

## Kevin P. Josey, Ph.D.

Assistant Professor  
Department of Biostatistics and Informatics  
Colorado School of Public Health  
University of Colorado

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### Research Interests

Causal Inference, Machine Learning, Bayesian Methods, Epidemiology, and Health Outcomes Research

### Education

**Ph.D. Biostatistics** August 2020

Department of Biostatistics & Informatics, Colorado School of Public Health  
University of Colorado, Anschutz Medical Campus - Aurora, CO  
Advisors: Debashis Ghosh, Ph.D. and Elizabeth Juarez-Colunga, Ph.D.

**M.S. Biostatistics** December 2017

Department of Biostatistics & Informatics, Colorado School of Public Health  
University of Colorado, Anschutz Medical Campus - Aurora, CO  
Advisor: Deborah Glueck, Ph.D.

**B.S. Mathematics** May 2015

Regis College  
Regis University, Lowell Campus - Denver, CO  
Advisor: James Seibert, Ph.D.

### Academic Experience

**Assistant Professor** August 2023–Present

Department of Biostatistics and Informatics, Colorado School of Public Health  
University of Colorado, Anschutz Medical Campus - Aurora, CO

**Postdoctoral Fellow** July 2020–July 2023

Department of Biostatistics, T.H. Chan School of Public Health  
Harvard University, Longwood Medical Campus - Boston, MA  
Advisors: Francesca Dominici, Ph.D. and Rachel Nethery, Ph.D.

### Professional Experience

**Biostatistician** February 2016–June 2020

Eastern Colorado Health Care System  
U.S. Department of Veterans Affairs - Aurora, CO

**Biostatistics and Data Management Intern** May 2014–August 2014

Array BioPharma, Inc. - Boulder, CO

## Teaching Experience

Instructor   Colorado School of Public Health BIOS 6670-002: CoSIBS Theory of Biostatistics	Summer 2019
Instructor   Colorado School of Public Health BIOS 6670-001: CoSIBS Methods in Biostatistics	Summer 2018
Teaching Assistant   Colorado School of Public Health BIOS 6632: Statistical Theory II	Spring 2018
Teaching Assistant   Colorado School of Public Health BIOS 6631: Statistical Theory I	Fall 2017
Teaching Assistant   Colorado School of Public Health BIOS 6612: Biostatistical Methods II	Spring 2017
Teaching Assistant   Colorado School of Public Health BIOS 6611: Biostatistical Methods I	Fall 2016
Teaching Assistant   Colorado School of Public Health BIOS 6601: Applied Biostatistics I	Fall 2015

## Publications

### JOURNAL ARTICLES

- 1) **K. P. Josey**, R. C. Nethery, A. Visaria, B. Bates, P. Gandhi, A. Parthasarathi, M. Rua, D. Robertson, S. Setoguchi. Effects of PM<sub>2.5</sub> and corticosteroid use on cardiovascular and thromboembolic events among older adults: Evidence of drug-environment interaction. *BMJ Open*, Accepted. medRxiv: 2022.12.15.22283489
- 2) R. C. Nethery, **K. P. Josey**, P. Gandhi, J. H. Kim, A. Visaria, B. Bates, S. Setoguchi. Effects of seasonal PM<sub>2.5</sub> exposure on cardiovascular and thromboembolic hospitalizations in Medicare beneficiaries with high-risk chronic conditions. *American Journal of Epidemiology*, In Press. DOI: 10.1093/kwad089
- 3) **K. P. Josey**<sup>†</sup>, S. Delaney<sup>†</sup>, P. deSouza, X. Wu, R. Nethery, F. Dominici, D. Braun. (2023). Air Pollution and Mortality at the Intersection of Race and Social Class. *New England Journal of Medicine*, 388 (15): 1396-404, 2023. DOI: 10.1056/NEJMsa2300523 (†denotes lead co-authors)
- 4) **K. P. Josey**, P. deSouza, X. Wu, D. Braun, R. Nethery. Estimating a causal exposure response function with a continuous error-prone exposure: A study of fine particulate matter and all-cause mortality. *Journal of Agricultural, Biological and Environmental Statistics*, 28(1): 20-41, 2023. DOI: 10.1007/s13253-022-00508-z
- 5) **K. P. Josey**, B. M. Ringham, A. E. Barón, M. Schenkman, K. A. Sauder, K. E. Muller, D. Dabelea, D. H. Glueck. Power for balanced linear mixed models with complex missing data processes. *Communications in Statistics-Theory and Methods*, 52 (1), 46-64, 2023. DOI: 10.1080/03610926.2021.1909732
- 6) S. Zuo, **K. Josey**, S. Raghavan, F. Yang, E. Juarez-Colunga, D. Ghosh. Transportability methods for time-to-event outcomes: Application in adjuvant colon cancer trials. *JCO: Clinical Cancer Informatics*, Published online 2022 December 14. DOI: 10.1200/CCI.22.00088

