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Engineering & Scientific Consulting

Alesia Jung, Ph.D.

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Professional Profile

Dr. Jung is an epidemiologist with expertise in occupational health, exposure assessment, environmental toxicology, cancer, epigenetics, and reproductive health research. Her research experience includes developing and managing large and small-scale occupational health and safety epidemiological studies, survey development, data handling and analysis of cohort studies and surveillance data including QA/QC, advanced regression modelling, analysis of mortality and cancer registry data, and manuscript and report preparation. She also is well versed in research proposal development, literature reviews, and scientific communication (e.g., abstracts, presentations, reports, and manuscripts) to academic, industry, and general audiences. Previous areas of research and experience include health and safety in the fire service, traffic safety, tobacco cessation, reproductive health, sunscreen formulations, food safety and toxicology, and agricultural biotechnology. Currently, Dr. Jung is supporting large mortality cohort studies, literature reviews, manuscript preparation, and research to improve methods of assessing exposure to air pollution and resulting health outcomes.

Prior to joining Exponent, Dr. Jung earned her Ph.D. and M.S. in Epidemiology from the University of Arizona Mel and Enid Zuckerman College of Public Health, where she spent eight years working with the fire service on projects evaluating exposure assessment and reduction (PFAS, PAH-OHs, PBDEs), cancer risk, reproductive outcomes, wildland and WUI (wildland-urban-interface) exposures, and analyzing driving behaviors as part of vehicle risk assessment. She also completed a B.S. in Environmental Toxicology from the University of California, Davis, where she participated in research pertaining to microbial spoilage. Previously, Dr. Jung worked as a US NIEHS (National Institute of Environmental Health Sciences) T32 Postdoctoral Fellow at the University of Arizona R. Ken Coit College of Pharmacy where she conducted epigenomic analyses using state-of-the-art approaches to investigate epigenetic changes as biomarkers of occupational exposure among firefighters.

Additionally, Dr. Jung has worked in the agricultural biotechnology field, performing quality assurance testing, and using molecular biology skills to develop whole plant screening assays, sampling and analysis, and formulation characterization. Dr. Jung has also published over 25 manuscripts in journals such as Occupational and Environmental Medicine, American Journal of Industrial Medicine, Journal of Occupational and Environmental Medicine, Epigenetic Insights, Epigenomics, and Journal of Exposure Science and Environmental Epidemiology. She has been an invited speaker at several events including academic conferences, industry seminars, and fire health and safety seminars and events.

Academic Credentials & Professional Honors

Ph.D., Epidemiology, University of Arizona, 2021

M.S., Epidemiology, University of Arizona, 2016

B.S., Environmental Toxicology, University of California, Davis, 2011

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NIEHS Ruth L. Kirschstein National Research Service Award (NRSA) (T32), University of Arizona, 2021 and 2022

Regents Scholar, University of California, Davis, 2007-2011

Prior Experience

NIEHS T32 Postdoctoral Fellow, University of Arizona, 2021-2022

Program Coordinator, University of Arizona, 2015-2021

Research Associate, Aerotek Scientific, 2012-2013

Biologist I, Aerotek Scientific, 2011-2012

Professional Affiliations

Society for Epidemiological Research (SER), Member

· Membership and Nominations Committee, Member

American Public Health Association (APHA), Member

· Epidemiology Section

· Occupational Health and Safety Section

Publications

Goodrich JM, Furlong MA, Urwin DJ, et al. Epigenetic Modifications Associated with Wildland-Urban Interface (WUI) Firefighting. Environmental Molecular Mutagenesis 2025; 66(1-2):22-33. doi: 10.1002/em.70002. Epub 2025 Feb 19.

Jung AM, Furlong MA, Goodrich JM, et al. Associations Between Epigenetic Age Acceleration and microRNA Expression Among U.S. Firefighters. Epigenetic Insights 2023; 16:25168657231206301.

Jung AM, Beitel SC, Gutenkunst SL, et al. Excretion of polybrominated diphenyl ethers and AhR activation in breastmilk among firefighters. Toxicological Sciences 2023; 192(2):223-32. doi: 10.1093/toxsci/kfad017.

Nwanaji-Enwerem JC, Cardenas A, Goodrich JM, et al. Occupational Years of Service and Leukocyte Epigenetic Aging: Relationships in United States Firefighters. Journal of Occupational and Environmental Medicine 2023; 65(5):e312-e318. doi: 10.1097/JOM.0000000000002817.

Jung AM, Jahnke SA, Dennis LK, et al. Firefighter occupational factors and the risk of preterm birth: Results from a survey of women firefighters in the United States. Occupational and Environmental Medicine 2023; 80(2):77-85.

Burgess JL, Fisher JM, Nematollahi A, et al. Serum per- and polyfluoroalkyl substance concentrations in four municipal US fire departments. American Journal of Industrial Medicine 2022;10.

