

Barrett M. Welch, PhD, MPH

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Education

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| Ph.D.
June 2019 | College of Public Health and Human Sciences, Oregon State University
Public Health. <i>Dissertation:</i> Prenatal and early-life metals exposure and immune function in children. |
| M.P.H.
June 2016 | College of Public Health and Human Sciences, Oregon State University
Environmental and Occupational Health |
| B.S. & B.A.
August 2013 | University of Nevada, Reno
Biology (B.S.) & Spanish (B.A.) |

Brief Chronology of Employment

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| July 2019 – Present | Intramural (IRTA) Postdoctoral Fellow
Perinatal and Early Life Group, Epidemiology Branch, National Institutes of Environmental Health Sciences, Research Triangle Park, NC <ul style="list-style-type: none">Principal Investigator (PI): Dr. Kelly Ferguson |
| Sept 2017 – June 2019 | Predoctoral Fellow – TL1 Training Grant
National Center for Advancing Translational Sciences, NIH
Oregon Clinical & Translational research Institute (OCTRI)
Oregon Health and Science University (OHSU), Portland, OR <ul style="list-style-type: none">PIs: Drs. Cynthia Morris & Allison Fryer (TL1TR002371) |
| Oct 2014 – Sept 2017 | Graduate Research Assistant
College of Public Health and Human Sciences, Oregon State University, Corvallis, OR <ul style="list-style-type: none">PI: Dr. Molly Kile |
| Sept 2016 – Sept 2017 | Graduate Teaching Assistant
College of Public Health and Human Sciences, Oregon State University, Corvallis, OR |
| June – Aug 2015 | Regulatory Toxicology & Sustainability Intern
Green Chemistry & Commerce Council Fellowship
Department Social and Environmental Responsibility, Hewlett-Packard, Inc, Corvallis, OR |

- Aug 2012 – July 2014 **Faculty Research Assistant – Molecular Toxicology**
 School of Community Health Sciences, University of Nevada, Reno
 Reno, NV
 PI: Dr. Jeff Angermann
- May – Sept 2013 **Research Fellow – Environmental and Molecular Toxicology**
 IDeA Network of Biomedical Research Excellence (INBRE), NIH
 University of Nevada, Reno

Honors and Scientific Recognition

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| NIEHS Paper of the Year | January, 2021 |
| NIEHS Paper of the Month (Environmental Factor, October 2020) | October, 2020 |
| 2021 NIH Fellows Award for Research Excellence (FARE) – NIEHS,NIH | June 2020 |
| - NIH-wide abstract award based on scientific merit, originality, experimental design, and overall quality and presentation (Article link). | |
| Research Spotlight - NIEHS Global Environmental Health Newsletter | December 2019 |
| - Article: Arsenic Linked to Children’s Immune Function in Bangladesh | |
| TL1 Predoctoral Fellowship – NCATS, OHSU (TL1TR002371) | 2017 – 2019 |
| - Mentored career development award sponsored by NCATS-NIH | |
| Dean’s Scholarship – College of Public Health, OSU | 2018 – 2019 |
| - Award to graduates with competitive external training support | |
| Student Travel Award – Dartmouth Superfund Research Program, NIEHS | November, 2017 |
| - Award to present research at Southeast Asia Regional Conference on Groundwater Arsenic in Hanoi, Vietnam. | |
| Tuition Waiver Scholarship – Graduate School, OSU | October, 2017 |
| - Award to graduates with external training support | |
| Evans Family Fellowship – Humanitarian Engineering, OSU | January, 2017 |
| - Research support to conduct study of children’s environmental lead exposure in Bangladesh | |
| Best Ignite Presentation – Semiahmoo Environmental Health Conference | January, 2016 |
| Research Fellowship – IDeA Network of Biomedical Research Excellence, NIH, UNR | May 2013 |

Research Publications in Peer-reviewed Journals

1. 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. *Toxicol In Vitro* 2016; 35:188-201. PMID: 27327130; DOI: [10.1016/j.tiv.2016.06.006](https://doi.org/10.1016/j.tiv.2016.06.006).
2. 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). *Environ Res* 2018; 166:570-576. PMID: 29966877; DOI: [10.1016/j.envres.2018.06.023](https://doi.org/10.1016/j.envres.2018.06.023).
 3. **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; 162:8-17. PMID: 29272814; DOI:[10.1016/j.envres.2017.12.012](https://doi.org/10.1016/j.envres.2017.12.012)
 4. **Welch BM**, Branscum A, Ahmed SM, Hystad P, Smit E, Afroz S, Megowan M, Golam M, Ibne Hasan M, 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; 127:810-818. PMID: 31051324; DOI:[10.1016/j.envint.2019.04.015](https://doi.org/10.1016/j.envint.2019.04.015)
 5. Ahmed SM, Branscum A, **Welch BM**, et al. 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; 4:e086. DOI: [10.1097/EE9.0000000000000086](https://doi.org/10.1097/EE9.0000000000000086).
 6. **Welch BM**, Branscum A, Geldhof GJ, Ahmed SM, Hystad P, Smit E, Afroz S, Megowan M, Golam M, Sharif O, Rahman ML, 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, 19(1):41. PMID: 32276596; DOI:[10.1186/s12940-020-00592-z](https://doi.org/10.1186/s12940-020-00592-z).
 7. **Welch BM**, Keil AP, 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; 17(8):e1003271. PMID: 32797061. DOI: [10.1371/journal.pmed.1003271](https://doi.org/10.1371/journal.pmed.1003271).
Awarded NIEHS Paper of the Month & Paper of the Year.

