

Jennifer Feder Bobb, PhD
Curriculum Vitae
(Updated January 8, 2019)

Biographical information

Jennifer F. Bobb, PhD
Assistant Scientific Investigator
Biostatistics Unit, Kaiser Permanente Washington Health Research Institute
1730 Minor Ave, Suite 1600
Seattle, WA 98101-1448
☎ 206.287.2190
✉ jennifer.f.bobb@kp.org
Affiliate Assistant Professor
Department of Biostatistics, University of Washington

Education

BA Mathematics, *summa cum laude*, Washington University in St. Louis, 2006
PhD Biostatistics, Johns Hopkins Bloomberg School of Public Health, 2012
Thesis title: *Statistical analysis of multisite time series data for estimating health effects of environmental exposures*
Advisor: Roger D. Peng, Professor, Department of Biostatistics

Professional positions

Affiliate Assistant Professor, Department of Biostatistics, University of Washington, April 2017–present
Assistant Scientific Investigator, Biostatistics Unit, Kaiser Permanente Washington Health Research Institute (formerly Group Health Research Institute), July 2015–present
Research associate, Department of Biostatistics, Harvard T.H. Chan School of Public Health, 2013–2015
Postdoctoral fellow, Department of Biostatistics, Harvard T.H. Chan School of Public Health, 2012–2013
Research assistant, Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health, 2008–2011
Student software developer, R Project for Statistical Computing, Google Summer of Code, 2011
Data analyst, Career Services and Disability Support Office, Johns Hopkins Bloomberg School of Public Health, 2008–2010
Research assistant, Johns Hopkins Asthma and Allergy Center, 2009
Research assistant, Department of Critical Care Medicine, University of Pittsburgh, summer 2006

Honors, awards, and scholarships

NIEHS Paper of the Year, 2015

Junior Researcher Travel Award, Women in Statistics Conference, 2014

John M. Chambers Statistical Software Award, ASA Section on Statistical Computing, 2012

Statistics in Epidemiology Young Investigator Award, ASA Section on Statistics in Epidemiology, 2011

Louis I. and Thomas D. Dublin Award for the Advancement of Epidemiology and Biostatistics, Johns Hopkins Bloomberg School of Public Health, 2011

First place, Delta Omega Biostatistics Poster Competition, Johns Hopkins Bloomberg School of Public Health, 2011

Sommer Scholar, Johns Hopkins Bloomberg School of Public Health, 2007–2011

NIH Environmental Biostatistics Training Grant, 2007–2011

Washington University Dean's Scholarship, 2002–2006

Sigma Xi, scientific research honorary, 2006

NSF Research Experience for Undergraduates, Summers 2004, 2005

Other professional activities

Associate Editor, *Biostatistics*, Feb. 2017–present

Reviewer (Peer review history available on [Publons](#))

American Journal of Epidemiology

Annals of Applied Statistics

Biometrics

Biostatistics

BMC Public Health

BMJ

Environmental Health

Environmental Health Perspectives

Epidemiology

Generating Evidence & Methods to Improve Patient Outcomes

International Journal of Biometeorology

International Journal of Epidemiology

JAMA

JASA

Journal of Agricultural, Biological, and Environmental Statistics

Journal of the Royal Statistical Society (Series A; Series C)