Davidson S, Jahnke SA, Jung AM, et al. Anti-müllerian hormone levels among female firefighters. International Journal of Environmental Research and Public Health 2022; 19(10):5981.

Goodrich JM, Jung AM, Furlong MA, et al. Repeat measures of DNA methylation in an inception cohort of firefighters. Occupational and Environmental Medicine 2022; 79:656-663.

Goodrich JM, Furlong MA, Caban-Martinez AJ, et al. Differential DNA methylation by Hispanic ethnicity among firefighters in the United States. Epigenetic Insights 2021; 14:25.

Jung AM, Jahnke SA, Dennis LK, et al. Occupational factors and miscarriages in the US fire service: A cross-sectional analysis of women firefighters. Environmental Health 2021; 20(1):116.

Goodrich JM, Calkins MM, Caban-Martinez AJ, et al. Per- and polyfluoroalkyl substances, epigenetic age and DNA methylation: A cross-sectional study of firefighters. Epigenomics 2021; 13(20):1619-1636.

Dennis LK, Jung AM, Reynolds KA, et al. Stability of chemical UV filters in sunscreens exposed to vehicle cabin temperatures. American Journal of Dermatological Research and Reviews 2021; 4(46):1-12.

Jung AM, Missmer SA, Cramer DW, et al. Self-reported infertility diagnoses and treatment history approximately 20 years after fertility treatment initiation. Fertility Research Practice 2021; 7(1):2054-7099.

Hoppe-Jones C, Griffin S, Gulotta J, et al. Evaluation of fireground exposures using urinary PAH metabolites. Journal of Occupational and Environmental Medicine 2021; 31(5):913-922.

Jung AM, Zhou J, Beitel SC, et al. Longitudinal evaluation of whole blood miRNA expression in firefighters. Journal of Exposure Science & Environmental Epidemiology 2021; 31:900-912.

Allen AM, Jung AM, Alexander AC, et al. Cannabis use and stressful life events during the perinatal period: Cross-sectional results from Pregnancy Risk Assessment Monitoring System (PRAMS) data, 2016. Addiction 2020; 115(9):1707-1716.

Burgess JL, Hoppe-Jones C, Griffin S, et al. Evaluation of interventions to reduce firefighter exposures. Journal of Occupational and Environmental Medicine 2020; 62(4):279-288.

Bui DP, Griffin SC, French DD, et al. The use of proactive risk management to reduce emergency service vehicle crashes among firefighters. Journal of Safety Research 2019; 71:103-109.

Zhou JJ, Jenkins TG, Jung AM, et al. DNA methylation among firefighters. PLoS One 2019; 14(3):e0214282.

Bui DP, Hu C, Jung AM, et al. Driving behaviors associated with emergency service vehicle crashes in the U.S. fire service. Traffic Injury Prevention 2018; 19(8):849–855.

Allen AM, Jung AM, Lemieux AM, et al. Stressful life events are associated with perinatal cigarette smoking. Preventive Medicine 2019; 118:264-271.

Jung AM, Dennis LK, Jacobs ET, and Wondrak GT. Sun sensitivity and sun protective behaviors during sun exposure among indoor office workers in the American Midwest. Photodermatology, Photoimmunology and Photomedicine 2018; 34(6): 393–399.

Bui DP, Balland S, Giblin C, et al. Interventions and controls to prevent emergency service vehicle incidents: A mixed methods review. Accident Analysis & Prevention 2018; 115:189-201.

Bui DP, Pollack Porter K, Griffin SC, et al. Risk management of emergency service vehicle crashes in the United States fire service: Process, outputs, and recommendations. BMC Public Health 2017; 17(1):885.

Jung AM, Schweers N, Bell ML, et al. Tobacco use cessation among quitline callers who implemented complete home smoking bans during the quitting process. Preventing Chronic Disease 2017; 14:170139.

Golomb BL, Morales V, Jung A, et al. Effects of pectinolytic yeast on the microbial composition and spoilage of olive fermentations. Food Microbiology 2013; 33(1):97-106.

Presentations

Kerger B, Jung AM, Loccisano A, Odo N. US Trends in Mesothelioma Incidence (1975-2021): An Updated Age-Period-Cohort Analysis of Potential Occupational and Longevity Effects. Poster presentation, 2025 Society of Toxicology Annual Meeting, Orlando, FL, 2025.

Jung AM, Roubenoff EM, Hasan AM, et al. Statistical Methods to Assess Sparse Data at Low PM2.5 Concentrations. Poster presentation, 2024 SER Annual Meeting, Society for Epidemiologic Research, Austin, TX, 2024.

Jung AM. Assessment of Adverse Pregnancy Outcomes Among US Female Firefighters. Invited symposium presentation, The Future of Fire Safety: Exploring the Intersection of Wildfires and Human Health, 2023 Society of Toxicology Annual Meeting, Nashville, TN, 2023.

