

Barrett M. Welch

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Education

Jun 2019	Ph.D., Public Health, Environmental & Occupational Health Oregon State University, College of Public Health and Human Sciences Dissertation: Prenatal and early-life metals exposure and immune function in children.
Jun 2016	M.P.H., Environmental & Occupational Health Oregon State University, College of Public Health and Human Sciences
Aug 2013	B.S., Biology B.A., Spanish University of Nevada, Reno

Professional Experience

07/2022-Present	Assistant Professor, Epidemiology School of Public Health, University of Nevada, Reno
07/2019 – 06/2022	NIH Intramural Postdoctoral Fellow Epidemiology Branch, National Institutes of Environmental Health Sciences (NIEHS)
2017 – 2019	NIH Predoctoral Fellow – TL1 Training Grant (TL1TR002371) Oregon Health and Science University (funded by NIH/NCATS)
2014 – 2017	Graduate Research Assistant College of Public Health and Human Sciences, Oregon State University
2013	Undergraduate Research Fellowship IDeA Network of Biomedical Research Excellence (INBRE), University of Nevada, Reno

Honors and Scientific Recognition

ISEE Best Environmental Epidemiology Paper (Welch et al., <i>EHP</i> , 2023)	2024
NIEHS Intramural Paper of the Month (Bommarito et al., <i>Environ Int</i> , 2024)	2024
NIEHS Intramural Paper of the Month (Bommarito et al., <i>EHP</i> , 2024)	2024
NIEHS Intramural Paper of the Month (Welch et al., <i>EHP</i> , 2023)	2024
NIEHS Intramural Paper of the Month (Bommarito et al., <i>Environ Int</i> , 2023)	2023
NIEHS Intramural Paper of the Year, 2022 (Welch et al., <i>JAMA Ped</i> , 2022)	2023
Invited Member for the Environmental Health Perspectives' Early-Career Research Initiative – Advisory Panel (ECRI-AP)	2023
Early Career Travel Award, NIH-sponsored for ISEE Annual Meeting, Greece	2022
NIEHS Intramural Paper of the Month (Welch et al., <i>JAMA Ped</i> , 2022)	2022
NIEHS Intramural Paper of the Year, 2021 (Welch et al., <i>Environ Int</i> , 2021)	2022
NIEHS Intramural Paper of the Month (Welch et al., <i>Environ Int</i> , 2021)	2021
NIEHS Intramural Paper of the Year, 2020 (Welch et al., <i>PLoS Med</i> , 2020)	2021
NIEHS Intramural Paper of the Month (Welch et al., <i>PLoS Med</i> , 2020)	2020
NIH Fellows Award for Research Excellence (Welch et al., 2021)	2020
NIEHS Research Spotlight, Global Environmental Health Newsletter	2019
NCATS/NIH TL1 Predoctoral Fellowship (TL1TR002371)	2017 – 2019
Dean's Scholarship, College of Public Health, OSU	2018 – 2019

Student International Travel Award, Superfund Research Program	2017
Tuition Waiver Scholarship, Graduate School, OSU	2017
Evans Family Fellowship Award in Humanitarian Engineering, OSU	2017
Undergraduate Research Fellowship, INBRE, UNR	May, 2013

Research Publications

Peer-reviewed Publications

Complete Bibliography: <https://www.ncbi.nlm.nih.gov/myncbi/barrett.welch.1/bibliography/public/>