Nature Climate Change

PLOS One

Science of the Total Environment

Statistics in Medicine

Statistical Methods in Medical Research

The American Statistician

Memberships

Bibliography

Peer-reviewed research articles (Indicates mentored work of student)*

1. Drewnowski A, Arterburn D, Zane JN, Aggarwal A, Gupta S, Hurvitz PM, Moudon AV, **Bobb JF**, Cook AJ, Lozano P, Rosenberg D (In press). Moving to Health: a natural experiment to study the impact of the built environment on long-term health. *SSM-Population Health*. 100345.
2. Shortreed SM, Cook AJ, Coley RY, **Bobb JF**, Nelson JC (In press). Challenges and opportunities for using big health care data to advance medical science and public health. *American Journal of Epidemiology*
3. Domingo-Relloso A, Grau-Perez M, Briongos-Figuero L, Gomez-Ariza JL, Garcia-Barrera T, **Bobb JF**, Martin-Escudero JC, Chaves FJ, Kioumourtzoglou M, Navas-Acien A, Redon-Mas J, Tellez-Plaza M (2019). The association of urine metals and metal mixtures with cardiovascular incidence in an adult population from Spain: the Hortega Follow-Up Study. *Environment international*. 2019 Feb 1;123:171-80.
4. **Bobb JF**, Claus Henn B, Valeri L, Coull BA (2018). Statistical software for estimating the joint health effects of multiple concurrent exposures via Bayesian kernel machine regression. *Environmental Health*. 17:67.
5. Liu SH, **Bobb JF**, Claus Henn B, Gennings C, Schnaas L, Tellez-Rojo M, Bellinger D, Arora A, Wright RO, Coull BA (2018). Bayesian varying coefficient kernel machine regression to assess cognitive trajectories associated with exposure to complex mixtures. *Statistics in Medicine*.
6. Marcum ZA, Walker R, **Bobb JF**, Sin MK, Gray SL, Bowen JD, McCormick W, McCurry SM, Crane PK, Larson EB (2018). Serum cholesterol and incident Alzheimer's disease: Findings from the Adult Changes in Thought Study. *J Am Geriatr Soc*.
7. Sordillo JE, Switkowski KM, Coull BA, Schwartz J, Kloog I, Gibson H, Litonjua AA, **Bobb J**, Koutrakis P, Rifas-Shiman SL, Oken E (2018). Relation of Prenatal Air Pollutant and Nutritional Exposures with Biomarkers of Allergic Disease in Adolescence. *Scientific Reports*. 8:10578.
8. Glass JE, **Bobb JF**, Lee AK, Richards JE, Lapham GT, Ludman E, Achtmeyer C, Caldeiro RM, Parrish R, Williams EC, Lozano P, Bradley KA (2018). Study protocol: a cluster randomized trial implementing sustained patient-centered alcohol-related care (SPARC Trial). *Implementation Science*. 13(1)108.
9. Yitzhak-Sade M, **Bobb JF**, Schwartz J, Kloog I, Zanobetti A (2018). The synergistic effect of short and long-term exposure to PM_{2.5} and temperature on hospital admissions in New England. *Science of the Total Environment*. 639:868–875.
10. Williams E, McGinnis KA, **Bobb JF**, Rubinsky AD, Lapham GW, Skanderson M, Catz SL, Bensley KM, Richards JE, Bryant KJ, Edelman J, Satre DD, Marshall BD, Kraemer KL, Blosnich JR, Crystal S, Gordon AJ, Fiellin DA, Justice AC, Bradley KA (2018). Changes in alcohol use associated with changes in HIV disease severity over time: A national longitudinal study in the Veterans Aging Cohort. *Drug and Alcohol Dependence*. 189:21–29.

11. Liu SH, **Bobb JF**, Claus Henn B, Schnaas L, Tellez-Rojo M, Gennings C, Arora M, Wright BO, Coull BA, Wand MP (2018). Modeling the health effects of time-varying complex environmental mixtures: Mean field variational Bayes for lagged kernel machine regression. *Environmetrics*. e2504.
12. *Hopp S, Dominici F, **Bobb JF** (2018). Medical diagnoses of heat wave-related hospital admissions in older adults. *Preventive Medicine*. 110:81–85.
13. Bradley KA, **Bobb JF**, Ludman EJ, Chavez LJ, Saxon AJ, Merrill JO, Williams EC, Hawkins EJ, Caldeiro RM, Achtmeyer CE, Greenberg DM, Lapham GT, Richards JE, Lee AK, Kivlahan DR (2018). Alcohol-related nurse care management in primary care: a randomized controlled trial. *JAMA Internal Medicine*.
14. Liu SH, **Bobb JF**, Lee K, Gennings C, Claus Henn B, Wright BO, Schnaas L, Tellez-Rojo M, Arora M, Coull BA (2017). Lagged Kernel Machine Regression for Identifying Time Windows of Susceptibility to Exposures of Complex Metal Mixtures. *Biostatistics*.
*Winner of the 2017 International Biometric Society Eastern North American Region's (ENAR) Distinguished Student Paper Award
15. **Bobb JF**[†], Lee AK[†], Lapham GT, Oliver M, Ludman E, Achtmeyer C, Parrish R, Caldeiro RM, Lozano P, Richards JE, Bradley KB (2017). Evaluation of a pilot implementation to integrate alcohol-related care within primary care. *International Journal of Environmental Research and Public Health*. 14(9). pii: E1030. PMID: 28885557
[†]Indicates equal contribution to the conceptualization and writing of the manuscript
16. Bradley KA, Ludman EJ, Chavez L, **Bobb JF**, Ruedebusch SJ, Achtmeyer C, Merrill JO, Saxon AJ, Caldeiro R, Greenberg DM, Lee AK, Richards JE, Thomas RM, Matson TE, Williams EC, Hawkins E, Lapham G, Kivlahan DR (2017). Patient-centered Primary Care for Adults at High Risk for AUDs: the Choosing Healthier Drinking in Collaborative Care (CHOICE) Trial. *Addiction Science & Clinical Practice*. 12(1):15
17. Williams EC, Lapham GT, **Bobb JF**, Rubinsky AD, Catz SL, Shortreed SM, Bensley KM, Bradley KA (2017). Documented brief intervention not associated with resolution of unhealthy alcohol use one year later among VA patients living with HIV. *Journal of Substance Abuse Treatment*. 78:8–14
18. Williams EC, Lapham GT, Shortreed S, Rubinsky AD, **Bobb JF**, Bensley KM, Catz S, Richards J, Bradley KA (2017). Among patients with unhealthy alcohol use, those with HIV are less likely than those without to receive evidence-based alcohol-related Care: a national VA study. *Drug and Alcohol Dependence*. 174:113–120
19. Valeri L, Mazumdar M, **Bobb JF**, Claus Henn B, Rodrigues E, Sharif OIA, Kile ML, Quamruzzaman Q, Afroz S, Golam M, Amarasiriwardena C, Bellinger DC, Christiani DC, Coull BA, Wright RO (2017). The joint effect of prenatal exposure to metal mixtures on neurodevelopmental outcomes at 20-40 months of age: evidence from rural Bangladesh. *Environmental Health Perspectives*. 67015, 1
20. **Bobb JF**, Ho KL, Yeh RW, Harrington L, Zai A, Liao KP, Dominici F (2017). Time-course of cause-specific hospital admissions during snowstorms: an analysis of electronic medical records from major hospitals in Boston. *American Journal of Epidemiology*. 185(4):283–294
*Media coverage: Reuters, CBS News, Harvard press release

