CURRICULUM VITAE

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Place of Birth: Ames, IA

Education

1999	BSc/BSc	Biochemistry/Microbiology	Iowa State University
2006	MPH	Global Environmental Health	University of Michigan
2009	PhD	Environmental Health Sciences (Dr. Howard Hu)	University of Michigan

Postdoctoral Training

5/09-5/10	Research Fellow	Reproductive Sciences Program, OB/GYN Department	University of Michigan
5/10-7/13	Research Fellow	Environmental Health Sciences	University of Michigan

Faculty Academic Appointments

7/13- 10/16	Instructor	Obstetrics, Gynecology and Reproductive Biology	Harvard Medical School
11/16	Assistant Professor	Obstetrics, Gynecology and Reproductive Biology	Harvard Medical School

Committee Service

Regional

2014 – 2017	Member	PhD Dissertation Committee Boston University School of Public Health, Department of Epidemiology

Professional Societies

2007- *International Society of Environmental Epidemiologists*

2009-2012 *American Association for the Advancement of Science*

Grant Review Activities

2021	SBIR/STTR Study Section	NIH
	2021 Jan/July	Ad hoc Member

Editorial Activities

ad hoc reviewer

Environmental Health Perspectives
Pediatrics
Environmental Research
Environmental Health
Environment International
Environmental Science & Technology
International Journal of Environmental Research and Public Health
American Journal of Obstetrics and Gynecology
Biomedical and Environmental Science
Chemosphere
Biomarkers
British Journal of Obstetrics and Gynecology
British Medical Journal
Journal of Toxicology and Environmental Health, Part B: Critical Reviews

Other Editorial Roles

2021-2022	guest/section editor	*Current Obstetrics and Gynecology Reports*

Honors and Prizes

Report of Funded and Unfunded Projects

Funding Information

Past

2008-2009 Mercury Exposure and Neurodevelopmental Outcomes in Children Living in Mexico City, Mexico

No Grant Number – University of Michigan Rackham Graduate Student Research Grant
PI ($2,500)
This pilot study aimed to utilized archived samples to determine trimester-specific blood mercury levels in N=100 women residing in Mexico City and relate the exposure levels to neurocognitive outcomes in their children at two years of age.

2010-2011 Toxic Metal Exposure and Women of Reproductive Age in Ghana
No Grant Number – University of Michigan African Studies Center
Co-PI ($9,500)
This pilot study aimed to determine levels of metal exposure in women of childbearing age at three distinct locations within Ghana

2011-2013 Prenatal Exposures and Early Life Health Outcomes
NIEHS/NIH (L40 ES020610)
PI ($16,000)
This loan repayment award focused on research into lead and mercury exposure and adverse neurocognitive effects in early life

2013-2015 Estrogen Metabolites and Preeclampsia
NCI/Internal Award (CSAS 15799)
Co-Investigator ($13,500)
This study aimed to investigate the association between estrogen metabolites and preeclampsia.

2014-2016 Longitudinal Evaluation of Predictive Value for Preeclampsia of Urinary Inhibin A Through Pregnancy
No Grant Number - Harvard Catalyst Clinical Research Center
Co-PI ($9,855)
This study aims to investigate whether longitudinal assessed inhibin A concentrations throughout pregnancy can predict onset of preeclampsia

2016-2017 Perfluorinated Chemicals and Risk of Preeclampsia
No Grant Number – Shore's Foundation Award, Brigham and Women's Hospital, Department of Obstetrics and Gynecology Research Foundation
PI ($30,000)
This pilot study aims to investigate whether early levels of perfluorinated chemicals are associated with the risk of developing preeclampsia

2016-2018 Circulating Microparticle based Spontaneous Preterm Birth Study
No Grant Number – Private Funded (NXPrenatal Inc.)
Co-PI ($180,000)
This study aims to independently validate different proteomic profiles exhibited in isolated peripheral circulating microparticles at 10 weeks gestation in sPTB and term controls.

2017-2018 *Circulating serpinB1 and vulnerability to gestational diabetes*
NIH (P30 DK036836)
Co-I (2% FTE)
This study is investigating the role serpinB1 might play in development of gestational

diabetes

2016-2021 Phthalates, Gestational Diabetes, and Markers of Future Type 2 Diabetes Risk in Women
NIEHS/NIH (R01 ES026166)
Co-I (10% FTE)
This study aims to investigate the association between phthalate exposure during pregnancy, risk of developing gestational diabetes, and risk of developing Type 2 diabetes postpartum.