- 2024** **Welch BM**, Bommarito PA, Cantonwine DE, Motsinger-Reif A, Edin ML, Zeldin DC, Meeker JD, McElrath TF, Ferguson KK. Predictors of upstream inflammation and oxidative stress pathways during early pregnancy. *Free Radical Biology and Medicine*. 2024. PMID: 38262546.
- Bommarito PA, Stevens DR, **Welch BM**, Meeker JD, Cantonwine DE, McElrath TF, Ferguson KK. Prenatal exposure to environmental phenols and fetal growth across pregnancy in the LIFECODES fetal growth study. *Environment International*. PMID: 38968832. [NIEHS Intramural Paper of the Month](#).
- Bommarito PA, Stevens DR, **Welch BM**, Ospina M, Calafat AM, Meeker JD, Cantonwine DE, McElrath TF, Ferguson KK. Organophosphate ester flame retardants and plasticizers in relation to fetal growth in the LIFECODES Fetal Growth Study. *Environmental Health Perspectives*. PMID: 38968089. [NIEHS Intramural Paper of the Month](#).
- Lueth AJ, Bommarito PA, Stevens DR, **Welch BM**, Cantonwine DE, Ospina M, Calafat AM, Meeker JD, McElrath TF, Ferguson KK., Exposure to organophosphate ester flame retardants and plasticizers and associations with preeclampsia and blood pressure in pregnancy. *Environmental Research*. PMID: 39233027.
- 2023** **Welch BM**, Keil AP, Buckley JP, Engel SM, James-Todd T, Zota AR, Alshawabkeh AN, Barrett ES, Bloom MS, Bush NR, Cordero JF, Dabelea D, Eskenazi B, Lanphear BP, Padmanabhan V, Sathyanarayana S, Swan SH, Ferguson KK, and the Pooled Phthalate and Preterm Birth Study Group. Racial and ethnic disparities in phthalate exposure and preterm birth: A pooled study of 16 US cohorts. *Environmental Health Perspectives*. 2023. PMID: 38117586. [ISEE Best Environmental Epidemiology Paper](#), [NIEHS Intramural Paper of the Month](#).
- Bommarito PA, Friedman A, **Welch BM**, Cantonwine DE, Ospina M, Calafat AM, Meeker JD, McElrath TF, Ferguson KK. Temporal trends and predictors of gestational exposure to organophosphate ester flame retardants and plasticizers. *Environment International*. 2023. PMID: 37708814. [NIEHS Intramural Paper of the Month](#).
- Bommarito PA, Stevens DR, **Welch BM**, Weller D, Meeker JD, Cantonwine DE, McElrath TF, Ferguson KK. Temporal trends and predictors of phthalate, phthalate replacement, and phenol biomarkers in the LIFECODES Fetal Growth Study. *Environment International*. 2023. PMID: 37001215.
- Boyer TM, Bommarito PA, **Welch BM**, Meeker JD, James-Todd T, Cantonwine DE, McElrath TF, Ferguson KK. Maternal exposure to phthalates and total gestational weight gain in the LIFECODES birth cohort. *Reproductive Toxicology*. 2023. PMID: 36841368.
- 2022** Bommarito PA, Cantonwine DE, Stevens DR, **Welch BM**, Davalos A, Zhao S, McElrath TF, Ferguson KK. Fetal growth trajectories of babies born large-for-gestational-age in the LIFECODES Fetal Growth Study. *The American Journal of Obstetrics and Gynecology*. 2022. PMID: 36241081.
- Bommarito PA, Cantonwine DE, Stevens DR, **Welch BM**, Davalos A, Zhao S, McElrath TF, Ferguson KK. An application of group-based trajectory modeling to define fetal growth phenotypes among SGA births in the LIFECODES Fetal Growth Study. *The American Journal of Obstetrics and Gynecology*. 2022. PMID: 36027952.