Upcoming

8. 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. (*In revision*)

Selected research presentations

Oral

2016-2017

- “Evaluation criteria for HP ink ingredients- Strategies for managing future risks and implementing use of green chemistry.” MPH oral defense. OSU, Corvallis, OR. May 2016.

- “Trends in arsenic exposure in the US population after the US EPA Arsenic Rule: National Health and Nutritional Examinations Survey 2003-2012.” Ignite session at Semiahmoo Environmental Health Conference. Blaine, WA. January 2016.
- Invited class speaker of ALS 199 (CRN 25900): Closing the Gap – Where Science Meets the Media. OSU, Corvallis, OR. November 2017.

2018-2019

- Two presentations: 1) Ignite session. “Metals exposures and vaccine antibody response.”, 2) Env. Hlth Symposium. “Trends in urinary arsenic among the US population by drinking water source.” Cascadia 2018 Annual Symposium on Environmental, Occupational, and Population Health. Abbotsford, BC, Canada. January 2018
- “Arsenic exposure and serum antibody concentrations in children at age 5.” Selected symposium for Superfund Research Program 2018 Annual Meeting. Sacramento, CA. November 2018.
- “Prenatal and early-life metals exposure and immune function in children.” NIEHS Epidemiology Branch. Oral presentation. Durham, NC. February 2019.

Posters & other presentations

2014-2017

- **Welch BM**, et al. (March 2014). “Differential toxicity of sodium arsenite (iAsIII) and monomethylarsonous acid (MMAIII) within vascular smooth muscle and endothelial cells.” Poster session presented at Society of Toxicology Annual Conference, Phoenix, AZ.
- **Welch BM**, et al. (November 2017) “Changes in drinking water arsenic concentrations among a Bangladeshi prospective birth cohort.” Poster presentation at Southeast Asia Regional Conference on Groundwater Arsenic in Hanoi, Vietnam. (Awarded NIEHS travel funding award)

2018-2019

- **Welch BM**. Opinion Article, OSU Synergies. (February 8, 2018) – “Rohingya refugee crisis: A student perspective.” (<http://synergies.oregonstate.edu/2018/rohingya-refugee-crisis-a-student-perspective/>).
- **Welch BM**, et al. (August 2018) – “Association between serum antibody levels and drinking water arsenic exposure from a prospective birth cohort in rural Bangladesh.” ISES-ISEE 2018 Conference in Ottawa, Canada. Poster presentation
- **Welch BM**, et al. (August 2019) – “Evaluating the effects between metal mixtures and vaccine antibodies using structural equation models.” ISEE 2019 Conference in Utrecht, The Netherlands. Poster presentation

2020

- **Welch BM**, et al. (August 2020) – “Moving toward understanding specific pathways of inflammation in pregnancy: prenatal exposure to consumer product chemicals and changes in plasma eicosanoids.” ISEE 2020 Conference – Virtually held. Poster presentation.
- **Welch BM**, et al. (*scheduled for Dec 2020*) – “Longitudinal profiles of eicosanoids in pregnancy and fetal growth outcomes.” SPER 2020 Conference – Virtually held.

Professional Activities

International Society for Environmental Epidemiology Committees	
<ul style="list-style-type: none"> ▪ Students and New Researchers Network (SNRN) Committee <ul style="list-style-type: none"> ○ Committee Chair – SNRN ▪ Capacity Building & Education Committee (CAPE) Committee 	<p>May 2018 – Present</p> <p>Feb 2019 – Present</p> <p>Nov 2018 – Present</p>
Graduate Student Council Representative, College of Public Health, OSU	Sept 2015 – June 2018
Strategic Planning Task Force, College of Public Health, OSU	Jan – March 2018
Faculty Search Committee Graduate Representative, College of Public Health, OSU.	Sept 2015 – June 2016

Professional Memberships

- International Society for Environmental Epidemiology (ISEE)
- Society for Pediatric and Perinatal Epidemiologic Research (SPER)
- Society for Epidemiologic Research (SER)
- Consortium for the Epidemic of Nephropathy in Central America and Mexico (CENCAM)

Teaching Activities

College of Public Health and Human Sciences, OSU

H344	Foundations of Environmental Health	<p><i>Role:</i> Instructor of record</p> <p><i>Terms:</i> Summer 2017 (online)</p> <p><i>Description:</i> Undergraduate course designed to introduce students to environmental health topics ranging from toxic substances, food quality, to population growth</p>
H546	Exposure Science II	<p><i>Role:</i> Teaching assistant (course design and instruction)</p> <p><i>Terms:</i> Spring 2017</p> <p><i>Description:</i> Graduate course designed to teach students methodologies in modern environmental and occupational exposure assessment</p>
H543	Exposure Science I	<p><i>Role:</i> Teaching assistant (course design and instruction)</p> <p><i>Terms:</i> Winter 2017</p> <p><i>Description:</i> Graduate course focused on fundamentals of environmental sample collection methods (e.g. water, soil, air), sample analysis, and writing scientific reports</p>
H425	Foundations of Epidemiology	<p><i>Role:</i> Teaching assistant</p> <p><i>Terms:</i> Fall 2016, Winter 2017</p> <p><i>Description:</i> Undergraduate course focused on principles of epidemiologic research (e.g. study design, interpretation of results)</p>