



Exponent®
Engineering & Scientific Consulting

Kara Franke, MPH

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Professional Profile

Kara Franke, MPH, is a Managing Scientist at Exponent with 20 years of experience in human health risk assessment. She brings expertise in epidemiology, exposure science, and risk assessment to complex questions involving chemical exposure and health outcomes.

Ms. Franke specializes in synthesizing multiple evidence streams, including epidemiological, exposure, and toxicological data. Her work includes systematic literature reviews, landscape analyses, historical exposure reconstruction, epidemiological and toxicological data analyses, study quality and reliability assessments, database development, data visualization, and scientific communication. She has expertise in performing systematic literature reviews in accordance with established frameworks, including problem formulation, protocol development, literature search and review, and study appraisal, and she routinely develops databases and data visualizations to communicate findings.

Ms. Franke has supported clients spanning multiple sectors including manufacturing, consumer products, food and beverage, industrial chemicals, and government. Her work has addressed regulatory compliance, disease causation, and hazard and exposure evaluations for substances such as asbestos, talc, benzene, ethylene oxide, dioxins, and micro- and nano-plastics. Her peer-reviewed publications include work on 1,3-butadiene, asbestos, caffeine, cannabidiol, and monosodium glutamate; she also presents regularly at scientific conferences.

Before joining Exponent, Ms. Franke was an Associate Director/Supervising Scientist with ToxStrategies LLC. Her background also includes occupational safety, training, and compliance. She earned an MPH in Occupational and Environmental Epidemiology from the University of Michigan School of Public Health and a BS in Biology from the University of Wisconsin.

Academic Credentials & Professional Honors

M.P.H., Occupational and Environmental Epidemiology, University of Michigan, 2006

B.S., Biology, University of Wisconsin, Madison, 2004

Prior Experience

Associate Director/Supervising Scientist, ToxStrategies, Asheville, NC, 2025-2026

Associate Director/Senior Scientist, ToxStrategies, Asheville, NC, 2024-2025

Senior Scientist, ToxStrategies, Asheville, NC, 2022-2024

Scientist, ToxStrategies, Asheville, NC, 2018-2022

Research Project Associate, Mountain Area Health Education Center, 2017-2018

Director of Occupational Safety and Training, Warren Wilson College, 2013-2017

Environmental Health Associate, University of Colorado Denver, 2012-2013

Health Scientist, ChemRisk, Boulder, CO, 2006-2012

Publications

Klaren WD, Rivera BN, Sheppard AM, Franke K, Wikoff DS. [Approach for systematically assessing study reliability and relevance in evaluations of monosodium glutamate safety](#). Curr Res Toxicol. 2025; 9:100256.

Panko J, Mittal L, Franke K, Maberti S, Zollers S, Millison K, Youssef N, Erraguntla N. [Industry-wide review of potential worker exposure to 1, 3-butadiene during chemical manufacturing and processing as a reactant](#). Journal of Occupational and Environmental Hygiene. 2024;21(1):13–23.

Henderson RG, Franke KS, Payne LE, Franzen A. [Cannabidiol safety data: a systematic mapping study](#). Cannabis Cannabinoid Res 2023; 8(1):34–40.

Russell A, Fromewick J, Macdonald B, Kimmel S, Franke K, Leach K, Foley K. [Drivers of scope of practice in family medicine: a conceptual model](#). Ann Fam Med 2021; 19(3):217–223.

Wikoff DS, Bennett DC, Brorby GP, Franke KS. [Evaluation of potential human health risk associated with consumption of edible products from livestock fed ration supplemented with Red Lake Diatomaceous Earth](#). Food Addit Contam Part A 2020.

Doepker C, Franke K, Myers E, Goldberger JJ, Lieberman HR, O'Brien C, Peck J, Tenenbein M, Weaver C, Wikoff D. [Key findings and implications of a recent systematic review of the potential adverse effects of caffeine consumption in healthy adults, pregnant women, adolescents, and children](#). Nutrients 2018; 10:1536.

Franke K, Paustenbach D. [Government and Navy knowledge regarding health hazards of asbestos: a state of the science evaluation \(1900 to 1970\)](#). Inhal Toxicol 2011; 23(S3):1–20.

