

Bryan Blette

Curriculum Vitae

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Employment

2021-Present **Postdoctoral Fellowship**, *University of Pennsylvania*
Center for Causal Inference Primary mentor: Dr. Michael Harhay

Education

- 2021 **Ph.D. in Biostatistics**, *University of North Carolina at Chapel Hill*
Dissertation: Causal Inference for Error-Prone Exposures
Dissertation Committee: Drs. Michael Hudgens (chair), Jianwen Cai, Steve Cole, Jess Edwards, Donglin Zeng
- 2018 **M.S. in Biostatistics**, *University of North Carolina at Chapel Hill*
Master's Paper advisors: Drs. Leah Frerichs and Annie Green-Howard
Title: Changes in School District Physical Activity and Nutrition Policies: A Latent Class Analysis of the School Health Policies and Practices Study
- 2015 **B.S. in Mathematics**, *University of Florida*
Second major: Statistics
Study Abroad, Florence University of the Arts, Florence, Italy, 2014

Publications

Peer-reviewed (* indicates co-first author)

1. Becker-Dreps, S., **Blette, B.**, Briceño, R., Alemán, J., Hudgens, M.G., Moreno, G., Ordoñez, A., Rocha, J., Weber, D.J. and Amaya, E., 2017. Changes in the incidence of pneumonia, bacterial meningitis, and infant mortality 5 years following introduction of the 13-valent pneumococcal conjugate vaccine in a "3+ 0" schedule. *PloS One*, 12(8), p.e0183348.
2. **Blette, B.S.**, Howard, A.G. and Frerichs, L.M., 2019. High school physical activity and nutrition policy: Summarizing changes over time using latent class analysis. *American Journal of Preventive Medicine*, 57(3), pp.e69-e76.
3. Neidich, S.D., Fong, Y., Li, S.S., Geraghty, D.E., Williamson, B.D., Young, W.C., Goodman, D., Seaton, K.E., Shen, X., Sawant, S., Zhang, L., ..., **Blette, B.**, ..., Tomaras, G., 2019. Antibody Fc effector functions and IgG3 associate with decreased HIV-1 risk. *Journal of Clinical Investigation*, 129(11), pp.4838-4849.
4. Collins, M.H., Zepeda, O., **Blette, B.**, Jadi, R., Morales, M., Pérez, R., Liou, G.J.A., Montoya-Cruz, M., Harris, E., Becker-Dreps, S. and de Silva, A.M., 2020. Serologic surveillance of maternal Zika infection in a prospective cohort in Leon, Nicaragua during the peak of the Zika epidemic. *PloS One*, 15(4), p.e0230692.

5. Gilbert, P.B., **Blette, B.S.**, Shepherd, B.E. and Hudgens, M.G., 2020. Post-randomization biomarker effect modification analysis in an HIV vaccine clinical trial. *Journal of Causal Inference*, 8(1), pp.54-69.
6. Vielot, N. A., González, F., Reyes, Y., Zepeda, O., **Blette, B.**, Paniagua, M., ..., Bucardo, F. (2021). Risk factors and clinical profile of Sapovirus-associated acute gastroenteritis in early childhood: A Nicaraguan birth cohort study. *The Pediatric Infectious Disease Journal*, 40(3), 220-226.
7. Stringer, E. M., Martinez, E., **Blette, B.**, Toval Ruiz, C. E., Boivin, M., Zepeda, O., ..., Bucardo, F. (2021). Neurodevelopmental outcomes of children following in utero exposure to Zika in Nicaragua. *Clinical Infectious Diseases*, 72(5), e146-e153.
8. Bowman, N. M., Bucardo, F., Collins, M. H., Reyes, Y., Cuadra, E. C., **Blette, B.**, ..., Becker-Dreps, S. (2021). Clinical and epidemiological features of acute Zika virus infections in León, Nicaragua. *The American Journal of Tropical Medicine and Hygiene.*, 105(4), 924-930.
9. Vielot, N., Becker-Dreps, S., **Blette, B.**, Gonzalez, F., Toval-Ruiz, C., Gutierrez, L., Vilchez, S., Diez-Valcarce, M., Vinje, J., Becker-Dreps, S., Bucardo, F. (2022). First episodes of norovirus and sapovirus gastroenteritis protect against subsequent episodes in a Nicaraguan birth cohort. *Epidemiology*, 33(5), 650-653.
10. Spelke, M. B., Paul, R., **Blette, B.**, Meltzer-Brody, S., Schiller, C. E., Ncheka, J. M., Kasaro, M. P., Price, J. T., Stringer, J. S., Stringer, E.M. (2022). Interpersonal therapy vs. antidepressant medication for treatment of postpartum depression and anxiety among women with HIV in Zambia: a randomized feasibility trial. *Journal of the International AIDS Society*, 25(7), p.e25959.
11. Harhay, M.O., **Blette, B.S.**, Granholm, A., Moler, F.W., Zampieri, F.G., Golligher, E.C., Gardner, M.M., Topjian, A.A. and Yehya, N., 2022. A Bayesian interpretation of a pediatric cardiac arrest trial (THAPCA-OH). *NEJM Evidence*, p.EVIDoa2200196.