2018-2020 Healthy Starts to Life – Transformative Award in Newborn Research
Brigham Research Institute
Co-I (15% FTE)
This study aims to add a more comprehensive newborn data collection component to LIFECODES

2019-2020 Consumer product chemical exposures in pregnancy and their cumulative impact on disorders of fetal growth
No Grant Number – Internal Funding NIEHS
Co-I (25% FTE)
This is the pilot phase to an internal grant application (PI – Ferguson) at NIEHS that is proposing to investigate the relationship between exposure to chemical mixtures and fetal growth trajectories.

Current

2020-2023 Fetal growth and exposure to consumer products
NIH/NIEHS HHSN273201600003I/HHSN27300002
Co-I (25% FTE)
This is an internal grant application (PI – Ferguson) at NIEHS that is proposing to investigate the relationship between exposure to consumer chemical mixtures and fetal growth trajectories.

2020-2025 Applying and Advancing Modern Approaches for Studying the Joint Impacts of Environmental Chemicals on Pregnancy Outcomes
NIH/NIEHS R01ES031591-01A1
Co-I (20% FTE)
This study aims to investigate the associations between chemical mixtures and preterm birth.

2021-2023 Validating an environmental history questionnaire for use in OB/GYN
No Grant Number – Harvard Catalyst
PI (5% FTE)
This study aims to develop an environmental screening questionnaire for use in OB/GYN and validate it for metals exposure

2022-2027 No Grant Number – Mirvie Inc.
Subcon PI (10% FTE)
This study validates a microRNA platform in predicting PTB and PE

2022-2027 Molecular antecedents of miscarriage

NIH/NICHD
Co-I (15% FTE)

This study utilizes multiple molecular biomarkers to better elucidate the molecular underpinnings of spontaneous abortion

2022-2027 Integrative omics of preeclampsia in TOPMED and maternal cardiovascular health
NIH R01HL163234
Co-I (10% FTE)
This study takes advantage of the existing genomic and proteomic data from TOPMED to investigate future maternal cardiovascular health

Current Unfunded Projects

2013- LIFECODES Birth Cohort Based at BWH OB/GYN Department (Mentor & Investigator)
I supervise various manuscripts and ancillary research projects, conduct independent research projects, and supervise the daily logistics for these birth cohort studies

2016- Exposure to Phenols, Parabens, and Phthalates During Pregnancy, Markers of Placental Function, and Risk of Developing Preeclampsia (PI)
This is a resubmission and reorganization of a scored NIEHS K22 application that focuses upon the role between endocrine disrupting chemical exposure and preeclampsia.

Report of Local Teaching and Training

Teaching of Students in Courses

Teaching prior to Harvard Appointment

1999-2003	Introductory Chemistry 1st year undergraduate students	Iowa State University (3) 1 hr. lectures per week and (1) 2 hour lab lecture/mentoring per week during each ~3 month semester (taught 2 semesters each year and 1 summer session).
2001-2002	Introductory Biology 1st year undergraduate students	Iowa State University (3) 1 hr. lectures per week and (1) 2 hour lab lecture/mentoring per week – 2 semesters
2004 - 2006	Introductory Biology 1st year undergraduate students	University of Michigan (1) 1.5 hr lecture and (1) 2 hour lab lecture/mentoring per week – 2 semesters each year
2006	Introduction to Environmental Health 1st year MPH students	University of Michigan (3) 1 hr. lectures per week – 1 semester

2009-2011	Summer Short Course in Biostatistics incoming MPH students	University of Michigan (5) 1 hr. lectures per week – 1 week
2009-2011	Supplement Biostatistics Review 1st year MPH students	University of Michigan (1) 1.5 hr. lecture per week – 1 semester

Formally Supervised Trainees

2008-2010 **Myriam Afeiche, PhD, MPH** / Visiting Research Scientist, Harvard T.H. Chan School of Public Health.
I mentored Dr. Afeiche during her last two years of her PhD at the University of Michigan which resulted in two publications and three more independent conference abstract posters.

2009-2010 **Siying Huang, PhD** / Postdoctoral Fellow, University of Toronto Dalla Lana School of Public Health.
I mentored Dr. Huang during her tenure at University of Michigan before she moved to the University of Toronto to complete her PhD. This resulted in one publication.

