

JESSICA TROWBRIDGE, PhD, MPH

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EDUCATION AND TRAINING

PhD University of California Berkeley, Environmental Health Sciences, 2020
MPH University of California Berkeley, Environmental Health Sciences, 2011
BS University of California, Berkeley, BS Molecular Environmental Biology, 2003
AA Merritt Community College, Oakland, General Education, 2000

EXPERIENCE

PROGRAM ON REPRODUCTIVE HEALTH AND THE ENVIRONMENT, University of California, San Francisco, CA

(November 2020- Present)

Postdoctoral fellow

The Program on Reproductive Health and the Environment (PRHE) aims to create a healthier environment for human reproduction and development through research, clinical practice, and policy. My current postdoctoral research has focused on prenatal exposures to toxic environmental chemicals and adverse pregnancy and birth outcomes. For this work I was awarded a Diversity supplement award from the Environmental Influences on Child Health Outcomes (ECHO), a program of the National Institutes of Health. This diversity supplement funds two years of postdoctoral work to evaluate prenatal exposure to toxic environmental chemicals and their influence on thyroid hormone disruption and infant neurodevelopment, this work is ongoing. In a separate analysis I evaluated data on exposure levels of nine environmental chemicals and pregnancy and birth outcomes among 300 matched maternal and cord blood samples. Chemicals included perfluoroalkyl substances (PFAS), phthalates, and fatty acids with both endogenous and exogenous sources. I found that PFAS chemicals were highly to moderately correlated between the maternal and cord samples. Among the mothers, I further assessed the relationship between chemical levels, demographic variables, and pregnancy and birth outcomes. In addition to research, I have presented at national and international conferences, taken courses in advanced statistical methods, joined PRHE's diversity equity and inclusion mentoring program, and was on the selection committee for UCSF's Pre-health Undergraduate Program.

WOMEN WORKERS BIOMONITORING COLLABORATIVE (WWBC) University of California, Berkeley CA
(February 2014 – October 2020)

Dissertation Research/ Study Coordinator

The WWBC is the first study to characterize exposures to environmental contaminants in women firefighters compared to non-firefighters. The focus of this study is on chemicals that have been associated with breast tumor development in animal and human studies and their impact on biomarkers of effect potential relevance to breast cancer. This study is a community based participatory research project in partnership with firefighter organizations, IAFF Local 798, environmental and breast cancer advocacy groups, and academic institutions. As study coordinator, I developed and implemented study protocols, led data and biospecimen collection and processing for 106 Firefighters, 124 office workers, and 60 nurses. I led administrative task including IRB compliance and budget management. I then pursued my PhD leveraging data that I collected from the WWBC to characterize chemical exposures among women firefighters and office workers in San Francisco and has contributed unprecedented data to the scientific literature on women's occupational health, including after a fire event. Using non-targeted methods, my dissertation characterized temporal trends in novel chemical exposures associated with fighting fires from samples taken within 48 hours, 1 week, and 1 month after a fire event. I also applied targeted methods to identify and quantify exposures among women firefighters to two classes of chemicals, perfluoroalkyl substances (PFAS) and organophosphate flame retardants (OPFRs). This analysis compared exposures between women office workers and firefighters in San Francisco and applied models to understand major sources of exposures in both groups. I also examined the effect of PFAS and OPFR levels on thyroid function in this population. I found that, overall, women firefighters in San Francisco had higher levels of environmental chemicals than office workers and that these exposures were associated

with specific work practices, including use of firefighting foams. In addition, I found that OPFR levels were significantly associated with thyroxine (T₄), a thyroid effect biomarker.

INSTITUT NATIONAL DE LA SANTÉ ET DE LA RECHERCHE MÉDICALE (INSERM)- Rennes, France
(August 2013- February 2014)

Research Engineer

I analyzed data from a longitudinal cohort study on pregnancy exposures and childhood development looking at solvent exposure during pregnancy and neurodevelopmental outcomes in the children at age six. I presented the results of this research at the 2015 International Society for Environmental Epidemiology Conference (oral presentation). I collaborated on a grant submission to the French government which aimed to link together primary care, environmental health, and community education for improved patient outcomes at the Rennes medical hospital and the affiliated school of public health.