- Welch BM**, Keil AP, Buckley JP, Calafat AM, Christenbury K, Engel SM, O'Brien KM, Rosen E, Ferguson KK, and the Pooled Phthalate and Preterm Birth Study Group. Associations Between Prenatal Urinary Biomarkers of Phthalate Exposure and Preterm Birth: A Pooled Study of 16 US Cohorts. *JAMA Pediatrics*. 2022. PMID: 35816333. [NIEHS Intramural Paper of the Year](#). [NIEHS Intramural Paper of the Month](#).
- Welch BM**, McNeill EE**, Edin ML, Ferguson KK. Inflammation and oxidative stress as mediators of the impacts of environmental exposures on human pregnancy: Evidence from bioactive lipids. *Pharmacology & Therapeutics*. 2022. PMID: 35367517.
- Kuiper JR, O'Brien KM, **Welch BM**, Barrett ES, Nguyen RHN, Sathyanarayana S, Milne GL, Swan SH, Ferguson KK, Buckley JP. Combining urinary biomarker data from studies with different measures of urinary dilution. *Epidemiology*. 2022. PMID: 35473917.
- Eick SM, Geiger SD, Alshawabkeh A, Aung M, Barrett E, Bush NR, Cordero JF, Ferguson KK, Meeker JD, Milne GL, Nguyen RHN, Padula AM, Sathyanarayana S, **Welch BM**, Schantz SL, Woodruff TJ, Morello-Frosch R. Effects of social, biologic, and behavioral factors on biomarkers of oxidative stress during pregnancy: Findings from four ECHO cohorts. *Science of the Total Environment*. 2022. PMID: 35490822.
- 2021** **Welch BM**, Keil AP, Bommarito PA, van T' Erve TJ, Deterding LJ, Williams JG, Lih FB, Cantonwine DE, McElrath TF, Ferguson KK. Longitudinal exposure to consumer product chemicals and changes in plasma oxylipins in pregnant women. *Environment International*. 2021. PMID:34314981. [NIEHS Intramural Paper of the Year](#). [NIH Fellows Award for Research Excellence](#).
- Bommarito PA, **Welch BM**, Keil AP, Baker GP, Cantonwine DE, McElrath TF, Ferguson KK. Prenatal exposure to consumer product chemical mixtures and size for gestational age at delivery. *Environmental Health*. 2021. PMID:34314981.
- Andrews FV, Smit E, **Welch BM**, Ahmed SM, Kile ML. Urinary polycyclic aromatic hydrocarbons concentrations and hepatitis B antibody serology in the United States (NHANES, 2003-2014). *Environmental Research*. 2021. PMID:33539830.
- 2020** **Welch BM**, Keil A, van T' Erve TJ, Deterding LJ, Williams JG, Lih FB, Cantonwine DE, McElrath TF, Ferguson KK. Longitudinal profiles of plasma eicosanoids during pregnancy and size for gestational age at delivery: a nested case-control study. *PLoS Medicine*. 2020. PMID:32797061. [NIEHS Intramural Paper of the Year](#).
- Welch BM**, Branscum A, Geldhof GJ, Ahmed SM, Hystad P, Smit E, Afroz S, Megowan M, Golam M, Sharif O, Rahman M, Quamruzzaman Q, Christiani DC, Kile ML. Evaluating the effects between metal mixtures and serum vaccine antibody concentrations in children: a prospective birth cohort study. *Environmental Health*. 2020. PMID:32276596.
- Ahmed SM, Branscum A, **Welch BM**, Megowan M, Bethel JW, Odden MC, Joya SA, Ibn Hasan MOS, Lin PI, Mostofa G, Quamruzzaman Q, Rahman M, Christiani DC, Kile ML. A prospective cohort study of in utero and early childhood arsenic exposure and infectious disease in 4- to 5-year-old Bangladeshi children. *Environmental Epidemiology*. 2020. PMID:32656486.
- 2019** **Welch BM**, Branscum A, Ahmed SM, Hystad P, Smit E, Afroz S, Megowan M, Golam M, Ibne Hasan MOS, Rahman ML, Quamruzzaman Q, Christiani DC, Kile ML. Arsenic exposure and serum antibody concentrations to diphtheria and tetanus toxoid in children at age 5: A prospective birth cohort in Bangladesh. *Environment International*. 2019. PMID:31051324.
- 2018** **Welch BM**, Smit E, Cardenas A, Hystad P, Kile ML. Trends in urinary arsenic among the U.S. population by drinking water source: Results from the National Health and Nutritional Examinations Survey 2003-2014. *Environmental Research*. 2018. PMID:29272814.
- Cardenas A, Smit E, **Welch BM**, Bethel J, Kile ML. Cross sectional association of arsenic and seroprevalence of hepatitis B infection in the United States (NHANES 2003-2014). *Environmental Research*. 2018. PMID:29966877.

- 2016** Pace C, Banerjee TD, **Welch BM**, Khalili R, Dagda RK, Angermann J. Monomethylarsonous acid, but not inorganic arsenic, is a mitochondria-specific toxicant in vascular smooth muscle cells. *Toxicology In Vitro*. 2016. PMID:27327130.

