

Rachel M. Shaffer, PhD, MPH

PROFESSIONAL EXPERIENCE

Epidemiologist

Oct 2022-Present

Science Assessment Methods Branch, Chemical and Pollutant Assessment Division
Center for Public Health and Environmental Assessment, Office of Research and Development
Environmental Protection Agency

- Lead multidisciplinary, multi-institution team in systematic review of lead exposure and antisocial behavior
- Ongoing contributions to IRIS assessments: PCBs, naphthalene, ethyl benzene, chromium, arsenic
- Working groups: Epidemiology (co-chair); Systematic Review, Vulnerability/Susceptibility

Affiliate Assistant Professor

July 2022-Present

Department of Environmental & Occupational Health Sciences
University of Washington-Seattle School of Public Health

- Provide guest lectures on risk assessment and related topics
- Participate in departmental environmental epidemiology working group

Toxicologist

Sept 2020-Oct 2022

Science Assessment Methods Branch, Chemical and Pollutant Assessment Division
Center for Public Health and Environmental Assessment, Office of Research and Development
Environmental Protection Agency

- Led multidisciplinary, multi-institution team in systematic review of lead exposure and antisocial behavior
- Led internal agency research on comparative susceptibility of children and adults to inhaled manganese
- Contributions to IRIS assessments: PCBs, naphthalene, ethyl benzene, chromium, arsenic
- Working groups: Epidemiology (co-chair); Systematic Review, Vulnerability/Susceptibility

Consultant

May 2019-Sept 2020

Health Program
Environmental Defense Fund; Washington, DC

- Developed written comments for EPA TSCA draft risk evaluations (1-bromopropane, methylene chloride, 1,4-dioxane, trichloroethylene)
- Focused on issues related to mode of action, cancer risk assessment, and dose-response modeling

Graduate Intern

March 2018-Jan 2020

Local Hazardous Waste Management Program
Public Health Seattle/King County; Seattle WA

- Conducted research and contributed to writing program reports about safer alternatives in dry-cleaning
- Supported dry cleaning safer alternatives program through survey development and site visits
- Reviewed and compared online hazard assessment tools for agency decision-making

Research Assistant

Sept 2012-June 2014

Health Program
Environmental Defense Fund; Washington, DC

- Developed and managed grant to support environmental health education outreach to Hispanic communities
- Provided research support on science policy issues (e.g. risk assessments, systematic review procedures)
- Investigated delays in EPA rulemaking, conflict of interest in government panels, and industry influence
- Developed summary documents for Congressional meetings on legislative reform
- Wrote articles for EDF Health blog on timely environmental health science and policy topics
- Organized 3-day multi-stakeholder workshop on emerging toxicity testing techniques

EDUCATION

Doctor of Philosophy (PhD), Environmental Toxicology July 2020
Dept. of Environmental and Occupational Health Sciences, University of Washington (UW) School of Public Health;
Seattle, WA
Dissertation: Fine Particulate Matter, Neuropathologies, and Dementia (Dr. Lianne Sheppard)

Master of Public Health (MPH), Environmental & Occupational Health June 2018
Dept. of Environmental and Occupational Health Sciences, UW School of Public Health; Seattle, WA.
Thesis: Maternal Urinary Phthalate Metabolites and Gestational Glucose Intolerance (Dr. Sheela Sathyanarayana)

Bachelor of Arts (BA), Environmental Studies (concentration: Environmental Health) May 2012
Yale University; New Haven, CT
Honors: Magna Cum Laude; Distinction in the Major; Cumulative GPA: 3.92
Thesis: Ozone Pollution and Health in Atlanta: The Implications of a Presidential Decision (Dr. John Wargo)