21. Valeri L, Patterson-Lomba O, Gurmu Y, Ablorh A, **Bobb JF**, Townes W, Harling G (2016). Predicting subnational Ebola virus disease epidemic dynamics from sociodemographic indicators. *PLOS ONE*. 11(10): e0163544.
22. *Wang Y, **Bobb JF**, Papi B, Wang R, Kosheleva A, Di Q, Schwartz JD, Dominici F (2016). Heat stroke admissions during heat waves in 1,916 US counties for the period from 1999 to 2010 and their effect modifiers. *Environmental Health*. 15(1):83. PMID: 27503399.
23. Johnson S, **Bobb JF**, Ito K, Elston B, Matte T, Shmool JLC, Dominici F, Ross Z, McAlexander T, Clougherty JE, Savitz D (2016). Ambient fine particulate matter, nitrogen dioxide, and preterm birth in New York City. *Environmental Health Perspectives*. 124(8):1283–90.
24. Shmool JLC, **Bobb JF**, Savitz DA, Ito K, Matte TD, Johnson S, Elston B, Ross Z, Dominici F, Clougherty JE (2015). Area-level socioeconomic deprivation, nitrogen dioxide exposure, and term birth weight in New York City. *Environmental Health*. 142:624–32.
25. Savitz DA, Elston B, **Bobb JF**, Clougherty JE, Dominici F, Ito K, Johnson S, McAlexander T, Ross Z, Shmool JLC, Matte TD, Wellenius GA (2015). Ambient fine particulate matter, nitrogen dioxide, and hypertensive disorders of pregnancy in New York City. *Epidemiology*. 25(5):748–57.
26. **Bobb JF**, Valeri L, Claus Henn B, Christiani DC, Wright RO, Mazumdar M, Godleski JJ, Coull BA (2015). Bayesian kernel machine regression for estimating the health effects of multi-pollutant mixtures. *Biostatistics*. 16(3):493–508
*Featured in a [Researcher Spotlight](#) by the Harvard T.H. Chan School of Public Health Superfund Program
27. **Bobb JF**, Obermeyer Z, Wang Y, Dominici F (2014). Cause-specific risk of hospital admission related to extreme heat in older adults. *JAMA*. 312(24):2659–2667
*Recognized as one of the [Papers of the Year](#) by the National Institute of Environmental Health Sciences
28. **Bobb JF**, Peng RD, Bell ML, Dominici F (2014). Heat-related mortality and adaptation to heat in the United States. *Environmental Health Perspectives*. 122:811–816. doi: 10.1289/ehp.1307392
*Featured as a [Science Selection](#) by Environmental Health Perspectives
29. Savitz DA, **Bobb JF**, Carr JL, Clougherty JE, Dominici F, Elston B, Ito K, Ross Z, Yee M, Matte TD (2014). Ambient fine particulate matter, nitrogen dioxide, and term birth weight in New York City. *American Journal of Epidemiology*. 179(4):457–66
30. **Bobb JF**, Schwartz BS, Davatzikos C, Caffo B (2014). Cross-sectional and longitudinal association of body mass index and brain volume. *Human Brain Mapping*. 35(1):75–88
31. Roberts AL, Lyall K, Hart JE, Laden F, Just AC, **Bobb JF**, Koenen KC, Ascherio A, Weisskopf MG (2013). Perinatal air pollutant exposures and autism spectrum disorder in the children of Nurses' Health Study II participants. *Environmental Health Perspectives*. 121(8):978–84
32. **Bobb JF**, Dominici F, Peng RD (2013). Reduced hierarchical models with application to estimating health effects of simultaneous exposure to multiple pollutants. *Journal of the Royal Statistical Society, Series C*. 62(3):451–472
33. James BD, Glass TA, Caffo B, **Bobb JF**, Davatzikos C, Yousem D, Schwartz BS (2012). Association of social engagement with brain volumes assessed by structural MRI. *Journal of Aging Research*. vol. 2012, Article ID 512714, 9 pages. doi:10.1155/2012/512714.