- 7) **K. P. Josey**, F. Yang, D. Ghosh, S. Raghavan. A calibration approach to transportability and data-fusion with observational data. *Statistics in Medicine*, 41 (23): 4511-4531, 2022. DOI: 10.1002/sim.9523
- 8) J. Edwards, **K. Josey**, G. Bahn, L. Caplan, J. E. B. Reusch, P. Reaven, D. Ghosh, S. Raghavan. Heterogeneous treatment effects of intensive glycemic control on major adverse cardiovascular events in the ACCORD and VADT Trials: A machine-learning analysis. *Cardiovascular Diabetology*, 21 (58): 1-11, 2022. DOI: 10.1186/s12933-022-01496-7
- 9) S. Raghavan, T. Warsavage, W. G. Liu, K. Raffle, **K. Josey**, D. R. Saxon, L. S. Phillips, L. Caplan, J. E. B. Reusch. Trends in timing of and glycemia at initiation of second-line type 2 diabetes treatment in US adults. *Diabetes Care*, 45 (6): 1335-1345, 2022. DOI: 10.2337/dc21-2492
- 10) S. Raghavan, **K. Josey**, G. Bahn, D. Reda, S. Basu, S. A. Berkowitz, N. Emanuele, P. Reaven, D. Ghosh. Generalizability of heterogeneous treatment effects based on causal forests applied to two randomized clinical trials of intensive glycemic control. *Annals of Epidemiology*, 65: 101-108, 2021. DOI: 10.1016/j.annepidem.2021.07.003
- 11) X. Zhou†, **K. Josey**†, L. Kamareddine, M. C. Caine, T. Liu, L. J. Mickley, M. Cooper, F. Dominici. Excess of COVID-19 cases and deaths due to fine particulate matter exposure during the 2020 wildfires in the United States. *Science Advances*, 7 (33): eabi8789, 2021. DOI: 10.1126/sciadv.abi8789 (†denotes lead co-authors)
- 12) **K. P. Josey**, E. Juarez-Colunga, F. Yang, D. Ghosh. A framework for covariate balance using Bregman distances. *Scandinavian Journal of Statistics*, 48 (3): 790–816, 2021. DOI: 10.1111/sjos.12457
- 13) **K. P. Josey**, S. A. Berkowitz, D. Ghosh, S. Raghavan. Transporting experimental results with entropy balancing. *Statistics in Medicine*, 40 (19): 4310–4326, 2021. DOI: 10.1002/sim.9031
- 14) S. Basu, M. Akers, S. A. Berkowitz, **K. Josey**, D. Schillinger, H. Seligman. Comparison of fruit and vegetable intake among urban low-income US adults receiving a produce voucher in 2 cities. *JAMA Network Open*, 4 (3): e211757–e211757, 2021. DOI: 10.1001/jamanetworkopen.2021.1757
- 15) J. A. Valle, **K. Josey**, A. F. Prouse, J. Zimmet, S. W. Waldo. Dual antiplatelet therapy in non-ST elevation acute coronary syndromes at Veterans Affairs Hospitals. *Heart*, 105 (20): 1575–1582, 2019. DOI: 10.1136/heartjnl-2018-314553
- 16) J. A. Gutierrez, D. L. Bhatt, S. Banerjee, T. J. Glorioso, **K. P. Josey**, R. V. Swaminathan, T. M. Maddox, E. J. Armstrong, C. Duvernoy, S. W. Waldo, S. V. Rao Risk of obstructive coronary artery disease and major adverse cardiac events in patients with noncoronary atherosclerosis: Insights from the Veterans Affairs Clinical Assessment, Reporting, and Tracking (CART) program. *American Heart Journal*, 213: 47–56, 2019. DOI: 10.1016/j.ahj.2019.04.004
- 17) A. C. Sawant, **K. Josey**, M. E. Plomondon, T. M. Maddox, A. Bhardwaj, V. Singh, B. Rajagopalan, Z. Said, D. L. Bhatt, J. Corbelli. Temporal trends, complications, and predictors of outcomes among nonagenarians undergoing percutaneous coronary intervention: Insights from the Veterans Affairs Clinical Assessment, Reporting, and Tracking program. *JACC: Cardiovascular Interventions*, 10 (13): 1295–1303, 2017. DOI: 10.1161/JAHA.119.01531