Under Review

12. **Blette, B.**, Gilbert, P., Hudgens, M. Addressing confounding and continuous exposure measurement error using conditional score functions (in revision, *Biometrics*)
13. Kahan, B., Li, F., **Blette, B.**, Jairath, V., Copas, A., Harhay, M. Informative cluster size in cluster-randomised trials: A case study from the TRIGGER trial (in revision, *Clinical Trials*)
14. Schweickert, W., Jablonksi, J., Bayes, B., Chowdhury, M., Whitman, C., **Blette, B.**, Tian, J., Tran, T., Halpern, S. Structured mobilization for critically ill patients: A pragmatic cluster-randomized trial (in revision, *American Journal of Respiratory and Critical Care Medicine*)
15. Kasaro, M., **Blette, B.**, Paul, R., Meltzer-Brody, S., Mwanze, J., Spelke, M.B., Stringer, J., Stringer, E. Factors associated with severity of Edinburgh Postnatal Depression Screen (EPDS) and optimal cutoff of EPDS for diagnosing depression and anxiety among postpartum HIV positive women in Lusaka, Zambia (submitted)

16. Spelke, M.B., Okumu, E., Perry, N., **Blette, B.**, Paul, R., Schiller, C., Ncheka, J.M., Kasaro, M., Price, J., Meltzer-Brody, S., Stringer, J., Stringer, E. Acceptability of a randomized trial of anti-depressant medication or interpersonal therapy for treatment of perinatal depression in HIV infected women (submitted)
17. **Blette, B.**, Halpern, S., Li, F., Harhay, M. Assessing treatment effect heterogeneity in the presence of missing effect modifier data in cluster-randomized trials (submitted)
18. **Blette, B. S.***, Garnholm, A.*, Li, F., Shankar-Hari, M., Lange, T., Munch, M. W., Moller, M. H., Perner, A., Harhay, M. O. An exploratory analysis of treatment effect heterogeneity in the COVID STEROID 2 Trial using Bayesian machine learning (submitted)
19. Max, R., Toval-Ruiz, C., Becker-Dreps, S., Gajewski, A., Martinez, E., Cross, K., **Blette, B.**, ..., Bucardo, F. Neurodevelopment in preschool children exposed and unexposed to Zika virus in utero (submitted)

In Preparation

20. **Blette, B.**, Gilbert, P., Hudgens, M. Causal joint modeling of longitudinal and survival data: An IPW approach
21. **Blette, B.**, Hudgens, M. Causal joint modeling of longitudinal and survival data using the parametric g-formula
22. Huang, Y., Hejazi, N., **Blette, B.**, ..., Gilbert, P., Carpp, L. Evaluation of antibody assays as correlates of protection against symptomatic COVID-19 in the COVE mRNA-1273 vaccine efficacy trial utilizing principal surrogate and stochastic intervention vaccine efficacy frameworks
23. **Blette, B.**, Moutchia, J., Al-Naamani, N., Ventetuolo, C., Cheng, C., Appleby, D., Urbanowicz, R., Fritz, J., Mazurek, J., Li, F., Kawut, S., Harhay, M. Multivariable risk scores as potential surrogate outcomes in pulmonary arterial hypertension trials
24. Hart, J., Summer, A., Ogunduyile, L., Lapite, F., Hong, D., Whitman, C., **Blette, B.**, Harhay, M., Halpern, S. The accuracy and impact of patients' expectations in severe chronic obstructive pulmonary disease: A longitudinal cohort study
25. Kahan, B., Li, F., **Blette, B.**, Copas, A., Harhay, M. Demystifying estimands in cluster-randomised trials

Presentations

Oral Presentations

1. **Blette, B.**, Ploutz-Snyder, R., Feiveson, A. Data analysis challenges in the space life sciences. *Space Life Sciences Summer Institute Research Conference*. 2015
2. **Blette, B.**, Richardson, A., Jiao, Y. Modeling considerations in data-driven attribution. *Google Internship Presentation*. 2018
3. **Blette, B.**, Gilbert, P., Shepherd, B., Hudgens, M. Post-randomization biomarker effect modification in an HIV vaccine clinical trial. *ENAR Spring Meeting*. 2019
4. **Blette, B.**, Gilbert, P., Hudgens, M. Structural joint modeling of longitudinal and survival Data. *UNC Student Seminar*. 2019