2010-2011 **Lauren Rodriguez, MD** / Resident, Emergency Medicine, Wayne State University
I mentored Dr. Rodriguez for a 4 month summer internship in Mexico City where she completed a market basket seafood survey and refined a seafood intake questionnaire as part of a mercury exposure and neurodevelopment project. This resulted in one publication.

2012-2014 **Ryan Lewis, PhD, CIH** / Managing Scientist, Exponent
I mentored Dr. Lewis for two years at the University of Michigan which resulted in two publications regarding exposure to pesticides among pregnant women in Puerto Rico.

2013-2014 **Michael Honigberg, MD** / Resident Internal Medicine, BWH Harvard Medical School
I mentored Dr. Honigberg during his last year of medical school at HMS which resulted in one publication.

2013-2015 **Christina Yarrington, MD** / Instructor of Medicine, Boston University School of Medicine
I mentored Dr. Yarrington during the last two years of her maternal fetal medicine fellowship at BWH as part of her research thesis requirement. This has resulted in two publications.

2013-2016 **Carolina Bibbo, MD** / Maternal Fetal Medicine Fellow, BWH Harvard Medical School
I mentored Dr. Bibbo as part research thesis requirement for her fellowship. This has resulted in one conference abstract and two papers under review.

2014-2015 **Melinda Lee, MD** / Resident, Brigham and Women's Hospital
I mentored Dr. Lee in a focused research project that resulted in one publication

2014-2017 **Sarah Rae Easter, MD** / Maternal Fetal Medicine Fellow, Brigham and Women's Hospital
I am mentored Dr. Easter as part of her research thesis requirement for her fellowship. I began mentoring her during her residency at BWH which resulted in two publications.

2014-2017 **Caroline Rouse, MD** / Maternal Fetal Medicine Fellow, Brigham and Women's Hospital
I mentored Dr. Rouse as part of her research thesis requirement for her fellowship. This has resulted in two conference abstracts and preparation of two manuscripts.

2014-2017 **Anne Marie Darling, PhD** / PhD Candidate, Boston University School of Public Health
I was a thesis advisor and mentor to Anne Marie as part of her PhD which resulted in two published manuscripts.

2016-2019 **Erica Holland, MD** / Maternal Fetal Medicine Fellow, Brigham and Women's Hospital
I mentored Dr. Holland as part of her research thesis requirement for her fellowship.

2017-2019 **Natalie Mendez /** Student Success Jobs Program, Brigham and Women's Hospital
I mentored Ms Mendez for two years as part of Brigham's SSJP program that provides onsite job experience to Boston high school students

2018-2020 **Linda Zhao, MS** / PhD Candidate, Harvard University
I am currently mentoring Ms. Zhao as part of her PhD with the Department of Sociology.

2018-2019 **David Alexander Goodson, MPH** / Master's of Public Health Candidate, Harvard School of Public Health
I was Mr. Goodson's MPH Thesis advisor at HPSH which has resulted in one submitted manuscript

2019-2020 **Alexandria Lee, MPH**/ Master's of Public Health Candidate, Harvard School of Public Health
I mentored Ms. Lee as part of her MPH program in which she utilizing LIFECODES for her thesis work.

2021-2022 **Sam Paltrow-Krulwich** / Master's of Public Health Candidate, Harvard School of Public Health
I am Ms. Paltrow-Krulwich's MPH Thesis advisor at HPSH in which she is finalizing her MPH practicum.

2021-2022 **Jose Villa-Uribe, MD** / Master's of Public Health Candidate, Harvard School of Public Health
I am Dr. Villa-Uribe's MPH Thesis advisor at HPSH in which he is finalizing his analysis for a manuscript

2022- **Christina Boulineaux/** Medical Degree Candidate, Harvard Medical School
I am Ms Boulineaux's research advisor for her extended 5th year in medical school in which she is lead authoring several manuscripts

2022- **Rachel Herz-Roiphe /** Medical Degree Candidate, Harvard Medical School
I am Ms Herz-Roiphe's research advisor at HMS in which she is finalizing her analysis

for a manuscript

2023- **Emma Kohrt/** Undergraduate Candidate ROUTES Program Scholar, Northeastern University
I am Ms. Kohrt's ROUTES Scholar advisor in conjunction with NEU which she is assisting in several manuscripts and finalizing an analysis for her own lead author manuscript