AWARDS & HONORS

- EPA Shooting Star Award: Taiwan Risk Assessment Training 2022
- Endowed Fellowship Award, UW School of Public Health 2017-2018; 2019-2020
- Schmidt Science Fellowship Nominee 2019
- Dorothy L. (Dottie) Simpson ARCS Foundation Leadership Award 2019
- Castner PhD Award, UW Dept. of Environmental and Occupational Health Sciences 2018
- Communicating Public Health Award, UW School of Public Health 2017
- Best Abstract (Graduate Student) Award, In Vitro and Alternative Methods Section, Society of Toxicology 2017
- Angelo Furgiele Young Investigator Technology Award, Reproductive and Developmental Toxicology Section, Society of Toxicology 2017
- Constituency Engagement Award, Environmental Defense Fund 2014
- Magna Cum Laude, Yale College 2012
- Gaylord Donnelley Prize for distinguished undergraduate senior thesis, Yale College 2012

SCIENCE COMMUNICATION ACTIVITIES & TRAININGS

Science Communication Fellowship Sept 2021-April 2022
Science Communication Network, Virtual

- Competitively selected for 9-month program to help early career PhD scientists maximize the impact of their work through the development of communication and leadership skills

Environmental Health Blog (<https://racheltalkstox.wordpress.com>) May 2015-Present

- Write articles on current environmental health and science policy topics

Science Writing Course with Dr. Judith Swan July 2021
Center for Public Health and Environmental Assessment (CPHEA), U.S. EPA, Virtual

- 5-day training focused on clear and effective science writing

Environmental Health Topic Editor April 2017-July 2019
Public Comment Project

- Monitored Federal Register for environmental health content and summarized opportunities for public engagement through newly developed online platform

Science Communication Fellow Jan 2016-Dec 2018
Pacific Science Center; Seattle, WA

- Training in science communication and public engagement through 6-week “Portal to the Public” workshops
- Developed interactive activity about chemical pollution in Puget Sound for public programs at science center

Compelling Science Storytelling: A Pacific Northwest Workshop for Science Communicators

April 2017

Northwest Science Writers Association (NSWA), Seattle, WA

- Volunteer & participant in workshop focused on innovative and compelling science communication methods

Communicating Science Conference

March 2015

ComSciCon-Triangle, Research Triangle Park, NC

- Competitively selected for 2-day workshop training graduate students in science communication methods

SERVICE

ISEE Student & New Researchers Network (SNRN) Steering Committee

March 2022-Present

International Society for Environmental Epidemiology

- Participate in bimonthly planning meetings on issues related to ISEE activities (including conference)
- Representative to the North American Committee (NAC) and the Ethics Awards committee

Early Career Researcher EHP Advisory Panel

Feb 2021-Present

Environmental Health Perspectives (EHP)

- Invited to be founding member of Advisory Panel that provides input on EHP direction and priorities
- Member of subgroups focusing on new review articles and twitter engagement

Peer Reviewer for Journals

2017-Present

- Environmental Health Perspectives
- Environment International
- American Journal of Public Health
- Environmental Science & Technology
- Journal of Exposure Science and Environmental Epidemiology
- Environmental Epidemiology
- BMC Public Health

EPA Environmental Justice (EJ) Grant Reviewer

July-Aug 2021

- Volunteer internal agency reviewer for EJ Collaborative Problem-Solving Awards (up to \$200,000 each)

Community Meeting Facilitator

June-Sept 2017

Beacon Hill -EPA Environmental Health Collaboration Project; Seattle, WA

- Facilitated community meetings about air and noise pollution in disproportionately affected neighborhoods as part of EPA Environmental Justice Collaborative Problem-Solving Grant

TEACHING

Guest Lectures

- **“Public Comments”**
 - Environmental and Occupational Health Policy (graduate), George Washington Milken Institute School of Public Health. Feb 2022.
- **“Risk Assessment in the Federal Government”**
 - U.S. Environmental Protection Agency (EPA) Risk Assessment Training Series. April 2022.
 - Environmental Policy & Practice (graduate/undergraduate), UW Seattle. Oct 2021
- **“Introduction to Epidemiology”**
 - Taiwan EPA Risk Assessment Training Series. July 2022.
 - U.S. Environmental Protection Agency (EPA) Risk Assessment Training Series. August 2021.
- **“Food Additives and Child Health”**
 - Environmental Health Policy (undergraduate), California State University-East Bay. March 2021
 - Food Systems: Harvest to Health (undergraduate), UW Seattle. Oct 2019