34. **Bobb JF**, Dominici F, Peng RD (2011). A Bayesian model averaging approach for estimating the relative risk of mortality associated with heat waves in 105 U.S. cities. *Biometrics*. 67(4):1605–1616
*Received Statistics in Epidemiology Young Investigator Award
35. **Bobb JF**, Scharfstein DO, Daniels MJ, Collins FS, Kelada SN (2011). Multiple imputation of missing phenotype data for QTL mapping. *Statistical Applications in Genetics and Molecular Biology*. Vol. 10: Iss. 1, Article 29.
36. Peng RD, **Bobb JF**, Tebaldi C, McDaniel L, Bell ML, Dominici F (2011). Toward a quantitative estimate of future heat wave mortality under global climate change. *Environmental Health Perspectives*. 119(5):701–706.
37. Goldsmith J, **Bobb J**, Crainiceanu C, Caffo B, Reich D (2011). Penalized functional regression. *Journal of Computational and Graphical Statistics*. 20(4):830–851.
38. Eisenstat D, **Feder (Bobb) J**, Francos G, Gordon G, Redlich A (2008). Expected rank and randomness in rooted graphs. *Discrete Applied Mathematics*. 156(5):746–756.

Other peer-reviewed scholarly publications

Coull BA, **Bobb JF**, Wellenius GA, Kioumourtzoglou M, Mittleman MA, Koutrakis P, Godleski JJ. (2015). New statistical methods for analyzing multiple pollutants, sources, and health outcomes. Part I: Statistical learning methods for the effects of multiple air pollution constituents. Research report. *Health Effects Institute*. Report 183

Software

1. **Bobb JF**. `bkmr`: An implementation of Bayesian kernel machine regression for estimating the joint health effects of multiple concurrent exposures. R package. Latest release available on CRAN.
2. **Bobb JF**, Zhao H, Varadhan R. `turboEM`: A suite of convergence acceleration schemes for EM and MM algorithms. R package.
*Winner of the 2012 John M. Chambers Statistical Software Award

Submitted manuscripts

1. Nelson JC, Ulloa E, **Bobb JF**, Maro JC. Leveraging the entire cohort in drug safety monitoring: A review of sequential surveillance methods that use regression or weighting to control confounding in a rare event setting
2. Dublin S, Walker RL, **Bobb JF**, Caughey AB, Hold VL, Wing DA, Shi JM, Duchovny D, Getahun D. Outcomes after non-indicated induction of labor compared to expectant management: a retrospective cohort study.
3. Richards JE, **Bobb JF**, Lee AK, Lapham GT, Williams EC, Glass JE, Ludman E, Achtmeyer C, Caldeiro R, Oliver M, Bradley K. Pilot study implementing care for cannabis and other drug use with behavioral health integration in primary
4. Williams EC, McGinnis KA, Tate JP, Matson TE, Rubinsky AD, **Bobb JF**, et al. HIV disease severity is sensitive to temporal changes in alcohol use: a national study of VA patients with HIV

5. Williams EC, **Bobb JF**, Lee AK, Ludman EJ, Richards JE, Hawkins E, Merrill JO, Saxon AJ, Lapham GT, Matson TE, Chavez LJ, Caldeiro R, Greenberg DM, Kivlahan DR, Bradley KA. Effect of a care management intervention on 12-month drinking outcomes among patients with and without alcohol dependence at baseline
6. Devick KL, **Bobb JF**, Mazumdar MM, Henn BC, Bellinger DC, Christiani DC, Wright RO, Williams PL, Coull BA, Valeri L. Bayesian kernel machine causal mediation analysis. arXiv preprint arXiv:1811.10453. 2018 Nov 26.
7. Celik S, Russell JC, Pestana CR, Lee TI, Mukherjee S, Crane PK, Keene D, **Bobb JF**, Kaeberlein M, Lee SI. A probabilistic approach to using big data reveals Complex I as a potential Alzheimer's disease therapeutic target. bioRxiv. 2018 Jan 1:302737.

Manuscripts in preparation

1. **Bobb JF**, Cook AJ, Shortreed SM, Glass JE, Vollmer WM. Selection bias in cluster randomized trials due to interventions affecting identification of the study population of interest. Guidance document in preparation for the NIH Collaboratory Living Textbook.
2. **Bobb JF**, Qiu H, Bradley K. Design and analytic challenges related to identification bias in pragmatic trials of interventions addressing underdiagnosed health conditions: the Primary care Opioid Use Disorders treatment (PROUD) trial
3. Lapham GT, Boudreau DM, Johnson E, **Bobb JF**, Matthews AG, McCormack J, Liu D, Samet JH, Saxon AJ, PROUD Collaborative Authors, Bradley KA. Prevalence and treatment of opioid use disorders among primary care patients in six health systems
4. Zanobetti A, Coull BA, Luttmann-Gibson H, van Rossem L, Rifas-Shiman SL, Kloog I, Schwartz JD, Oken E, **Bobb JF**, Koutrakis P, Gold DR. Ambient lead and vanadium concentrations are associated with newborn blood pressure in Project Viva
5. Tsui J, Johnson E, Lapham GT, Boudreau DM, **Bobb JF**, et al. Opioid use disorder diagnosis and treatment among primary care patients with and without hepatitis C and HIV: data from 6 health systems
6. Boudreau DM, Lapham GT, Johnson E, **Bobb JF**, et al. Documented opioid use disorder and treatment in primary care across six health systems