Local Invited Presentations

No presentations below were sponsored by outside entities

2013	Grand Rounds	*Refining the Understanding of Neonatal Susceptibility to Environmental Toxicants* Department of OB/GYN, Brigham and Women's Hospital
2016	Lecture	*Bias and Misconceptions in Reproductive Environmental Epidemiology* Harvard T. H. Chan School of Public Health, Division of Epidemiology Seminar Series
2016	Lecture	*Utilizing diagnosis as a tool to refine our understanding of potential mechanisms in reproductive environmental epidemiology* Harvard T.H. Chan School of Public Health, Reproductive Epidemiology Guest Lecture

Report of Regional, National and International Invited Teaching and Presentations

Those presentations below sponsored by outside entities are so noted and the sponsor is identified

Invited Presentations and Courses

Regional

2012	Lecture	*Challenges of Studying Developmental Toxicity in Environmental Epidemiology: Lead Exposure and Neurodevelopment* Division of Environmental Health Seminar Series, Department of Public Health, University of Massachusetts. Amherst. MA
2012	Lecture	*Understanding Neonatal Susceptibility to Lead in Environmental Epidemiology* Department of Environmental Health Seminar Series, School of Public Health, Northeastern University. Boston, MA
2016	Lecture	*Environmental endocrine disrupting chemical exposure and preeclampsia* Division of Environmental Health Seminar Series, Department of Public Health, University of Massachusetts. Amherst. MA

National

2008	Plenary Talk	*Timing of Fetal Lead Exposure, Length of Gestation, and Risk of Prematurity* (abstract) International Society for Environmental Epidemiologists Annual Meeting, Pasadena, California
2009	Lecture	*Refining the Understanding of Neonatal Susceptibility to Lead Exposure* Environmental Research Committee Seminar Series, Department of Environmental Health, Johns Hopkins School of Public Health
2012	Plenary Talk	*Exposure to Endocrine Disrupting Chemicals among Pregnant Women Living in Northern Puerto Rico* (abstract) 25th Annual Superfund Research Program Conference. Environmental Protection Agency /National Institutes of Environmental Health. Raleigh, NC
2012	Lecture	*Understanding Neonatal Susceptibility to Lead in Environmental Epidemiology* Department of Environmental Health Seminar Series, School of Public Health, Emory University. Atlanta, GA
2016	Plenary Talk	*Circulating Microparticles as an Effective Means to Stratify the Risk of Spontaneous Preterm Birth* (abstract) Society of Maternal Fetal Medicine Annual Meeting. Atlanta, GA
2017	Lecture	*Utilizing diagnosis to inform mechanistic pathways: Phthalate/BPA exposure during pregnancy and risk of preeclampsia* Department of Environmental Health Sciences, School of Public Health, Yale University. New Haven, CT
2018	Plenary Talk	*Associations between high Phthalate and Bis-Phenol exposures and the risk of Preeclampsia and Pregnancy Associated Hypertension* Society of Reproductive Investigations Annual Meeting. San Diego, CA
2022	Plenary Talk	*Associations between high Phthalate and Bis-Phenol exposures and the risk of Preeclampsia and Pregnancy Associated Hypertension* Society of Reproductive Investigations Annual Meeting. San Diego, CA

International

2007	Plenary Talk	*Modification of Lead Biomarker Effects Upon Infant Birth Weight by Presence of HFE Genotype Variants*/ (abstract) International Society for Environmental Epidemiologists Annual Meeting. Mexico City, Mexico
2015	Lecture	*Endocrine Disrupting Chemical Exposure during Pregnancy and Risk of Developing Preeclampsia* CoLaboratory Consortium Annual Meeting. Oxford. England

2016	Lecture	*Molecular Mechanisms of Phthalate and BPA Exposure and the Relationship with Preeclampsia* Environment Canada: Invited Talk. Ottawa, Canada
2019	Lecture	*Neighborhood Effects upon Subtypes of Preeclampsia* CoLaboratory Consortium Annual Meeting. Oxford, England