Risk Assessment in Environmental Health (UW Seattle Graduate-level course; Professor Elaine Faustman)

- Provided grading, logistical, and technical support
- Developed course content & conducted lectures on risk assessment, climate change, and health

PEER REVIEWED PUBLICATIONS

Nielsen GH, Heiger-Bernays WJ, Levy JI, White RF, Axelrad DA, Lam J, Chartres N, Abrahamsson DP, Rayasam SDG, **Shaffer RM**, Zeise L, Woodruff TJ, Ginsberg GL. (2023). Application of probabilistic methods to address variability and uncertainty in estimating risks for non-cancer health effects. *Environ Health* 21 (Suppl 1), 129.

<https://doi.org/10.1186/s12940-022-00918-z>

Woodruff TJ, Rayasam SDG, Axelrad DA, Koman PD, Chartres N, Bennett DH, Birnbaum LS, Brown P, Carignan CC, Cooper C, Cranor CF, Diamond ML, Franjevic S, Gartner EC, Hattis D, Hauser R, Heiger-Bernays WJ, Joglekar R, Lam J, Levy JI, MacRoy PM, Maffini MV, Marquez EC, Morello-Frosch R, Nachman K, Nielsen GH, Oksas C, Abrahamsson DP, Patisaul HB, Patton S, Robinson JF, Rodgers KM, Rossi MS, Rudel RA, Sass JB, Sathyanarayana S, Schettler T, **Shaffer RM**, Shamasunder B, Shepard PM, Shrader-Frechette K, Solomon GM, Subra WA, Vandenberg LN, Varshavsky JR, White RF, Zarker K, Zeise L. (2023). A science-based agenda for health-protective chemical assessments and decisions: overview and consensus statement. *Environ Health* 21 (Suppl 1), 132.

<https://doi.org/10.1186/s12940-022-00930-3>

Carlson LM, Christensen K, Sagiv SK, Rajan P, Klocke C, Lein PJ, Coffman E, **Shaffer RM**, Yost EE, Arzuaga X, Factor-Litvak P, Sergeev A, Toborek M, Bloom MS, Trgovcich J, Jusko TA, Robertson L, Meeker J, Keating AF, Blain R, Silva R, Snow S, Lin C, Shipkowski K, Ingle B, Lehmann, GM. (2022). A systematic evidence map for the evaluation of noncancer health effects and exposures to polychlorinated biphenyl mixtures. *Environmental Research*, 115148. <https://doi.org/10.1016/j.envres.2022.115148>

Thayer KA, Angrish M, Arzuaga X, Carlson LM, Davis A, Dishaw L, Druwe I, Gibbons C, Glenn B, Jones R, Kaiser JP, Keshava C, Keshava N, Kraft A, Lizarraga L, Persad A, Radke EG, Rice G, Schulz B, **Shaffer RM**, Shannon T, Shapiro A, Thacker S, Vulimiri S, Williams AJ, Woodall G, Yost E, Blain R, Duke K, Goldstein AE, Hartman P, Hobbie K, Ingle B, Lemeris C, Lin C, Lindahl A, McKinley K, Soleymani P, Vetter, N. (2022). Systematic evidence map (SEM) template: Report format and methods used for the US EPA Integrated Risk Information System (IRIS) program, Provisional Peer Reviewed Toxicity Value (PPRTV) program, and other “fit for purpose” literature-based human health analyses. *Environment International*, 169, 107468. <https://doi.org/10.1016/j.envint.2022.107468>

Thayer KA, **Shaffer RM**, Angrish M, Arzuaga X, Carlson LM, Davis A, Dishaw L, Druwe I, Gibbons C, Glenn B, Jones R, Kaiser JP, Keshava C, Keshava N, Kraft A, Lizarraga L, Markey K, Persad A, Radke EG, Rice G, Schulz B, Shannon T, Shapiro A, Thacker S, Vulimiri S, Woodall G, Yost E. (2022). Use of systematic evidence maps within the US Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS) program: Advancements to date and looking ahead. *Environment International*, 107363. <https://doi.org/10.1016/j.envint.2022.107363>