Complete List of Published Work:

<https://www.ncbi.nlm.nih.gov/myncbi/barrett.welch.1/bibliography/public/>

Research Project Funding

Support

Longitudinal proteomics in the LIFECODES pregnancy cohort

Intramural Project Award Role: PI 07/01/2021
Funder: Epidemiology Branch, NIEHS/NIH

Completed Support

LIFECODES Pregnancy Cohort

ZIA ES103321 Role: Postdoctoral trainee 09/01/2019 – 09/01/2022
PI: Kelly Ferguson, PhD
Funder: NIEHS/NIH

Oregon Clinical and Translational Research Institute TL1 Program

TL1 TR002371 Role: Predoctoral trainee 07/01/2017 – 06/30/2019
PI: Cynthia Morris, MD
Funder: NCATS/NIH

Developmental Exposure to Arsenic and Immune Function in Children

R01 ES023441 Role: Predoctoral trainee 08/07/2014 – 06/30/2017
PI: Molly Kile, ScD
Funder: NIEHS/NIH

Teaching and Mentoring

Mentorship

University of Nevada, Reno

- **Belle Martin**, Undergraduate (June 2024 – Present)
Mentoring Role: Research advisor
Project: Longitudinal trends in gestational weight gain
- **Sumaita Promitee**, Master of Nutrition (Oct 2024 – Present)
Mentoring Role: Thesis advisor
Project: Inflammatory mediators of gestational diabetes mellitus
- **Nahid Istiak**, Graduate student (June 2023 – June 2024)
Mentoring Role: Research advisor
Project: Proteomic trajectories during pregnancy

University of North Carolina, Chapel Hill

- **Carolina Downie**, (August 2022 – October 2023)
Mentoring Role: Dissertation committee member
Dissertation title: Genome-wide association study of circulating eicosanoids in Hispanic/Latinos

Epidemiology Branch, NIEHS

- **Madeline Somers**, MPH (NIH Student Fellow – 2020-2021)
Mentoring Role: Primary mentor for two research projects
Project (2020): Evaluation of eicosanoids and maternal glucose during pregnancy
Project (2021): Consumer product chemical mixtures and gestational weight gain

- **Erin McNeil**, PhD Student (UNC Student Fellow – Spring 2021)
Mentoring Role: Co-mentor for PhD epidemiology rotation
Project: Inflammation and oxidative stress as mediators of the impacts of environmental exposures on human pregnancy

Teaching

School of Public Health, UNR

PBH 220	Introduction to Public Health Biology	Terms: Fall 2023 – Present Students: 80-100+ undergraduates Description: Overview of human disease, implication of disease management, and current disease processes
CHS 723	Infectious Disease Epidemiology	Terms: Spring 2023 - Present Students: 13-25 MPH Description: Graduate course focused on understanding biological, social, and environmental determinants of infectious disease.

College of Public Health and Human Sciences, OSU

H344	Foundations of Environmental Health	Terms: 2017 Description: Undergraduate course focused on environmental health topics including toxic substances, food quality, and population growth, as well as others.
H425	Foundations of Epidemiology	Terms: 2016-2017 Description: Undergraduate course focused on principles of epidemiologic research (e.g., study design, results interpretation).
H543	Exposure Science I	Terms: 2017 Description: Graduate course focused on fundamentals of environmental sample collection methods (e.g. water, soil, air), sample analysis, and writing scientific reports.
H546	Exposure Science II	Terms: Spring 2017 Description: Graduate course designed to teach students methodologies in modern environmental and occupational exposure assessment.

Academic Service

Committee Service & Professional Leadership

Early Career Researcher Initiative Advisory Panel – Environmental Health Perspectives	2023 – Present
Capacity Building & Education Committee, ISEE	2018 – Present
Maternal Mortality and Morbidity sub-committee of the Women's Health Consensus Congress, NIH Office of Research on Women's Health	2021
Fellow's Career Development Committee, NIEHS	2021
<i>Coordinator</i> , Reproductive Epidemiology Journal Club, NIEHS	2019 – 2020
<i>Chair</i> , Students and New Researchers Network Committee, ISEE	2018 – 2020
Graduate Student Council Representative, OSU	2015 – 2018
CEPH Accreditation Strategic Planning Task Force, OSU	2018

Ad hoc Journal Reviewer (selected)

- American Journal of Obstetrics and Gynecology
- Environmental Health Perspectives
- Environmental Research
- Environment International
- Environmental Pollution
- Journal of Exposure Science and Environmental Epidemiology
- Science of the Total Environment