SCIENTIFIC INNOVATIONS

1. **Elective Rotation in OB for Environmental Health Education**

   Training in environmental health is largely absent from medical school curriculum as well as OB/GYN residency or fellowship training. With this lack of general knowledge for OB/GYN providers, assessment for environmental hazards among their patient population is not standard practice, highlighting a critical deficiency in how OB providers assess the overall health of their patients. Another critical gap in knowledge/training is how OB providers communicate risk of potential environmental hazards to their patient population. A simple example is if a patient asks their provider about the hazards of methylmercury exposure during pregnancy and if they should avoid fish. Types of fish vary dramatically in levels of methylmercury and other contaminants (PCBs, Dioxins, etc.) but they also contain beneficial fatty acids and selenium. Without prior knowledge of the topic or understanding of what materials are available for consumers it is impossible for OB providers to give a scientifically accurate advice. I have developed a three month elective rotation for OB/GYN fellows in Reproductive Environmental Health Education and built a simple environmental history form for use in our obstetrical population. By creating didactic and clinical curriculum in reproductive environmental health, gauging potential environmental exposure risks in our clinical population, and providing an initial set of resources that our clinical staff can tap into for patient queries, I hope to establish a unique framework in our clinic that will ultimately better serve the health of our obstetrical population.

2. **The Role of Common Environmental Toxicants in Adverse Pregnancy Events**

   Spontaneous preterm birth and preeclampsia represent two of the most common, debilitating, and costly adverse pregnancy conditions affecting women and their fetuses worldwide. Our understanding into the role that everyday environmental exposures play in the complex etiology for each of these conditions is severely lacking. Bisphenol-A and phthalates are high production volume chemicals utilized in a wide array of consumer products and have been demonstrated to have ubiquitous exposure among a variety of populations, including pregnant women. To date, I have the only publications assessing the relationship between longitudinal Bisphenol-A levels during pregnancy and risk of preterm birth and preeclampsia. Additionally, I have one of the most robust publications assessing the relationship between longitudinal phthalate levels and preeclampsia. Taken together these publications highlight the need for policy makers and clinicians to consider the hazard everyday chemicals may pose to pregnant women and their fetuses.

Report of Scholarship

Publications

Peer reviewed publications in print or other media

1. Batterman S, Chernyak S, Gwynn E, **Cantonwine D**, Jia C, Begnoche L, Hickey JP. Trends of brominated diphenyl ethers in fresh and archived Great Lakes fish (1979-2005). Chemosphere. 2007 Sep; 69(3):444-57.

2. Pilsner JR, Hu H, Ettinger A, Sánchez BN, Wright RO, **Cantonwine D**, Lazarus A, Lamadrid-Figueroa H, Mercado-García A, Téllez-Rojo MM, Hernández-Avila M. Influence of prenatal lead exposure on genomic methylation of cord blood DNA. Environ Health Perspect. 2009 Sep; 117(9):1466-71.

3. Meeker JD, Hu H, **Cantonwine DE**, Lamadrid-Figueroa H, Calafat AM, Ettinger AS, Hernandez-Avila M, Loch-Caruso R, Téllez-Rojo MM. Urinary phthalate metabolites in relation to preterm birth in Mexico city. Environ Health Perspect. 2009 Oct; 117(10):1587-92.

4. Pilsner JR, Hu H, Wright RO, Kordas K, Ettinger AS, Sánchez BN, **Cantonwine D**, Lazarus AL, Cantoral A, Schnaas L, Téllez-Rojo MM, Hernández-Avila M. Maternal MTHFR genotype and haplotype predict deficits in early cognitive development in a lead-exposed birth cohort in Mexico City. Am J Clin Nutr. 2010 Jul; 92(1):226-34.

5. **Cantonwine D**, Hu H, Téllez-Rojo MM, Sánchez BN, Lamadrid-Figueroa H, Ettinger AS, Mercado-García A, Hernández-Avila M, Wright RO. HFE gene variants modify the association between maternal lead burden and infant birthweight: a prospective birth cohort study in Mexico City, Mexico. Environ Health. 2010 Jul 26; 9:43.

6. **Cantonwine D**, Meeker JD, Hu H, Sánchez BN, Lamadrid-Figueroa H, Mercado-García A, Fortenberry GZ, Calafat AM, Téllez-Rojo MM. Bisphenol A exposure in Mexico City and risk of prematurity: a pilot nested case control study. Environ Health. 2010 Oct 18; 9(1):62

7. **Cantonwine D**, Hu H, Sánchez BN, Lamadrid-Figueroa H, Smith D, Ettinger AS, Mercado-García A, Hernández-Avila M, Wright RO, Téllez-Rojo MM. Critical Windows of Fetal Lead Exposure: Adverse Impacts on Length of Gestation and Risk of Premature Delivery. J Occup Environ Med. 2010 Nov; 52(11):1106-1111.