Shaffer RM, Forsyth JE, Ferraro G, Till C, Carlson LM, Hester K, Haddock A, Strawbridge J, Lanfear CC, Hu H, Kirrane E. Lead Exposure and Antisocial Behavior: A Systematic Review Protocol (2022). *Environment International*. <https://doi.org/10.1016/j.envint.2022.107438>

Weitekamp CA, **Shaffer RM**, Chiang C, Lehmann GM, Christensen K. An evidence map of polychlorinated biphenyl exposure and health outcome studies among residents of the Akwesasne Mohawk Nation. (2022). *Chemosphere*, 306 (135454). <https://doi.org/10.1016/j.chemosphere.2022.135454>

McPartland J, **Shaffer RM**, Fox MA, Nachman KE, Burke TA, Denison RA. Charting a Path Forward: Assessing the science of chemical risk evaluations under the Toxic Substances Control Act in the context of recent National Academies recommendations Environmental Health Perspectives. (2022). *Environmental Health Perspectives*, 130(2). <https://doi.org/10.1289/EHP9649>

- Shaffer RM**, Blanco M, Li G, Adar SD, Carone M, Szpiro A, Kaufman JD, Larson T, Larson EB, Crane PK, Sheppard L. Long-Term Fine Particulate Matter and Dementia Incidence in the Adult Changes in Thought (ACT). (2021). *Environmental Health Perspectives*, 129(8). <https://doi.org/10.1289/EHP9018>
- Shaffer RM**. Environmental Health Risk Assessment in the Federal Government: A Visual Overview and a Renewed Call for Coordination. (2021). *Environmental Science & Technology*, 55(16). <https://doi.org/10.1021/acs.est.1c01955>
- Shaffer RM**, Li G, Adar SD, Keene CD, Latimer CS, Crane PK, Larson EB, Kaufman JD, Carone M, Sheppard L. Fine Particulate Matter and Markers of Alzheimer's Disease Neuropathology at Autopsy in a Community-Based Cohort. (2021). *Journal of Alzheimer's Disease*, 79(4), 1761-1773. <https://doi.org/10.3233/jad-201005>
- Ilango SD and **Shaffer RM**. Air Pollution, Cardiovascular Disease, and Dementia. (2020). *JAMA Neurology* 77(12), <https://doi.org/10.1001/jamaneurol.2020.4309>
- Shaffer RM**, Sellers SP, Baker MG, Kalman RB, Frostad J, Suter MK, Anenberg SC, Balbus J, Basu N, Bellinger DC, Birnbaum L, Brauer M, Cohen A, Ebi KL, Fuller R, Grandjean P, Hess JJ, Kogevinas M, Kumar P, Landrigan PJ, Lanphear B, London SJ, Rooney AA, Stanaway JD, Trasande L, Walker K, Hu H. Improving and Expanding Estimates of the Global Burden of Disease due to Environmental Health Risk Factors. (2019). *Environmental Health Perspectives*, 127(10), 105001. <https://doi.org/10.1289/EHP5496>
- Shaffer RM**, Sheppard L, Peskind ER, Zhang J, Adar SD, Li G. (2019). Fine particulate matter exposure and cerebrospinal fluid markers of vascular injury. *Journal of Alzheimer's Disease*, 71 (3), 1015-1025. <http://doi.org/10.3233/JAD-190563>
- Zhang L, Rana I, **Shaffer RM**, Taioli E, Sheppard L. (2019). Exposure to Glyphosate-Based Herbicides and Risk for Non-Hodgkin Lymphoma: A Meta-Analysis and Supporting Evidence. *Mutation Research/Reviews in Mutation Research* 781, 186-206. <https://doi.org/10.1016/j.mrrev.2019.02.001>
- Shaffer RM**, Ferguson KK, Sheppard L, James-Todd T, Butts S, Chandrasekaran S, Swan SH, Barrett ES, Nguyen R, Bush N, McElrath TF, Sathyanarayana S, and the TIDES Study team. (2019). Maternal urinary phthalate metabolites in relation to gestational diabetes and glucose intolerance during pregnancy. *Environment International*, 123, 588-596. PMC6347428. <http://doi.org/10.1016/j.envint.2018.12.021>
- Gillezeau G, van Gerwen M, **Shaffer RM**, Rana I, Zhang L, Sheppard L, Taioli E. (2019). The evidence of human exposure to glyphosate: a review. *Environmental Health*, 18 (1), 2. PMC6322310. <http://doi.org/10.1186/s12940-018-0435-5>
- Sheppard L and **Shaffer RM**. (2018). Re: Glyphosate Use and Cancer Incidence in the Agricultural Health Study. *Journal of the National Cancer Institute*. 111 (2), 214-215. <https://doi.org/10.1093/jnci/djy200>
- Trasande L, **Shaffer RM**, Sathyanarayana S. (2018). Food Additives and Child Health: Technical Report. *Pediatrics*. 142 (2), e20181410. PMC6298598. <https://doi.org/10.1542/peds.2018-1410>
- Trasande L, **Shaffer RM**, Sathyanarayana S. (2018). Food Additives and Child Health: Policy Statement. *Pediatrics*, 142 (2), e20181408. PMC6309890. <https://doi.org/10.1542/peds.2018-1408>
- Shaffer RM** and Gilbert SG. (2018). Reducing occupational lead exposures: Strengthened standards for a healthy workforce. *Neurotoxicology*, 69, 181-186. PMC5940579. <https://doi.org/10.1016/j.neuro.2017.10.009>

