colloquium of Paratuberculosis, Copenhagen, Denmark.
-

- Ruzante, J. M., Fonseca, L. F. L., Oliveira, C. A. F., Rodrigues, P. H. M., & Pinto, D. M. (2000). *Concentration of hardness, alkalinity and nitrate in the water used for cleaning milk equipment in Brazilian dairy farms*. Poster presented at the X International Congress on Animal Hygiene, Maastricht, Holland.
- Ruzante, J. M., Fonseca, L. F. L., Oliveira, C. A. F., Rodrigues, P. H. M., & Pinto, D. M. (2000). *Isolation of Pseudomonas sp in water used for cleaning milk equipment in dairy farms in Brazil and its correlation with Pseudomonas sp isolation in milk*. Presented at X International Congress on Animal Hygiene, Maastricht, Holland.
- Fonseca, L. F. L., Ruzante, J. M., Oliveira, C. A. F., Rodrigues, P. H. M., & Pinto, D. M. (2000). *Coliform concentration in water used for cleaning milk equipment in dairy farms in Brazil and its correlation with milk quality*. Poster presented to the Pacific Congress on Milk Quality and Mastitis Control, Nagano, Japan.

Technical Reports

- Ruzante, J. M., Kowalczyk, B., & Redmon, J. (2016). *FAO guide to ranking food safety risks at the national level*. Food and Agricultural Organization (FAO).
- The Pew Charitable Trusts. (2013). *Too slow: An analysis of the 2011 Salmonella ground turkey outbreak and recommendations for improving detection and response*. Prepared for The Pew Charitable Trusts (Ruzante, J. M. was one of the contributors). Available at http://www.pewtrusts.org/~media/legacy/uploadedfiles/phg/content_level_pages/reports/13003GroundTurkeyP15awebpdf.pdf
- The Pew Charitable Trusts. (2013). *Weakness in FSIS's Salmonella regulation*. Prepared for The Pew Charitable Trusts (Ruzante, J. M. was one of the contributors). Available at http://www.pewtrusts.org/~media/legacy/uploadedfiles/phg/content_level_pages/reports/FSISChickenOutbreakReportv6pdf.pdf
- Ruzante, J. M., & Yoe, C. (2010). *JIFSAN overview of risk analysis*. Prepared for The Joint Institute for Food Safety and Applied Nutrition.
- Ruzante, J. M., & Gillespie, J. R. (2006). *Principles of detection and diagnosis—strategies and technologies*. Prepared for The Western Institute for Food Safety and Security.
- Ruzante, J. M. (2005). *WIFSS agroterrorism training material for farm workers awareness*. Prepared for The Western Institute for Food Safety and Security.
- Ruzante, J. M. (2000). *Guidelines for water quality for dairy farms. Alfa-laval manual*. Prepared for Alfa-laval.
-