Presentations

Franke K, Panko J, Hidding B, DeLee M, Davis CW, Norman J. Development of a database for identification, hazard assessment and risk assessment support for plastic additives in commerce. Poster for Society for Environmental Toxicology and Chemistry, 46th Annual Meeting, Portland, Oregon.

Franke K, Bare J, Torres C, Kramer A, Zou Y, Redman A, Cancelli A, Kim D, Panko J. Consistent and complete reporting of analytical methodology in micro- and nanoplastics in biota research improves confidence in and utility of data. Poster for Society for Environmental Toxicology and Chemistry, 46th Annual Meeting, Portland, Oregon, 2025.

Franke K, Vincent M, Rogers S, Rivera B, Wikoff D. Assessment of non-occupational exposures to cleaning products and the incidence of asthma and respiratory disease. Poster for Society of Toxicology, 63rd Annual Meeting, Salt Lake City, UT, 2024.

Henderson RG, Franzen A, Franke K, Payne L, Schmitt D, Wikoff D. Creating a literature database for cannabidiol (CBD): Systematic evidence mapping. Poster for Society of Toxicology, Virtual Annual Meeting, 2020.

Borghoff S, Fitch S, Britt J, Franke K, Wikoff D. Application of the EFSA/ECHA endocrine disruption guidance as a framework for evidence integration in a weight-of-evidence (WoE) analysis for oxybenzone (BP-3). Poster at Evidence Integration in Chemical Assessments: Challenges Faced in Developing and Communicating Human Health Effect Conclusions. National Academies of Sciences, Engineering, and Medicine, Washington, DC, 2019.

Schactman J, Franke K, Fromewick J. The elephant in the room: Substance use curriculum in family medicine residency. Presented at the Society of Teachers of Family Medicine Conference, Washington, DC, 2018.

Franke K. Stir it up: collaborating on composting safety. 64th Annual Conference of the Campus Safety Health and Environmental Management Association, Tucson, Arizona, 2017.

Franke K. Approachable sustainability ideas from a green college. Presented at the Regional Conference of the Campus Safety Health and Environmental Management Association, Raleigh, North Carolina, 2015.

Bartlett J, Franke K. Don't run with scissors: collaborative shop safety. Presented at the 61st Annual Conference of the Campus Safety Health and Environmental Management Association, Palm Springs, California, 2014.

Franke K, Aguilera C. Utilizing new tools to engage, educate, and protect. Presented at the 60th Annual Conference of the Campus Safety Health and Environmental Management Association, Orlando, Florida, 2013.

Franke K, Paustenbach D. Government and Navy knowledge and occupational health programs regarding asbestos (1900 to 1970). Presented at the 21st Annual International Society of Exposure Science Conference, Baltimore, Maryland, 2011.

Phelka AD, Franke K, Welch A. An assessment of the potential health hazards associated with exposures to chrysotile asbestos in drywall accessory products. Presented at the 48th Annual Meeting of the Society of Toxicology, Baltimore, Maryland, 2009.

Franke K, Sahmel J. Characterization of available data on injuries and fatalities associated with all-terrain vehicle use in occupational and recreational settings. Presented at the 4th National Occupational Injury Research Symposium #P29, Pittsburgh, Pennsylvania, 2008.

Project Experience

Risk Assessment

- Collaborated on a public-facing, user-friendly Plastic Additives Database for uses, hazards, and risk assessments focused on chemicals known to be used as plastic additives in global commerce using supplemental sources such as US EPA CompTox Chemicals Dashboard, Chemical Abstracts Service (CAS), collaboration with SpecialChem, and a survey of additive manufacturers and producers. The database contains the identification, use, and function of plastic additives; physical chemical properties; hazard classifications; and lists of existing chemical management laws regulating specific additives. The database includes an overview page for each substance with quick reference data visualizations.
- Developed and performed an AI-assisted literature review of thousands of publications on micro- and nano-plastics with the potential to inform environmental and human health risk assessment. A web-based database was developed to assist researchers in searching for peer-reviewed

papers by particle size, area of risk assessment, plastic type, exposure media, and toxicity evidence and outcomes.

- Evaluated transparency in analytical methodology reporting in recent peer-reviewed publications that identified or quantified MNP in biota using atomic force microscopy (AFM), inductively coupled plasma (ICP), pyrolysis-gas chromatography-mass spectrometry (py-GC-MS), Fourier transform infrared spectroscopy (FTIR), Raman, or surface spectroscopy/scanning electron microscopy (SEM).
- Reviewed and extracted dose-response and reference-dose data from publications to update a database of relative potency estimates (REPs) for congeners of TCDD and PCB.
- Utilized proprietary systematic review software to screen and extract data in peer-reviewed publications measuring endpoints associated with endocrine disruption activity, to assess potential risk associated with exposure via consumer products.