8. Afeiche M, Peterson KE, Sánchez BN, **Cantonwine D**, Lamadrid-Figueroa H, Schnaas L, Ettinger AS, Hernández-Avila M, Hu H, Téllez-Rojo MM. Prenatal Lead Exposure and Weight of 0 to 5 Year-Old Children in Mexico City. Environ Health Perspect. 2011 Oct; 119(10):1436-41.

9. Zhang A, Hu H, Sánchez BN, Ettinger AS, Park SK, **Cantonwine D**, Schnaas L, Wright RO, Lamadrid-Figueroa H, Tellez-Rojo MM. Association between Prenatal Lead Exposure and Blood Pressure in Female Offspring. Environ Health Perspect. 2012 Mar; 120(3):445-50.

10. Afeiche M, Peterson KE, Sánchez BN, Schnaas L, **Cantonwine D**, Ettinger AS, Solano-González M, Hernández-Avila M, Hu H, Téllez-Rojo MM. Windows of lead exposure sensitivity, attained height, and BMI at 48 months. The Journal of Pediatrics. 2012 Jun; 160(6):1044-9.

11. Meeker JD, **Cantonwine D**, Rivera-Gonzalez LO, Ferguson KK, Mukherjee B, Calafat AM, Ye

X, Anzalota Del Toro LV, Crespo N, Jimenez-Velez B, Alshawabkeh AN, Cordero JF. Distribution, variability and predictors of urinary concentrations of phenols and parabens among pregnant women in Puerto Rico. Environ Sci Technol. 2013 Apr 2; 47(7):3439-47.

12. Téllez-Rojo MM, Cantoral A, **Cantonwine DE**, Schnaas L, Peterson K, Hu H, Meeker JD. Prenatal urinary phthalate metabolites levels and neurodevelopment in children at two and three years of age. Sci Total Environ. 2013 Jun 4; 461-462C:386-390.

13. **Cantonwine DE**, Cordero JF, Rivera-González LO, Anzalota Del Toro LV, Ferguson KK, Mukherjee B, Calafat AM, Crespo N, Jiménez-Vélez B, Padilla IY, Alshawabkeh AN, Meeker JD. Urinary phthalate metabolite concentrations among pregnant women in Northern Puerto Rico: Distribution, temporal variability, and predictors. Environ Int. 2014 Jan; 62C:1-11

14. **Cantonwine DE**, Hauser R, Meeker JD. Bisphenol A and human reproductive health. Expert Rev Obstet Gynecol. 2013 Jul 1; 8(4):329-335

15. Smith NA, Bukowski R, Thomas AM**, Cantonwine D**, Zera C, Robinson JN. Identification of pathologically small fetuses using customized, ultrasound and population-based growth norms. Ultrasound Obstet Gynecol. 2014 Nov; 44(5):595-9.

16. Ferguson KK, **Cantonwine DE**, Rivera-González LO, Loch-Caruso R, Mukherjee B, Anzalota Del Toro LV, Jiménez-Vélez B, Calafat AM, Ye X, Alshawabkeh AN, Cordero JF, Meeker JD. Urinary phthalate metabolite associations with biomarkers of inflammation and oxidative stress across pregnancy in Puerto Rico. Environ Sci Technol. 2014 Jun 17; 48(12):7018-25.

17. Basu N, Tutino R, Zhang Z, **Cantonwine DE**, Goodrich JM, Somers EC, Rodriguez L, Schnaas L, Solano M, Mercado A, Peterson K, Sánchez BN, Hernández-Avila M, Hu H, Maria Téllez-Rojo M. Mercury levels in pregnant women, children, and seafood from Mexico City. Environ Res. 2014 Nov; 135:63-9.

18. Lewis RC, **Cantonwine DE**, Anzalota Del Toro LV, Calafat AM, Valentin-Blasini L, Davis MD, Baker SE, Alshawabkeh AN, Cordero JF, Meeker JD. Urinary biomarkers of exposure to insecticides, herbicides, and one insect repellent among pregnant women in Puerto Rico. Environ Health. 2014 Nov 19;13:97.

19. Faupel-Badger JM, McElrath TF, Lauria M, Houghton LC, Lim K, Parry S, **Cantonwine D**, Lai G, Karumanchi SA, Hoover RN, Troisi R. Maternal circulating angiogenic factors in twin and singleton pregnancies. Am J Obstet Gynecol. 2015 May; 212(5):636.e1-8.