PROGRAM FOR REPRODUCTIVE HEALTH AND THE ENVIRONMENT (PRHE), UCSF, San Francisco, CA
(June 2010- April 2013)

Research Scientist

I assisted with developing study protocols for the Chemicals in Our Bodies (CIOB) study—a biomonitoring study of low-income pregnant women recruited from San Francisco General Hospital (SFGH). I recruited, consented, and interviewed study participants in English and Spanish, coordinated with hospital staff to collect and process biospecimen samples. I also led PRHE's outreach and communication activities, which included disseminating patient centered education materials on environmental chemicals and coordinating monthly meetings of our communication and translation team. I coordinated the Reach the Decision Makers training program for physicians, scientists, and community advocates to learn how to influence environmental policy at the USEPA. I analyzed data from a national survey of doctors on environmental health exploring their knowledge about and attitudes towards discussing environmental chemical exposures with pregnant patients. Results of this analysis were published in a peer reviewed journal and supported a joint policy statement from the National College of Obstetrics and Gynecology and the Association for Reproductive Medicine on the importance of talking to pregnant women about environmental exposures.

BIOLOGY SCHOLARS PROGRAM (BSP), UC Berkeley, Berkeley, CA
(January 2005- August 2009)

Academic Advisor and student services manager

BSP is an academic program at UC Berkeley aimed at fostering excellence in academics and retention of underrepresented students in science at Berkeley. As coordinator of the pre-health pathway, I mentored students throughout their academic careers and assisted with their applications to medical and graduate school. In addition, I managed a staff of 7 advisors, which included training and follow-up through weekly staff meetings. I co-developed and co-taught a class on leadership skills at UC Berkeley for underrepresented students in STEM fields; the course included topics such as understanding individual leadership styles, leading "from where you are," and networking skills.

TIBURCIO VASQUEZ HEALTH CENTER, INC. Union City, CA
(September 2003- December 2005)

HIV Health Educator

Tiburcio Vasquez is a primary care clinic serving a predominantly Spanish-speaking and low-income community of South Alameda County. As an HIV health educator, I developed an HIV prevention and sexual health program for the HIV health education department. I led community outreach and trained 17 lay community health workers (*promotoras de salud*). I designed culturally and linguistically appropriate training manuals and workshop materials for the *promotoras* and coordinated the outreach efforts of the HIV prevention department. I developed evaluation tools to determine workshop, intervention, and program impact.

HONORS & AWARDS

2021- Present	Science Communication Network Fellowship
2021- Present	Co-chair, Environmental influences on Child Health Outcomes (ECHO) diversity supplement

2020- Present fellowship	Environmental influences on Child Health Outcomes (ECHO) diversity supplement
2020	3 rd Place, Best Trainee Poster at Mount Sinai Exposomics conference
2019	Outstanding Graduate Student Instructor Award, UC Berkeley
2019 – 2020	Switzer Environmental Leadership Fellowship; Robert and Patricia Switzer Foundation
2016 – 2020	Dr. Julia Quint Work and Environment Fellowship, UC Berkeley
2015 – 2020	Targeted Research Training Fellowship T42 National Institute of Occupational Safety and Health (NIOSH OH008429T32)
2017	Scholarship, American Industrial Hygiene Foundation (AIHF)
2015 – 2016	Scholarship, Hispanic Scholarship Fund (HSF)
2010	Scholarship, Hispanic Community Affairs Council
2009 – 2011	Scholarship, <i>Sociedad Mexicana Mutualista Morelos</i> , San Francisco

PUBLICATIONS

Eick SM, Enright EA, Padula AM, Aung M, Geiger SD, Cushing L, **Trowbridge J**, Keil AP, Baek HG, Smith S, Park JS, DeMicco E, Schantz SL, Woodruff TJ, Morello-Frosch R. Prenatal PFAS and psychosocial stress exposures in relation to fetal growth in two pregnancy cohorts: Applying environmental mixture methods to chemical and non-chemical stressors. *Environ Int* **2022**;163:107238.

<https://doi.org/10.1016/j.envint.2022.107238>.

Trowbridge J, Gerona R, McMaster M, Ona K, Clarity C, Bessonneau V et al. Organophosphate and Organohalogen Flame-Retardant Exposure and Thyroid Hormone Disruption in a Cross-Sectional Study of Female Firefighters and Office Workers from San Francisco. *Environ Sci Technol* **2021**. doi:10.1021/acs.est.1c05140.