Funding history

Ongoing projects

Co-investigator, *PR*imary care Opioid Use Disorders Treatment (*PROUD*) Trial. UG1 DA040314 (PI: Bradley), NIDA; Direct Costs: \$11,885,123, 0.10 FTE, 2017–2020

Evidence-based treatment for opioid use disorders (OUDs) includes medications, and two medications for OUDs—buprenorphine and naltrexone—can be prescribed in primary care (PC). However, despite the current opioid epidemic and expert recommendations that OUDs should be treated in PC, most PC clinics do not offer treatment for OUDs. This reflects a lack of consensus among health system leaders and clinicians that OUDs should be treated in PC. The overall objective of the *PR*imary care Opioid Use Disorders (*PROUD*) trial is to provide information to guide health system leaders in the decision of whether or not to treat OUDs in PC, by evaluating the benefits of implementing a program that integrates high quality OUD treatment into the normal flow of PC.

Co-investigator, *Moving to Health: How changing built environments impact weight and glycemic control*, R01 DK114196 (PI: Arterburn), NIDDK; Direct Costs: \$2,157,999; 0.20 FTE, 9/1/2017–8/31/2022.

This natural experiment examines sudden changes in the built environment (BE) among people who move their residence, as well as gradual BE changes (among non-movers), in a very large cohort, providing unprecedented insights into the impact of place on health, with a focus on obesity and type 2 diabetes. Our findings will help urban planners and policymakers target different BE features for intervention, based on local and regional realities. Consumers and developers can use this information to make informed decisions about neighborhood features likely to be most supportive of health.

Co-investigator, *Psychological benefits and potential pathogen transmission in hospitalized pediatric oncology patients receiving therapy dog visits: a randomized controlled trial*, R21 HD091877-01 (PI: Chubak), NICHD; Direct Costs: \$342,090; 0.05–0.10 FTE, 5/1/2017–4/30/2019 Key Personnel: HIPPO. R21 HD091877.

Cancer and its treatment can cause significant distress in children. Visits from therapy dogs have the potential to help hospitalized children with cancer, but the efficacy and safety of these visits have not been studied. This randomized controlled trial will rigorously test whether therapy dog visits reduce distress in hospitalized children with cancer and whether these visits increase the risk of pathogen transmission.

Co-investigator, *Evaluation of the Risk of Neural Tube Defects Among Live Births Exposed to Maternal Prescription Opioids During Early Pregnancy using MEPREP*, Food and Drug Administration, Direct Costs: \$470,212; 0.20 FTE, 2016–2019

The overall objective of this study is to measure the association between in utero exposure to prescription opioids during early pregnancy and primary neurulation defects. Specifically, the specific aim is to evaluate whether the risk of primary neurulation defects (referred to as primary neural tube defects (NTD)) differ among live births exposed to maternal prescription opioids from 18 to 56 days after last menstrual period (LMP) compared to live births of women unexposed to opioids during this same window.

Co-investigator, *Integrating Addiction Research in Health Systems: the Addiction Research Network*, UG1 DA040314 (PI: Campbell, Bradley, Weisner), NIDA; Direct Costs: \$713,143; 0.10 FTE, 9/1/2015–5/31/2020

The proposed Addictions Research Network node of the NIDA Clinical Trials Network (CTN) has 3 main agendas: 1) to identify best practices for managing substance use disorder in medical settings; 2) to identify how to optimally implement those best practices in medical settings; and 3) to improve scientific methods for addressing Agendas 1 and 2 and disseminate them both within the CTN and beyond.

Co-investigator (PI, GHRI subcontract), *Cardiovascular Health and Air Pollution: A National Study*, R01 ES024332-01A1 (PI: Zanobetti), NIEHS; Direct Costs: \$59,084; 0.08 FTE, 8/1/2015–2/28/2019

To estimate the short- and long-term health effects associated with exposure to extreme heat and low levels of fine particulate matter in a large population of Medicare enrollees living in rural and urban areas. Our findings will provide a much needed evidence base for the development of new cost effective and beneficial air quality interventions.

Co-investigator, *Alzheimer's Disease patient registry (ADPR/ACT)*, U01 AG006781 (PI: Larson, Crane), NIA; Direct Costs: \$10,329,826; 0.10 FTE, 5/15/2015-1/30/2018

To determine cardiovascular and pharmacologic risk factors for Alzheimer disease in a community-based epidemiological study begun over 20 years ago. We will investigate mid- and late-life diseases that target microvessels (diabetes and renal disease) as well as atrial fibrillation (Aim 1) and late-life measures of physical performance (Aim 2) as determinants of such injury, and to continue to serve as a resource to the research community (Aim 3).