## IN PROGRESS

- 1) E. Cruz-Cortes, **K. P. Josey**, F. Yang, D. Ghosh. An Empirical Process Framework for Covariate Balance in Causal Inference. arXiv: 2301.00889.
- 2) K. Barnatchez, **K. P. Josey**, R. C. Nethery, G. Parmigiani. Estimating Causal Effects with Error-Prone Exposures: A Control Variates Approach.
- 3) K. Barnatchez, **K. P. Josey**, R. C. Nethery. A Review of Measurement Error Corrections in Causal Inference.
- 4) **K. P. Josey**, K. Barnatchez, R. C. Nethery, D. Braun. A Doubly-Robust Approach for Mitigating Attenuation from Outcome Measurement Error.
- 5) M. Tec, O. Mudele, **K. Josey**, F. Dominici. Causal Shift-Response Functions with Neural Networks: The Health Benefits of Lowering Air Quality Standards in the US. arXiv: 2302.02560
- 6) R. Fayyad, **K. Josey**, P. Gandhi, M. Rua, A. Visaria, B. Bates, S. Setoguchi, R. Nethery. Air Pollution and Serious Bleeding Events in High-Risk Older Adults: A Retrospective Study.
- 7) J. Lee, **K. Josey**, A. Ertefaie, F. Dominici. Transporting Exposure Response Curves to Evaluate Effect Modification.
- 8) L. Mock, **K. Josey**, D. Mork, R. Nethery, S. Setoguchi. Evaluating Interactions between Heat and Fine Particulate Matter Exposures with Distributed-Lag Nonlinear Models.
- 9) **K. Josey** and B. Fosdick. Stochastic Intervention Effects under a Binary Instrument
- 10) **K. Josey**, A. Jensen, B. Wagner, K. Deane. Multivariate Change-point Detection of RA Biomarkers using Bayesian Segmented Regression.

## Talks and Posters

### TALKS

- 1) "Synergistic effects of PM<sub>2.5</sub> and use of corticosteroids on cardiovascular and thromboembolic events among older adults" International Conference on Pharmacoepidemiology, August 2022.
- 2) "Transporting observational and experimental treatment effects across populations" Joint Initiative on Causal Inference between UC Berkeley and Novo Nordisk A/S, May 2022.
- 3) "Sufficient cause interactions between fine particulate matter exposure and corticosteroids on cardiovascular hospitalizations in Medicare beneficiaries with high-risk chronic conditions" National Studies on Air Pollution and Health Monthly Meeting, November 2021.
- 4) "Estimating a causal exposure response function with a continuous error-prone exposure and excess COVID-19 cases and deaths due to fine particulate matter exposure" University of Colorado ACCORDS Seminar Series, October 2021.
- 5) "Estimating a causal exposure-response function with a continuous error-prone exposure: A study of fine particulate matter and all-cause mortality" Joint Statistical Meeting, August 2021.
- 6) "Estimating a causal exposure response function with a continuous error-prone exposure: A study of fine particulate matter and all-cause mortality" National Studies on Air Pollution and Health Monthly Meeting, May 2021.
- 7) "Excess of COVID-19 cases and deaths due to fine particulate matter exposure during the 2020 wildfires in the United States" Colorado School of Mines Emerging Scholar Seminar Series, April

2021.

- 8) "Extending inferences of experimental results with entropy balancing" Society for Epidemiological Research, December 2020.
- 9) "Transporting experimental results with entropy balancing" Western North America Region of the International Biometric Society, June 2020.

## **POSTERS**

- 1) "Transporting results of an observational study using calibration estimators" American Causal Inference Conference, May 2022.
- 2) "Independent and synergistic effects of systemic corticosteroid use and air pollution on thromboembolic events: A climate-drug interaction study" International Conference on Pharmacoepidemiology, August 2021.
- 3) "A framework for covariate balance using Bregman distances" Joint Statistical Meeting, August 2019.
- 4) "A framework for covariate balance using Bregman distances" Atlantic Causal Inference Conference, May 2019.

## **Awards**

Strother Walker Award for Outstanding Ph.D. Student Department of Biostatistics & Informatics - Colorado School of Public Health	April 2020
Maurice Davies Award for Outstanding Student American Statistical Association - Colorado/Wyoming Chapter	April 2018
Eagle Scout Boy Scouts of America - Indian Peaks District of the Longs Peak Council	November 2007

## **Professional Service**

### **JOURNAL REVIEWING**

Annals of Applied Statistics  
Biostatistics (x2)  
Biometrics (x3)  
Electronic Journal of Statistics (x2)  
Environmental Epidemiology  
Journal of Computational and Graphical Statistics  
Statistics in Medicine (x2)

### **PROFESSIONAL MEMBERSHIPS**

American Statistical Association – Colorado/Wyoming Chapter  
International Biometric Society – Western North American Region  
Society for Epidemiological Research

❖ Last modified on September 1st, 2023 ❖