Bessonneau, V.; Gerona, R. R.; **Trowbridge, J.**; Grashow, R.; Lin, T.; Buren, H.; Morello-Frosch, R.; Rudel, R. A. Gaussian Graphical Modeling of the Serum Exposome and Metabolome Reveals Interactions between Environmental Chemicals and Endogenous Metabolites. *Sci Rep* **2021**, 11 (1), 7607.

<https://doi.org/10.1038/s41598-021-87070-9>.

Eick, S. M.; Goin, D. E.; **Trowbridge, J.**; Cushing, L.; Smith, S. C.; Park, J.-S.; DeMicco, E.; Padula, A. M.; Woodruff, T. J.; Morello-Frosch, R. Dietary Predictors of Prenatal Per- and Poly-Fluoroalkyl Substances Exposure. *J Expo Sci Environ Epidemiol* **2021**. <https://doi.org/10.1038/s41370-021-00386-6>.

Clarity, C.; **Trowbridge, J.**; Gerona, R.; Ona, K.; McMaster, M.; Bessonneau, V.; Rudel, R.; Buren, H.; Morello-Frosch, R. Associations between Polyfluoroalkyl Substance and Organophosphate Flame Retardant Exposures and Telomere Length in a Cohort of Women Firefighters and Office Workers in San Francisco. *Environ Health* **2021**, 20 (1), 97. <https://doi.org/10.1186/s12940-021-00778-z>.

Trowbridge, J.; Gerona, R. R.; Lin, T.; Rudel, R. A.; Bessonneau, V.; Buren, H.; Morello-Frosch, R. Exposure to Perfluoroalkyl Substances in a Cohort of Women Firefighters and Office Workers in San Francisco. *Environ. Sci. Technol.* **2020**, 54 (6), 3363–3374. <https://doi.org/10.1021/acs.est.9b05490>.

Grashow, R.; Bessonneau, V.; Gerona, R. R.; Wang, A.; **Trowbridge, J.**; Lin, T.; Buren, H.; Rudel, R. A.; Morello-Frosch, R. Integrating Exposure Knowledge and Serum Suspect Screening as a New Approach to Biomonitoring: An Application in Firefighters and Office Workers. *Environ Sci Technol* **2020**, 54 (7), 4344–4355. <https://doi.org/10.1021/acs.est.9b04579>.

Trowbridge, J.; Sutton, P.; Woodruff, T. J.; Giudice, L. C. Chapter 20 - Environmental Factors and Reproduction. In *Yen & Jaffe's Reproductive Endocrinology (Seventh Edition)*; Strauss, J. F., Barbieri, R. L., Eds.; W.B. Saunders: Philadelphia, 2014; pp 432-438.e3. <https://doi.org/10.1016/B978-1-4557-2758-2.00020-2>.

Stotland, N. E.; Sutton, P.; **Trowbridge, J.**; Atchley, D. S.; Conry, J.; Trasande, L.; Gerbert, B.; Charlesworth, A.; Woodruff, T. J. Counseling Patients on Preventing Prenatal Environmental Exposures--a Mixed-Methods Study of Obstetricians. *PLoS ONE* **2014**, 9 (6), e98771. <https://doi.org/10.1371/journal.pone.0098771>.

Béranger, R.; Garlantézec, R.; Le Maner-Idrissi, G.; Lacroix, A.; Rouget, F.; **Trowbridge, J.**; Warembourg, C.; Monfort, C.; Le Gléau, F.; Jourdin, M.; Multigner, L.; Cordier, S.; Chevrier, C. Prenatal Exposure to Glycol Ethers and Neurocognitive Abilities in 6-Year-Old Children: The PELAGIE Cohort Study. *Environ. Health Perspect.* **2017**, 125 (4), 684–690. <https://doi.org/10.1289/EHP39>.