Shaffer RM, Smith MN, Faustman EM. (2017). Developing the Regulatory Utility of the Exposome: Mapping Exposures for Risk Assessment through Lifestage Exposome Snapshots (LEnS). *Environmental Health Perspectives*, 125 (8), 085003. PMC5783662. <https://doi.org/10.1289/EHP1250>

Chang SY, Voellinger JL, Van Ness KP, Chapron B, **Shaffer RM**, Neumann T, White CC, Kavanagh TJ, Kelly ED, Eaton D. (2017). Characterization of Rat or Human Hepatocytes Cultured in Microphysiological Systems (MPS) to Identify Hepatotoxicity. *Toxicology In Vitro* 40, 170-183. <https://doi.org/10.1016/j.tiv.2017.01.007>

Jarema KA, Hunter DL, **Shaffer RM**, Behl M, Padilla S. (2015). Acute and developmental behavioral effects of flame retardants and related chemicals in zebrafish. *Neurotoxicology and Teratology*, 52, 194-209. PMC476876. <https://doi.org/10.1016/j.ntt.2015.08.010>

BOOK CHAPTERS

Eaton DL and **Shaffer RM**. (2021). Basic Toxicology and Mode of Action of Toxic Substances. In: Boulton ML and Wallace RB, editors. *Maxcy-Rosenau-Last Public Health & Preventive Medicine*, 16e. Available at: <https://accessmedicine.mhmedical.com/content.aspx?bookid=3078§ionid=256861598>

REPORTS, ASSESSMENTS, & OTHER GOVERNMENT DOCUMENTS

U.S. EPA. ORD Staff Handbook for Developing IRIS Assessments (2022). U.S. EPA Office of Research and Development, Washington, DC, EPA/600/R-22/268, 2022.

Whittaker SG and **Shaffer RM**. Hazard Evaluation of Products used in Fabric Cleaning. Hazardous Waste Management Program, King County Washington. December 2019. Available at: <https://lhwmp.wordpress.com/research/>

Whittaker SG and **Shaffer RM**. Dry cleaning with high-flashpoint hydrocarbon solvents. Local Hazardous Waste Management Program, King County Washington. December 2018. Available at: https://www.hazwastehelp.org/health/documents/Final_Hydrocarbon.pdf

Wasserman C, Ossiander E, VanEenwyk J, Jenks L, Cheteri MK, Busch Isaksen TM, **Shaffer RM**, Petroff R, Kawakami V. Investigation of Reported Cancer among Soccer Players in Washington State. Washington State Department of Health. DOH Pub 210-091. January 2017. Available at: <https://www.doh.wa.gov/Portals/1/Documents/Pubs/210-091.pdf>

INVITED PRESENTATIONS & CONFERENCE SYMPOSIA

“Environmental Health Assessment in the United States and an Overview of EPA ORD PFAS work.” Epidemiology Seminar Series. Brown Department of Epidemiology. Providence, Rhode Island. October 2022.