Jung AM and Hollerbach B. Reproductive Health and Child Outcomes. Invited presentation, Science Alliance Grand Rounds, Science to the Station: A Health and Wellness Alliance, 2022.

Jung AM and Hollerbach, B. Reproductive Health and Child Outcomes. Invited presentation, Science Alliance Grand Rounds, Science to the Station: A Health and Wellness Alliance, 2022.

Jung AM. Female Firefighters and Reproductive Health: What We Know and Where We Are Going. Invited presentation, Wildland Firefighter Health: Current Knowledge for Body, Mind, and Well-Being, Northern Rockies Fire Science Network, 2022.

Jung AM, Beitel SC, Gutenkunst SL, et al. Excretion of Polybrominated Diphenyl Ethers and AhR Activation in Firefighter Breastmilk. Platform Presentation, 2022 SOT Annual Meeting, Society of Toxicology, San Diego, CA, 2022.

Jung AM. Studies of Women and Cancer in the Fire Service. Invited presentation, Provident Insurance Webinar Series, 2021.

Jung AM. Women Firefighters and Risk of Miscarriage: Preliminary Results from a National Survey. Presentation, State of Science: Research on Women in the Fire Service, Women in Fire, 2020.

Jung AM. Women Firefighters and Risk of Miscarriage: Preliminary Results from a National Survey. Presentation, Department of Epidemiology Seminar, University of Arizona, Tucson, AZ, 2020.

Jung AM, Missmer SA, Cramer DW, et al. Women's Self-Reported Infertility Diagnoses and Treatment History Approximately 20 Years After Fertility Treatment Initiation. Poster Presentation, 2019 SER Annual Meeting, Society of Epidemiologic Research, Minneapolis, MN, 2019.

Jung AM, Bautista JR, Zhou JJ, et al. Monitoring Firefighters for Longitudinal Occupational Exposures Using Epigenetic Markers. Poster Presentation, 2019 State of the Science National Firefighter Cancer Symposium, University of Miami, Miami, FL, 2019.

Jung AM, Bautista JR, Zhou JJ, et al. Monitoring First Responders for Health Effects Using Epigenetic Markers. Flash Talk and Poster Presentation, Disaster Research Response Training Workshop, University of Arizona Cancer, Tucson, AZ, 2019.

Jung AM, Schweers N, Bell ML, et al. Predictors of Tobacco Cessation Among Quitline Callers who Implement Home Smoking Bans. Poster Presentation, 2017 Public Health Research Poster Forum, Mel and Enid Zuckerman College of Public Health, University of Arizona, Tucson, AZ, 2017.

Jung AM. Sun Sensitivity and Sun Protective Behaviors During Sun Exposure in Indoor Office Workers in the Midwestern United States. Presentation, Department of Epidemiology Seminar, University of Arizona, Tucson, AZ, 2016.

Jung AM. Titratable Acidity and Bacterial Composition of Sicilian-Style Green Olive Fermentations. Poster Presentation, 22nd Annual Undergraduate Research, Scholarship and Creative Activities Conference, University of California, Davis, CA, 2011.

Project Experience

Supporting the development and management of multiple large occupational cohort mortality studies. Conducting statistical analyses to examine mortality trends and identify risk factors using methods such as Cox proportional hazards modeling and tools including the Occupational Cohort Mortality Analysis Program (OCMAP). Developed population-level cause-specific mortality rate files for standardization analyses. Producing publication-ready manuscripts and reports.

Performing data abstraction, cleaning, merging, and management of employment history and industrial hygiene data to support the development and utilization of a job-exposure-matrix.

Utilizing the Surveillance, Epidemiology, and End Results (SEER) program databases (comprising U.S. population-based cancer registries) and SEER*Stat software to examine trends in cancer incidence and mortality among various populations, as well as to perform age-period-cohort analyses of certain diseases, to better understand the time-varying elements in the epidemiology of specific diseases.

Provided review and analysis of epidemiological data to support responses to EPA risk assessment on ethylene oxide and risk of cancer.

Performed data management and QA/QC of injury surveillance data to develop a dataset capable of supporting future analyses and research inquiries.

Supporting research evaluating methods to improve assessment of air pollution exposures (e.g., particulate matter, ozone), including the use of personal air sensors.

Provided support for litigation projects regarding topics including mesothelioma, water intrusion, mold growth, PCBs, asbestos, and dioxane. Performed analyses of SEER databases. Aided in the review of scientific literature concerning human health effects, regulatory limits, reported exposures and abstracted data from MSDSs. Reviewed and summarized internal documents for reports.

Peer Reviews

Occupational and Environmental Medicine

BMC Public Health

International Journal of Environmental Research and Public Health

JMIR Research Protocols

Fire