IN PREP

Trowbridge, J.; Abrahamsson, D.; Jiang, T.; Wang, M.; Park, JS.; Morello-Frosch, R.; Slatnick, M.; Woodruff, T. Uncovering exposures: A cross-sectional analysis of chemical exposures during pregnancy and birth outcomes. (In prep 2021)

Trowbridge, J.; Abrahamsson, D.; Jiang, T.; Wang, M.; Park, JS.; Padula, A.; Morello-Frosch, R.; Slatnick, M.; Woodruff, T. Understanding trends of exposure to perfluoroalkyl substances exposure in 2nd and 3rd trimester of pregnancy. (In prep 2021)

POSTERS & PRESENTATIONS

Jessica Trowbridge, Vincent Bessonneau, Miaomiao Wang, June-Soo Park, Elissia Franklin, Alexandre Borrel, Ruthann Rudel, Rachel Morello-Frosch. “A non-targeted approach to identify potential breast carcinogens in women firefighters after a fire event. International Society for Environmental Epidemiology, Online, August 2021

Jessica Trowbridge, Cassidy Clarity, Heather Buren, Roy Gerona, Katherine Ona, Michael McMaster, Vincent Bessonneau, Ruthann Rudel, Rachel Morello-Frosch. Organophosphate and organohalogen flame retardant exposure and thyroid hormone disruption in women firefighters and office workers from San Francisco. International Society for Environmental Epidemiology, Online, August 2021

Jessica Trowbridge, Vincent Bessonneau, Miaomiao Wang, June-Soo Park, Elissia Franklin, Alexandre Borrel, Ruthann Rudel, Rachel Morello-Frosch. “A non-targeted approach to identify potential breast carcinogens in women firefighters after a fire event. Society for Epidemiology Research, Online, June 2021

Jessica Trowbridge, Cassidy Clarity, Heather Buren, Roy Gerona, Katherine Ona, Michael McMaster, Vincent Bessonneau, Ruthann Rudel, Rachel Morello-Frosch. Organophosphate and organohalogen flame retardant exposure and thyroid hormone disruption in women firefighters and office workers from San Francisco. Society for Epidemiology Research, Online, June 2021

Cassidy Clarity, **Jessica Trowbridge**, Heather Buren, Erin Carrera, Lisa Hartmayer Anthony Stefani, Sharyle Patton, June-Soo Park, Vincent Bessonneau, Rachel Morello-Frosch, Ruthann Rudel. “Women at Work: Developing a biospecimen archive for investigating occupational exposures in women.” Mount Sinai Exposomics Conference; March 5-6, 2020; NYC, NY.

Jessica Trowbridge, Rachel Grashow, Vincent Bessonneau, Roy Gerona, Aolin Wang, Thomas Lin, Ruthann A. Rudel, Rachel Morello-Frosch. “A generalized suspect screening approach for identifying novel chemical exposures in firefighting.” Mount Sinai Exposomics Conference; March 5-6, 2020; NYC, NY. *Winner 3rd place: Best Trainee Poster.

Vincent Bessonneau, Roy Gerona, **Jessica Trowbridge**, Tomas Lin, Ruthann Rudel, Rachel Morello-Frosch “Metabolic Changes Associated with Exposure to Perfluoroalkyl Substances in Women.” International Society for Environmental Epidemiology Conference. August 2018.

Rachel Morello-Frosch, **Jessica Trowbridge**, Roy Gerona, Ruthann Rudel, Heather Buren, Anthony Stefani. "Community- and Discovery-Driven Exposure Science in the Women Firefighter Biomonitoring Collaborative." International Society for Environmental Epidemiology Conference. August 2018.

Jessica Trowbridge, Roy Gerona, Ruthann Rudel, Heather Buren, Anthony Stefani, Rachel Morello-Frosch. Poster. "Perfluoroalkyl acids among participants of the Women Firefighters Biomonitoring Collaborative Study." American Industrial Hygiene Association Conference and Expo, 2016, Baltimore Maryland, May 2016.

Jessica Trowbridge, Charline Warembourg, Christine Monfort, Marylene Jourdin, Florent Le Gleun, Ronan Garlantezec, Sylvaine Cordier, Cecile Chevrier. Prenatal exposure to organic solvents and contrast sensitivity performance in 6-year-old children. International Society for Environmental Epidemiology Conference. August 2014. Oral presentation

Jessica Trowbridge, Patrice Sutton, Naomi Stotland, Annemarie Charlesworth, Dylan Atchley, Tracey J. Woodruff. Clinicians and their Role in Reproductive Environmental Health. American Public Health Association National Conference. October 2012. Oral presentation.

Marj Plumb, **Jessica Trowbridge**, Annemarie Charlesworth, Carol Brindis, Tracey J. Woodruff. Protecting Reproductive Health through Policy Advocacy Training. American Public Health Association National Conference. October 2012. Oral presentation.