20. Johns LE, Ferguson KK, Soldin OP, **Cantonwine DE**, Rivera-González LO, Del Toro LV, Calafat AM, Ye X, Alshawabkeh AN, Cordero JF, Meeker JD. Urinary phthalate metabolites in relation to maternal serum thyroid and sex hormone levels during pregnancy: a longitudinal analysis. Reprod Biol Endocrinol. 2015 Jan 17; 13:4.

21. Lewis RC, **Cantonwine DE**, Anzalota Del Toro LV, Calafat AM, Valentin-Blasini L, Davis MD, Montesano MA, Alshawabkeh AN, Cordero JF, Meeker JD. Distribution and determinants of urinary biomarkers of exposure to organophosphate insecticides in Puerto Rican pregnant women.

Sci Total Environ. 2015 Apr 15; 512-513:337-44.

22. Lee MS, **Cantonwine D**, Little SE, Mcelrath TF, Parry SI, Lim KH, Wilkins-Haug LE. Angiogenic markers in pregnancies conceived through in vitro fertilization. Am J Obstet Gynecol. 2015 Aug; 213(2):212.e1-8.

23. **Cantonwine DE**, Ferguson KK, Mukherjee B, McElrath TF, Meeker JD. Urinary Bisphenol A levels during pregnancy and risk of preterm birth. Environ Health Perspect. 2015 Sep; 123(9):895-901.

24. Ferguson KK, McElrath TF, **Cantonwine DE**, Mukherjee B, Meeker JD. Phthalate metabolites and bisphenol-A in association with circulating angiogenic biomarkers across pregnancy. Placenta. 2015 Jun; 36(6):699-703.

25. Easter SR, **Cantonwine DE**, Zera CA, Lim KH, Parry SI, McElrath TF. Urinary tract infection during pregnancy, angiogenic factor profiles, and risk of preeclampsia. Am J Obstet Gynecol. 2016 Mar; 214(3):387.e1-7

26. Molina RL, Easter SR, Venkatesh KK, **Cantonwine DE**, Kaimal AJ, Tuomala RE, Riley LE. Defining physiological predictors of peripartum maternal bacteremia. Am J Perinatol. 2015 Dec; 32(14):1342-50.

27. Honigberg MC, **Cantonwine DE**, Thomas AM, Lim KH, Parry SI, McElrath TF. Analysis of changes in maternal circulating angiogenic factors throughout pregnancy for the prediction of preeclampsia. J Perinatol. 2016 Mar; 36(3):172-7.

28. Mattsson K, Källén K, Rignell-Hydbom A, Hansson SR, McElrath TF, **Cantonwine DE**, Rylander L. Maternal smoking during pregnancy and daughters' preeclampsia risk. PLoS One. 2015 Dec 2; 10(12):e0144207.

29. Huang S, Hu H, Sánchez BN, Peterson KE, Ettinger AS, Lamadrid-Figueroa H, Schnaas L, Mercado-García A, Wright RO, Basu N, **Cantonwine DE**, Hernández-Avila M, Téllez-Rojo MM. Childhood blood lead levels and symptoms of attention deficit hyperactivity disorder (ADHD): A cross-sectional study of Mexican children. Environ Health Perspect. 2015 Dec 8. [Epub ahead of print]

30. **Cantonwine DE**, Ferguson KK, Mukherjee B, Chen YH, Smith NA, Robinson JN, Doubilet PM, Meeker JD, McElrath TF. Utilizing longitudinal measures of fetal growth to create a standard method to assess the impacts of maternal disease and environmental exposure. PLoS One. 2016 Jan 5;11(1):e0146532.

31. **Cantonwine DE**, Zhang Z, Rosenblatt K, Goudy KS, Doss RC, Ezrin AM, Page G, Brohman B, McElrath TF. Evaluation of proteomic biomarkers associated with circulating microparticles as an effective means to stratify the risk of spontaneous preterm birth. Am J Obstet Gynecol. 2016 214(5):631

32. Yarrington CD, **Cantonwine DE**, Seely EW, McElrath TF, Zera CA. The association of Alanine

Aminotransferase in early pregnancy with gestational diabetes. Metab Syndr Relat Disord. 2016 14(5):254-8

33. **Cantonwine DE**, Meeker JD, Ferguson KK, Mukherjee B, Hauser R, McElrath TF. Urinary concentrations of Bisphenol A and phthalate metabolites measured during pregnancy and risk of preeclampsia. Environ Health Perspect. 2016 124(10):1651-1655

34. Yarrington CD, **Cantonwine DE**, Seely EW, McElrath TF, Zera CA. The association of early unexplained elevated alanine aminotransferase and large for gestational age birth weight. Am J Obstet Gynecol. 2016 215(4):474.e1-5.