Completed projects

Co-investigator, *Integrating Addiction Research in Health Systems: the Addiction Research Network (ARN) - Supplement*, UG1 DA040314 (PI: Campbell, Bradley, Weisner), NIDA; Direct Costs: \$299,007; 0.15 FTE, 9/1/2015–5/31/2017

1. Describe rates of drug and marijuana screening across clinics, providers, and patient subgroups, and over time, as well as barriers and facilitators to population-based screening; 2. Assess changes in rates of identification and treatment of drug use and DUDs over time (3/2014-2/2016); and 3. Assess whether drug and marijuana use, reported on brief screens, is associated with increased subsequent urgent care, ED, and hospitalization.

Co-investigator, *Alcohol-related care and outcomes for outpatients with HIV in a national VA cohort*, R21 AA022866 (PI: Bradley, Williams), NIAAA; Direct Costs: \$274,168; 0.10 FTE, 2/15/2015–1/31/2017

This research uses a unique, secondary national VA dataset that includes repeated alcohol screening data to describe and evaluate the effectiveness of brief alcohol interventions received in routine care among patients with HIV and unhealthy alcohol use. In addition, this study will evaluate whether changes in alcohol screening scores are associated with changes in HIV-related clinical outcomes in order to understand whether routine clinical alcohol screening can be used to monitor drinking in HIV+ populations for whom alcohol use is particularly risky.

Co-investigator, *Elective Induction of Labor and Pregnancy Outcomes*, R01 HD071986 (PI: Dublin, Getahun), NICHD; 0.15 FTE, 9/1/2013–5/31/2017

To compare the risk of various birth outcomes including cesarean delivery, postpartum hemorrhage, neonatal intensive care unit stay, and others after elective induction versus expectant management at 38, 39, and 40 weeks' gestation; to examine how risks vary by the mother's race/ethnicity, parity, and pre-pregnancy obesity status; and to develop an algorithm to more accurately identify elective inductions from electronic data. Role: Co-Investigator

Principal investigator, *Developing statistical software for estimating the joint effects of multiple risk factors*, GHRI Directors Project Resource Fund; Direct Costs: \$2,970; 0.00 FTE, 9/1/2015–3/1/2016

Most statistical methods estimate the health effects of a single risk factor while adjusting for the potential effects of confounding factors. New statistical methods have recently been developed to estimate the joint effects of multiple factors simultaneously, but a key barrier to the use and dissemination of these methods is the lack of software implementing the methods. The requested funds would be used to support a statistical programmer to develop an open-source software package implementing novel statistical methods for estimating the health effects of concurrent exposure to multiple risk factors.

Principal investigator, *A statistical approach for estimating the health effects of air pollution mixtures on multiple outcomes simultaneously*, HSPH-NIEHS Center Pilot Project P30ES000002; Direct Costs: \$22,000; 4/1/15–3/31/16

We will develop a new scientific and statistical paradigm for analyzing concurrently a massive number of health outcomes. This project will enable us to study, for the first time, the short-term effects of exposure to air pollution mixtures on more than 15,000 ICD-9 codes simultaneously, rather than on pre-specified individual conditions. Knowledge of the range of health responses that are affected by air pollution mixtures will inform public health approaches to prevention.

Co-investigator, *Vulnerability and Adaptation to Heat and Air Pollution in a Changing Climate*, R21 ES022585 (PI: Dominici), NIEHS, 12/18/13–8/31/15

To mitigate the public health consequences of climate change we need to recognize the synergy due to concurrent changes in several environmental stressors and that populations will adapt. This is the first national study that will characterize the public health consequences of changes in both heat and air pollution under changing climate. By strengthening our understanding of which communities and populations will be most vulnerable and of how they will adapt, we will greatly impact the development of environmental interventions.

Postdoctoral fellow, *Air Pollution and Pregnancy Outcome in New York City*, R01 ES019955 (PI: Savitz), NIEHS, 7/01/11–3/31/15

We propose to examine the relationship between air pollution and pregnancy outcome in New York City to help determine whether there is a causal link, focusing on the effect of particulate air pollution in late pregnancy on preterm birth and reduced fetal growth.

Conferences and symposiums

(Like presentations grouped; * indicates invited presentation)

“Methods to utilize longitudinal EHR and address data connected to the built environment to assess if moving to a different environment affects health.” **Bobb JF**, Cook AJ. Joint Statistical Meetings, Vancouver, Canada, 2018

*Invited Speed Poster, ENAR Spring Meeting, Philadelphia, PA, 2019 (upcoming)

*Joint Statistical Meetings, Vancouver, Canada, 2018

*“Statistical innovations in pragmatic trials of health-system implementation interventions,” Glass JE, **Bobb JF**, 11th Annual Conference Science Dissemination and Implementation Health, Washington, D.C., 2018

“Statistical challenges in the design of a pragmatic trial of primary care-based treatment for opioid use disorders.”