Epidemiology

- Developed and executed literature search strategies to identify epidemiological peer-reviewed publications on populations or individuals exposed to chemicals and non-chemical stressors.
- Conducted an extensive review of epidemiological literature reporting relative risks of various cancer endpoints among workers exposed to chromium.
- Reviewed and summarized epidemiological literature on relative risks of esophageal cancer, lung cancer, mesothelioma, and asbestosis among drywall workers and plasterers.
- Evaluated the risk of asbestos-related diseases among various craftsmen, including insulators, pipefitters and plumbers, boilermakers, carpenters, electricians, laborers, millwrights, sheet-metal workers, welders, and painters. Reviewed scientific publications reporting relative risks of lung cancer and mesothelioma among these crafts and conducted a meta-analysis.
- Researched the frequency and severity of injuries and fatalities associated with all-terrain vehicle use in occupational and recreational settings, using data from the Bureau of Labor Statistics and the Consumer Products Safety Commission.
- Summarized current and historical literature relating to birth defects among children of female workers in semiconductor manufacturing facilities, and the relation to congenital cytomegalovirus infection.
- Evaluated available epidemiological evidence on associations between birth defects and chemical exposures in semiconductor manufacturing facilities, and between birth defects and congenital cytomegalovirus infection.

Industrial Hygiene

- Conducted floor wipe sampling in a semiconductor fabrication plant cleanroom in support of a lead exposure assessment.
- Collected full-shift and short-term samples during processing of pet food (weighing of dry ingredients, dispensing and weighing of liquid ingredients, transfer of flavor compound to mixing vat, and mixing) to support evaluation of worker exposure to chemical constituents.
- Performed qualitative respirator fit testing using NIOSH methods to ensure compliance with OSHA regulations for respirator use.

- Assisted in indoor air quality investigations using various air-sampling devices, including passive badges and gas monitors, along with surface-dust sampling.

Occupational Health

- Ensured compliance with federal and local laws and regulations regarding workplace safety, hazardous waste management, and hazard communication at a medical research facility and a small, liberal arts college.
- Streamlined the work-injury reporting process with electronic forms and community outreach, resulting in more efficient Workers Compensation coverage coordination.
- Improved and modernized safety training sessions and digital training resources, including videos, presentations, and infographics, realizing cost savings for the college on digital training subscriptions from outside vendors.
- Developed and delivered training on topics such as Annual OSHA training, ladder safety, chemical safety and storage, environmental hazards, and bloodborne pathogens. Guest-lectured in a college-level business class on occupational safety and risk management.
- Contributed to an assessment of vinyl chloride in consumer products. Evaluated case materials for information on frequency of use of hair spray, ventilation in hair salons, and types of products used.

Population Health Research

- Managed a database using SPSS tracking health-care utilization and outcomes among prenatal patients with substance-use disorders. Collected data from Electronic Health Records on demographics, exposure levels and substances, confounding diagnoses and pharmaceuticals, health-care utilization markers, and birth outcomes.
- Developed a survey to measure the effectiveness of a substance-use and treatment didactic. Merged pre- and post-treatment data and analyzed results using SAS. Using Excel, modified existing chart templates to create barbell charts to effectively display results for pre- and post-intervention.
- Interviewed office-based opioid treatment patients to evaluate the existing treatment protocol and identify quality improvement opportunities when prescribing opioid-replacement therapy drugs and providing concurrent primary care and mental health care.

Environmental Health

- Collected and evaluated data in published and unpublished literature related to historical ambient asbestos levels in urban and rural areas and buildings.
- Contributed to an assessment of community exposure to elemental mercury following an industrial mercury spill.
- Evaluated data on respiratory disease and residence in a cohort in Durban, South Africa; analyzed the relationship between living in an industrial area and the occurrence of chronic obstructive pulmonary disease, asthma, and other respiratory diseases.
- Conducted field research in Hardee County, Florida, after the 2006 hurricane season, using personal interviews and media research to examine health and social impacts on displaced female migrant workers and their families.