“Environmental Health Assessment in the United States.” Symposium Presentation. International Society for Environmental Epidemiology (ISEE) Annual Conference. Athens, Greece. September 2022.

“An Overview of Risk Assessment in the Federal Government.” Department Seminar Series. University of Washington-Seattle Department of Environmental and Occupational Health Sciences. May 2022.

“Risk Assessment and Risk Communication.” Keynote Presentation. Pacific Northwest Section – American Industrial Hygiene Association Spring Symposium. April 2022.

“An Overview of Risk Assessment in the Federal Government.” Brown Bag Session. Michigan State Toxic Steering Group. March 2022.

“An Overview of Risk Assessment in the Federal Government.” Brown Bag Session. George Washington University Milken Institute School of Public Health. November 2021.

“Fine Particulate Matter and Dementia Incidence in the Adult Changes in Thought (ACT) Study.” Adult Changes in Thought (ACT) Annual Symposium. August 2021.

“Food Additives and Child Health.” Pediatric Environmental Health Specialty Unit (PEHSU) Grand Rounds. May 2021.

“Setting Global Priorities in Environment, Climate and Health Research: The Global Burden of Disease-Pollution and Health Initiative (GBD-PHI).” Symposium. International Society for Environmental Epidemiology Virtual Conference, August 2020.

POSTER PRESENTATIONS

Shaffer RM, Nachman RM, Fies WA, Lemeris C, Goldstone AE, Reinhart P, Dishaw L. Systematic Evidence Map of the Epidemiological Evidence for Health Effects of Ethylbenzene. International Society for Environmental Epidemiology (ISEE) Annual Conference. Athens, Greece. September 2022.

Shaffer RM, Christensen KY, Yost E, Carlson LM, Factor-Litvak P, Keating AF, Lehmann GM. An evidence mapping approach to support hazard identification for polychlorinated biphenyl (PCB) mixture exposure and female reproductive endpoints. International Society of Environmental Epidemiology (ISEE) Virtual Conference. August 2021.

Shaffer RM, Wright JM, Bateson TF. Comparative sensitivity of children and adults to neurological effects of inhaled manganese. International Society of Environmental Epidemiology (ISEE) Virtual Conference. August 2021.

Shaffer RM, Luben TJ, Wright JM. A Review of Exposure Assessment Methods Utilized in Studies of Disinfection Byproducts (DBPs) and Birth Defects. International Society of Environmental Epidemiology (ISEE) Virtual Conference. August 2021.

Carlson LM, Christensen K, **Shaffer RM**, Trgovcich J, Silva R, Lin C, Lehmann GM. Noncancer Health Effects from Exposure to PCB Mixtures. Society of Toxicology (SOT) Annual Meeting. Virtual. March 2021.

Shaffer RM, Blanco M, Li G, Adar SD, Carone M, Szpiro A, Kaufman JD, Larson T, Larson EB, Crane PK, Sheppard L. Long-Term Fine Particulate Matter and Dementia Incidence in the Adult Changes in Thought (ACT) Study. International Society of Environmental Epidemiology Virtual Conference. August 2020.

Shaffer RM, Sheppard L, Peskind ER, Zhang J, Adar SD, Li G. Fine particulate matter exposure and cerebrospinal fluid markers of vascular injury. International Society of Environmental Epidemiology (ISEE) Annual Meeting. Utrecht, The Netherlands, August 2019.

Gilbert SG and **Shaffer RM**. Strategies to Address Human Health Concerns of Lead-Based Ammunition. Washington State Public Health Association Annual Meeting. Wenatchee, WA, October 2018.

Shaffer RM, Ferguson KK, Sheppard L, James-Todd T, Butts S., Chandrasekaran S, Swan SH, Barrett ES, Nguyen R, Bush N, McElrath TF, Sathyanarayana S. Maternal Urinary Phthalates in Relation to Gestational Diabetes and Glucose Intolerance During Pregnancy. Joint Annual Meeting of the International Society of Exposure Science (ISES) and the International Society for Environmental Epidemiology (ISEE). Ottawa, Canada, August 2018.