*3rd Seattle Symposium on Health Care Data Analytics, Seattle, WA, 2018

12th International Conference on Health Policy Statistics, Charleston, SC, 2018

“Overview of statistical research conducted at KPWHRI.” **Bobb JF**, Akosile M, Zhu W. Biostatistics Student Seminar Series, University of Washington, 2018

“Data visualization in practice: examples from Kaiser Permanente Washington Health Research Institute.” **Bobb JF**, Cahill C, Fuller S, Gray M, Ichikawa, L, Coley Y, KPWHRI, 2017

“Serum cholesterol and incident Alzheimer’s disease: findings from the Adult Changes in Thought Study.” ACT Research Symposium, *Advancing brain aging science through community and population-based studies*, KPWHRI, 2017

“Overview of statistical research conducted at Group Health Research Institute.” **Bobb JF**, Coley Y, Nelson J, Shortreed S, Yu O., Biostatistics Student Seminar Series, University of Washington, 2017

“Bayesian kernel machine regression for estimating the health effects of multi-pollutant mixtures”

*Biostatistics Seminar Series, Fred Hutchinson Cancer Research Center, 2016

*Biostatistics Seminar, University of Rochester, 2016

*Biostatistics Seminar, University of Washington, 2016

*“Bayesian kernel machine regression for estimating the health effects of multi-pollutant mixtures.” Claus Henn B, **Bobb JF**, Valeri L, Coull BA. *Workshop: Statistical Approaches for Assessing Health Effects of Environmental Chemical Mixtures in Epidemiology Studies*, National Institute of Environmental Health Sciences, Research Triangle Park, NC, 2015

“Beyond the one-exposure, one-outcome paradigm for scientific discovery in environmental epidemiology”

*Department of Biostatistics, Brown University, Providence, RI, 2015

*Department of Biostatistics, University of Pennsylvania, Philadelphia, PA, 2015

*Department of Biostatistics, University of Minnesota, Minneapolis, MN, 2015

*Department of Statistics, North Carolina State University, Raleigh, NC, 2015

*Department of Statistics and Applied Probability, University of California, Santa Barbara, 2015

*Department of Biostatistics, University of Massachusetts, Amherst, MA, 2014

*Group Health Research Institute, Seattle, WA, 2014

*Department of Biostatistics, Columbia University, New York, NY, 2014

*Department of Biostatistics, Yale University, New Haven, CT, 2014

“Identification of acute health conditions during extreme heat events.” Poster, Women in Statistics Conference, Cary, NC, 2014

“Identifying the constellation of emergency health conditions most sensitive to extreme heat.” Poster, ENAR Spring Meeting, Baltimore, MD, 2014

“Ambient fine particulate matter, nitrogen dioxide, and term birth weight in New York City.” Clean Air Research Center, Harvard T.H. Chan School of Public Health, 2013

*“Statistical methods for estimating health effects of simultaneous exposure to multiple pollutants.” Work-in-Progress Webinar, Clean Air Research Center, Environmental Protection Agency, 2013

“Bayesian kernel machine regression for estimating the health effects of multi-pollutant mixtures.”

*International Society for Environmental Epidemiology, Basel, Switzerland, 2013

Joint Statistical Meetings, Montreal, Canada, 2013

Superfund Research Program, Harvard T.H. Chan School of Public Health, 2013

Environmental Statistics Seminar, Harvard T.H. Chan School of Public Health, 2013

Clean Air Research Center, Harvard T.H. Chan School of Public Health, 2013

*“Accounting for uncertainty in estimating the health effects of climate change.” Special Seminar, Harvard T.H. Chan School of Public Health, 2013

“Challenges of estimating the health impacts of extreme heat under global climate change.” P01 Environmental Statistics Retreat, Harvard T.H. Chan School of Public Health, 2013

“Integration and benchmarking of state-of-art convergence accelerators of the EM algorithm.” Topic contributed session: *Enhancing the EM Algorithm by Leveraging Modern Advances in Computing*. Joint Statistical Meetings, San Diego, CA, 2012

“Reduced Bayesian hierarchical models: Estimating health effects of simultaneous exposure to multiple pollutants.” Topic contributed session: *Statistical Challenges of Spatial Multi-Pollutant Data in Environmental Epidemiology*. ENAR Spring Meeting, Washington, DC, 2012

“Reduced Bayesian hierarchical models for high-dimensional, clustered data.” Poster, Statistical Methods for Very Large Datasets Conference, Baltimore, MD, 2011

“Statistical analysis of multisite time series data for estimating health effects of environmental exposures.” Environmental Statistics Seminar, Harvard T.H. Chan School of Public Health, 2011

*“Accounting for model uncertainty in estimating the relative risk of mortality associated with heat waves.” *Symposium: Heat or heat waves? Does it matter which epidemiologists study?* International Society for Environmental Epidemiology, Barcelona, Spain, 2011

“A Bayesian model averaging approach for estimating the relative risk of mortality associated with heat waves in 105 U.S. cities.”