35. Ferguson KK, Meeker JD, **Cantonwine DE**, Chen YH, Mukherjee B, McElrath TF. Urinary phthalate metabolite and bisphenol A associations with ultrasound and delivery indices of fetal growth. Environ Int. 2016 94:531-7.

36. Venkatesh KK, **Cantonwine DE**, Ferguson K, Arjona M, Meeker JD, McElrath TF. Inflammatory and oxidative stress markers associated with decreased cervical length in pregnancy. Am J Reprod Immunol. 2016 76(5):376-382.

37. Ferguson KK, **Cantonwine DE**, McElrath TF, Mukherjee B, Meeker JD. Repeated measures analysis of associations between urinary bisphenol-A concentrations and biomarkers of inflammation and oxidative stress in pregnancy. Reprod Toxicol. 2016 14;66:93-98.

38. Wu H, Olmsted A, **Cantonwine DE**, Shahsavari S, Rahil T, Sites C, Pilsner JR. Urinary phthalate and phthalate alternative metabolites and isoprostane among couples undergoing fertility treatment. Environ Res. 2016 [In Press]

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Thesis

Cantonwine, DE. Early Life Exposure to Lead, Iron Metabolism Gene Variants, and Impacts on Reproductive and Infant Outcomes. 2009. http://deepblue.lib.umich.edu/handle/2027.42/63674

Abstracts, Poster Presentations and Exhibits Presented at Professional Meetings

Rivera-Gonzalez LO; **Cantonwine DE**; Ferguson KK, Jimenez-Velez B; Crespo-Hernandez N; Anzalota Del Toro LV; Alshawabkeh AN; Cordero JF; Meeker JD. Exposure to metals and reproductive hormone levels in pregnant women living in northern Puerto Rico. Superfund Research Program Annual Meeting, 2013 (Poster)

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NARRATIVE

My expertise is in the area of reproductive environmental epidemiology. Many lines of epidemiologic, clinical and experimental evidence now indicate that early life exposures, including exposures to toxicants during gestation, can play a critical role in disease susceptibility later in life. In addition, a large majority of adverse pregnancy conditions (preterm birth, preeclampsia, gestational diabetes, altered fetal growth) have not been well researched with regards to environmental exposure, though reducing exposure sources may represent an achievable and cost-effective method to reducing disease burden. In my past and current research I have demonstrated novel adverse links between preterm birth risk and preeclampsia to commonly found endocrine disrupting chemicals (BPA and phthalates).

Approximately 25% of my effort is directed towards being the primary research mentor for incoming MFM clinical fellows at BWH. In this capacity I work with each individual fellow to setup a thesis project which will result in the development of publishable material. During this process I guide the fellows through and help them manage all aspects of their projects including design setup, primary or secondary data collection, cleaning of necessary data and final analysis plan and implementation. I also provide project assistance to a number of OB/GYN residents and medical students. Additionally, recognizing the lack of environmental health education in the medical school curriculum, I have created a three month elective rotation for OB/GYN residents and fellows in reproductive environmental health education.

Another 25% of my effort is directed towards serving as an epidemiologist for the maternal-fetal medicine division, supporting faculty ongoing and future research endeavors. In this role I work with faculty to setup (design, IRB, etc.), manage (logistics and data procurement), analyze and ultimately publish research from their various projects. One notable research project is a large, divisionally supported, on-going birth cohort/biorepository: LIFECODES. Currently in its 13th year, LIFECODES contains longitudinally collected biological samples and clinical information on +5,500 pregnant women. I spend another 50% of my effort managing all aspects of this project, including a staff of three research techs who oversee recruitment/retention, collection and processing of biological samples, obtainment of relevant information from patient's electronic medical records and data set cleaning.

My research and educational activities are on the cutting edge of an understudied, but critical area of health: how toxicants in our environment impact pregnancy. I am part of a growing multidisciplinary, multi-institute group of clinicians/academics whose desire is to highlight to the next generation of OB/GYN practitioners and policy makers that our environment makes a real, and modifiable, adverse impact upon pregnancy. As such, I am working closely with faculty in the MFM division to integrate environmental health into the curriculum and align/expand our research aims with environmental health concerns.