Professional Memberships

- International Society for Environmental Epidemiology (ISEE)
- Society for Pediatric and Perinatal Epidemiologic Research (SPER)
- Society for Reproductive Investigation (SRI)

Selected Research Presentations

- 2022** “Hypothetical interventions to reduce racial and ethnic disparities in phthalate exposure and the impact on preterm birth.” Society for Pediatric and Perinatal Epidemiology. Invited webinar symposium. (11/2022)
- “Phthalates and preterm birth: A pooled analysis.” Existing Chemicals Risk Assessment Division, US Environmental Protection Agency. Invited presentation. (11/2022)
- “Phthalates and preterm birth: A pooled analysis of 16 US cohorts.” Uterine Workshop, National Institutes of Health. Invited webinar symposium. (11/2022)
- “Phthalates and preterm birth: Examining impacts of hypothetical interventions.” Newborn Health Services and Epidemiology Seminar Series at Boston Children’s Hospital, Beth Israel Deaconess Medical Center, Brigham and Women’s Hospital and Massachusetts General Hospital. (09/2022)
- “Racial/ethnic disparities in phthalate metabolite mixtures and risk of preterm birth: A pooled study of 16 US cohorts.” Oral presentation at 34th Annual Conference of the International Society for Environmental Epidemiology. (09/2022)
- “Early pregnancy phthalate and phthalate alternative biomarkers in relation to fetal cardiac development.” Co-authored poster at 34th Annual Conference of the International Society for Environmental Epidemiology. (09/2022)
- “G-computation for hypothetical interventions on phthalate mixtures in the Pooled Phthalate and Preterm Birth Study.” Mixtures Working Group Webinar Series, NIEHS. (08/2022)
- “Immune function in the environment-pregnancy continuum.” Guest lecture for PH240 Environmental Epidemiology, Tufts University. (08/2022)
- “Phthalates and preterm birth: A pooled analysis of 16 US cohorts.” The Infant Development and Environment Study (TIDES) Webinar Series. (06/2022)
- “Phthalates and preterm birth – A pooled analysis of 16 US cohorts.” Poster at annual meeting of the Society for Reproductive Investigation. Denver, CO. (03/2022)

- 2020-2021** “Maternal inflammation and metabolic health: Associations between bioactive lipids and blood glucose during pregnancy.” Oral presentation for Annual meeting of Society for Pediatric and Perinatal Epidemiology Research. (06/2021)
- “What the heck are bioactive lipids? An introduction to novel inflammatory mediators in the environment-pregnancy continuum.” Env/Occ Epidemiology Seminar Series at UNC, Chapel Hill. (03/2021).
- 2018-2019** “Prenatal and early-life metals exposure and immune function in children.” NIEHS Epidemiology Branch Seminar Series. (02/2019).
- “Arsenic exposure and serum antibody concentrations in children at age 5. Superfund Research Program Meeting. Sacramento, CA. (11/2018).
- “Trends in urinary arsenic among the US population by drinking water source.” Cascadia Annual Symposium on Environmental, Occupational, and Population Health. Abbotsford, BC, Canada. (01/2018).
- 2016-2017** “Advancing environmental health initiatives in a developing region – Bangladesh.” Symposium for OSU course, Closing the Gap – Where Science Meets the Media. OSU. (11/2017).
- “Evaluation criteria for HP ink ingredients: Strategies for managing future risks and implementing use of green chemistry.” Env/Occ Health Seminar, OSU. (05/2016).

Other Presentations (selected)

- 2020-2021** “Moving toward understanding specific pathways of inflammation in pregnancy: prenatal exposure to consumer product chemicals and changes in plasma eicosanoids.” Poster. ISEE 2020 Conference. (08/2020).
- 2018-2019** “Evaluating the effects between metal mixtures and vaccine antibodies using structural equation models.” Poster. ISEE 2019 Conference. Utrecht, The Netherlands. (08/2019).
- “Rohingya refugee crisis: A student perspective.” Opinion piece, OSU Synergies. (02/2018 - [article link](#)).
- 2017** “Changes in drinking water arsenic concentrations among a Bangladeshi prospective birth cohort.” Poster. Southeast Asia Regional Conference on Groundwater Arsenic. Hanoi, Vietnam. (11/2017 – travel funded provided by competitive NIH award)