Shaffer RM and Gilbert SG. Reducing Occupational Lead Exposures: Stronger Standards for a Healthy Workforce. Pacific Northwest Association of Toxicologists (PANWAT) Annual Meeting, Bothell, WA, October 2017

Klieforth B, Wetmore B, Faustman EM, **Shaffer RM**. Micro-Physiological System Models and the Frank R. Lautenberg Chemical Safety for the 21st Century Act. World Congress on Alternatives and Animals in the Life Sciences (WC10), Seattle WA, August 2017

Smith MN, **Shaffer RM**, Cohen Hubal E, Faustman EM. Using In Vitro Data to Compare Endocrine Disruption Potential in Hazardous Chemicals Currently Found in Children's Products and their Proposed Alternatives. World Congress on Alternatives and Animals in the Life Sciences (WC10), Seattle WA, August 2017

Shaffer RM, Wilder CS, Ryu C, Park SY, Hong S, White CC, Workman T, Griffith WC, Faustman EM. Lifestage-Specific Modeling Platform for Adverse Outcome Pathways of Male Reproductive and Developmental Processes. Society of Toxicology (SOT) Annual Meeting, Baltimore MD, March 2017

Shaffer RM and Gilbert SG. Occupational Lead Exposures: Child Health Implications of Outdated Standards. Society of Toxicology (SOT) Annual Meeting, Baltimore MD, March 2017

Shaffer RM, Wilder CS, Ryu C, Park SY, Hong S, White CC, Workman T, Griffith WC, Faustman EM. Lifestage-Specific Modeling Platform for Adverse Outcome Pathways of Male Reproductive and Developmental Processes. Pacific Northwest Association of Toxicologists (PANWAT) Annual Conference, Corvallis OR, September 2016

Shaffer RM, Jarema, KA, Hunter, DL, Padilla S. Acute Neurobehavioral Effects of Emerging Flame Retardant Replacement Compounds in Zebrafish Larvae. Duke Zebrafish Symposium, Duke University, Durham NC, April 2015

OTHER MATERIALS & MEDIA

Webinars

- [“Plastic Food Packaging: State of the Science on Chemical Constituents and Health Hazards.”](#) Collaborative on Health and the Environment. December 2018.
- [“Lifestage-Specific Modeling Platform for Adverse Outcome Pathways of Male Reproductive and Developmental Processes.”](#) Society of Toxicology In Vitro and Alternative Methods Specialty Section Webinar, May 2017

Radio

- [“One Planet: What are the health effects of harmful chemicals in our food?”](#) KALW Your Call Radio. Aug 2018.
- [“Sustainability Segment: Occupational Lead Exposure with Steve Gilbert and Rachel Shaffer.”](#) KEXP Mind Over Matters. Nov, 2016.

Published Editorials & Articles

- **Shaffer RM** and Shaffer M (March 23, 2020). [Science Saves Lives](#). *Environmental Health News*.
- **Shaffer RM**. (May 29, 2018). [Biking in dirty air](#). *Environmental Health News*.
- **Shaffer RM**. (May 22, 2018). [Is biking a Catch-22 situation?](#) *Crosscut*
- **Shaffer RM** and Gilbert S. (October 26, 2017). [Getting the lead out of our skies](#). *Environmental Health News*.
- Luhrs K, Perkins A, **Shaffer RM**, Sholund K, Siddiqi M, Wu R. (Feb 21, 2017). [State should pass parental leave](#). *The Olympian*.
- **Shaffer RM** and Gilbert S. (September 12, 2016). [Lead exposure beyond Flint – protecting our nation’s workers](#). *Environmental Health News*.
- **Shaffer RM** and Gilbert S. (July 31, 2016). [Outdated lead standards put Washington workers, families at risk](#). *The Seattle Times*.