Joint Statistical Meetings, Miami Beach, FL, 2011, recipient of Statistics in Epidemiology Young Investigator Award recipient

Delta Omega Poster Competition, Johns Hopkins Bloomberg School of Public Health, 2011, Awarded first place in Biostatistics Poster Competition

ENAR Spring Meeting, Miami, FL, 2011

Environmental Biostatistics and Epidemiology Working Group, Johns Hopkins Bloomberg School of Public Health, 2010

“On eliminating nuisance parameters in Bayesian hierarchical models.” Environmental Biostatistics and Epidemiology Working Group, Johns Hopkins Bloomberg School of Public Health, 2011

“Displaying data.” Department of Biostatistics Student Journal Club, Johns Hopkins Bloomberg School of Public Health, 2010

“Advice for conducting statistical research.” Department of Biostatistics Student Journal Club, Johns Hopkins Bloomberg School of Public Health, 2009

“Quantifying the health effects of heat waves, present and future.” Environmental Biostatistics and Epidemiology Working Group, Johns Hopkins Bloomberg School of Public Health, 2009

“Assessing air pollution interventions.” Environmental Biostatistics and Epidemiology Working Group, Johns Hopkins Bloomberg School of Public Health, 2008

Professional service

National service

Committee on Funded Research, American Statistical Association, 2019–2021

Regional Advisory Board, West North Atlantic Region of the International Biometric Society, 2016–2018

Conference Session Organizer, 3rd Seattle Symposium on HealthCare Data Analytics, 2018

Conference Session Chair, Joint Statistical Meetings, 2012

Local service and involvement, KPWHRI

Biostatistics Journal Club organizer, KPWHRI, 2016–present

Search committee for collaborative biostatistician hire, 2018

Orientation mentor for new faculty, 2018

Evaluation committee member for opportunistic hire, 2016

Liaison of the Biostatistics Unit to IT, 2015–2017

Local service and involvement, UW

PhD applied exam committee member, Department of Biostatistics, 2018

Local service and involvement, prior institutions

Co-organizer, Complex Mixtures Analysis Working Group, 2012–2014, Harvard Chan School

Organizer, Student Journal Club, Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health, 2009–2010

Teaching history

Guest lecturer

“Use of propensity scores in (pharmaco)epidemiology research,” *Pharmacoepidemiology*, University of Washington School of Public Health, 2018

“Quantifying future mortality attributable to extreme heat under global climate change: A case study of Bayesian methodology in environmental health,” *Bayesian Methodology in Biostatistics*, Harvard T.H. Chan School of Public Health, 2012, 2013

“Bayesian methods for estimating health risks of environmental exposures,” *Advanced Methods in Biostatistics IV*, Johns Hopkins Bloomberg School of Public Health, 2011

Advanced Methods in Biostatistics II, Johns Hopkins Bloomberg School of Public Health, 2010

Design of Clinical Experiments, Johns Hopkins Bloomberg School of Public Health, 2010

Methods in Biostatistics IV, Johns Hopkins Bloomberg School of Public Health, 2009

Teaching assistant, Johns Hopkins Bloomberg School of Public Health

Advanced Methods in Biostatistics II–IV (Doctoral level), 2010–2011

Design of Clinical Experiments, 2010

Data Analysis Workshop I–II, Summers 2009, 2010

Multilevel Statistical Models in Public Health, 2009

Analysis of Longitudinal Data, 2009

Essentials of Probability and Statistical Inference I–II (Masters level), 2009

Methods in Biostatistics I–IV (Masters level), 2008–2009

Advising and formal mentoring

Masters Theses, Chair

Qianqian Chen, 2018–present, Biostatistics, University of Washington

PhD committees in non-chair roles

Phuong T. Vu, 2018–present, PhD candidate, Biostatistics, University of Washington

Stacy Pettigrew, 2016–2018, PhD candidate, Environmental Health Sciences, University of Albany

Shelley Liu, 2013–2016, PhD candidate, Biostatistics, Harvard Chan School

Mentored students

Stephanie Hopp, 2014–2018, Post-Baccalaureate Certificate in Pre-Medical Studies, Boston University (2014–2015); Medical student, Alabama College of Osteopathic Medicine (2016–2018)

Ernesto Ulloa, Fall 2015, PhD student, Biostatistics, University of Washington

Yan Wang, 2014–2016, PhD candidate, Biostatistics, Environmental Health Sciences, Harvard Chan School

Elizabeth Smoot, 2014–2015, PhD, Biostatistics, Harvard Chan School

Bianca Papi, 2013–2015, MA, Biostatistics, Sapienza University of Rome

Research associates

Hongxiang Qiu, Fall 2016–present, PhD student, Biostatistics, University of Washington

Yunhua Xiang, Fall 2017–Spring 2018, PhD student, Biostatistics, University of Washington