WORKSHOPS & TRAININGS

U.S. Environmental Protection Agency Risk Assessment Training Series

Nov 2020- Present

U.S. EPA, Virtual

- Weekly trainings on key topics in hazard identification, dose-response, and risk-assessment

Environmental Health Perspectives (EHP) Strategic Planning Summit Feb 2021
EHP Journal, Virtual

- Selected to participate in 3-day planning summit to develop strategic priorities and goals for journal
- Proposed and led 3 breakout sessions, including facilitating standardized reporting for risk assessment

Dose-Response & Benchmark Dose Modeling Workshop Nov 2020
Center for Public Health and Environmental Assessment (CPHEA), U.S. EPA, Virtual

- 4-day internal Agency training

Physiologically based pharmacokinetic modeling (PBPK) Workshop Nov 2020
Center for Public Health and Environmental Assessment (CPHEA), U.S. EPA, Virtual

- 4-day internal Agency training, with hands-on programming activities in R

Biostatistics Summer Institutes July 2018 & 2019
Department of Biostatistics, University of Washington, Seattle, WA

- 3-day courses in R-programming; Data Visualization, & Causal Inference

Global Burden of Disease-Pollution, Climate Change, and Health Initiative Workshop March 2018
UW-Seattle & Institute for Health Metrics & Evaluation (IHME), Seattle, WA

- Co-organizer of multi-day workshop bringing together environmental health (EH) experts with IHME modelers to discuss improved incorporation of EH risk factors into IHME global burden of disease reports

Environmental Health Scholars Retreat Oct 2018
Academic Pediatric Association (APA), Providence, RI

- Competitively selected to participate in 2.5-day workshop to support academic development of trainees

Writing and Advocacy Retreat Aug 2017
International Society for Children's Health and the Environment (ISCHE), Whidbey Island, WA

- 5-day workshop with discussions and presentations focused on science to inform advocacy and policy

LABORATORY RESEARCH EXPERIENCE

Graduate Student Research Assistant Sept 2015-Sept 2017
Dept. of Environmental and Occupational Health Sciences
UW School of Public Health; Seattle, WA

- Evaluated lifestage-specific testicular toxicity using 3D-testes *in vitro* model (Dr. Elaine Faustman)
- Evaluated "liver-on-a-chip" *in vitro* prototype using aflatoxin as proof of principle (Dr. David Eaton)

Graduate Student Research Assistant Aug 2014-May 2015
EPA & NIEHS
Research Triangle Park, NC

- Research rotations at NIEHS (3 months) and EPA (6 months)
- Thyroid hormone disruption & fertility literature review (Dr. Suzanne Fenton), zebrafish neurobehavioral testing (Dr. Stephanie Padilla), and *in vitro* air pollution toxicology (Dr. David DeMarini)

Summer Research Fellow June 2011-Aug 2011
NIEHS Training Program in Environmental Toxicology
University of California-Davis; Davis, CA

- Conducted research to investigate the metabolism of PCBs in mouse brain (Dr. Pamela Lein)
- Presented poster at capstone research project symposium

FELLOWSHIPS & FUNDING

- NIH F31 Predoctoral Individual National Research Service Award Sept 2019-Sept 2020
- Alzheimer's Disease Training Program T32 Training Grant March - Sept 2019
- UW Retirement Association Graduate School Aging Fellowship 2018-2019
- Biostatistics, Epidemiology, & Bioinformatics in Env Health T32 Training Grant Dec 2016-Dec 2018
- [ARCS Foundation Fellowship](#), Seattle Chapter 2015-2018

SKILLS

Programming & Mapping: R, STATA, ArcGIS, Tableau

Systematic Review Tools: HAWC, DistillerSR

Language: Spanish

PROFESSIONAL MEMBERSHIPS & AFFILIATIONS

Affiliate Assistant Professor, UW Seattle Dept. of Environmental & Occupational Health Sciences	2022-Present
Member, IHME Global Burden of Disease Collaborator Network	2021-Present
Member, International Society of Environmental Epidemiology	2018-Present
Member, Collaborative for Health and the Environment – Washington State Chapter	2017-2020
Student Member, Washington Physicians for Social Responsibility	2015-2020
Full Member, Sigma XI Scientific Research Society	2015-Present