5. **Blette, B.** Preparing for the next Zika epidemic: Clinical, epidemiological, and statistical Challenges. *UNC Prospective Students Day*. 2020
6. **Blette, B.**, Gilbert, P., Hudgens, M. Structural joint modeling of longitudinal and survival data. *ENAR Spring Meeting*. 2020
7. **Blette, B.**, Gilbert, P., Hudgens, M. Addressing concurrent confounding and measurement error using conditional score functions. *ENAR Spring Meeting*. 2021
8. **Blette, B.**, Hudgens, M. Causal joint modeling of longitudinal and survival data using the parametric g-formula. *ENAR Spring Meeting*. 2022
9. **Blette, B.**, Gilbert, P., Hudgens, M. Causal joint modeling of longitudinal and survival data: An IPW approach. *Center for Causal Inference (CCI) Seminar Series*. 2022
10. **Blette, B.** Association vs. causation in medical research. *Penn Palliative and Advanced Illness Research (PAIR) Center Seminar Series*. 2022
11. **Blette, B.**, Gilbert, P., Hudgens, M. Addressing confounding and continuous exposure measurement error using conditional score functions. *Joint Statistical Meetings*. 2022 (Biometrics Section Paper Award presentation)
12. **Blette, B.**, Halpern, S., Li, F., Harhay, M. Assessing treatment effect heterogeneity in the presence of missing effect modifier data in cluster-randomized trials. *8th Annual Conference on Current Developments in Cluster Randomized Trials and Stepped Wedge Designs*. 2022
13. **Blette, B.**, Gilbert, P., Hudgens, M. Causal joint modeling of longitudinal and survival data: An IPW approach. *International Biometric Society: Kenya Region Seminar Series*. 2022
14. **Blette, B.**, Gilbert, P., Hudgens, M. Combining causal and joint modeling methods to address practical issues in HIV clinical trials. *Northwestern University Division of Biostatistics Seminar*. 2023
15. **Blette, B.**, Gilbert, P., Hudgens, M. Combining causal and joint modeling methods to address practical issues in HIV clinical trials. *RAND Statistics Group Seminar*. 2023
16. **Blette, B.**, Gilbert, P., Hudgens, M. Combining causal and joint modeling methods to address practical issues in HIV clinical trials. *Vanderbilt Department of Biostatistics Seminar*. 2023
17. **Blette, B.**, Gilbert, P., Hudgens, M. Combining causal and joint modeling methods to address practical issues in HIV clinical trials. *Ohio State University Division of Biomedical Informatics Seminar*. 2023
18. **Blette, B.**, Gilbert, P., Hudgens, M. Combining causal and joint modeling methods to address practical issues in HIV clinical trials. *University of Pennsylvania Division of Biostatistics Seminar*. 2023
19. **Blette, B.**, Halpern, S., Li, F., Harhay, M. Assessing treatment effect heterogeneity in the presence of missing effect modifier data in cluster-randomized trials. *ENAR Spring Meeting* (upcoming). 2023

20. **Blette, B.**, Moutchia, J., Al-Naamani, N., Ventetuolo, C., Cheng, C., Appleby, D., Urbanowicz, R., Fritz, J., Mazurek, J., Li, F., Kawut, S., Harhay, M. Multivariable risk scores as potential surrogate outcomes in pulmonary arterial hypertension trials. *American Thoracic Society International Conference* (upcoming). 2023

Posters

1. **Blette, B.**, Howard, A.G., Frerichs, L. Latent class analysis for classification of latent policy environments: A case study. *Joint Statistical Meetings*. 2019
2. **Blette, B.**, Halpern, S., Li, F., Harhay, M. Assessing treatment effect heterogeneity in the presence of missing effect modifier data in cluster-randomized trials. *Penn DBEI and CCEB Research Day*. 2022

Non-Academic Research Experience

- 2018 **Quantitative Analyst Intern**, Google
Hosts: Drs. Amy Richardson and Yang Jiao
Worked as a research intern on data driven attribution for the Ads team, collaborating with data scientists and software engineers to extend a modeling framework in order to improve attribution output
- 2015 **Research Apprentice**, *National Space Biomedical Research Institute*, Johnson Space Center, NASA
Advisor: Dr. Alan Feiveson, Co-advisor: Dr. Robert Ploutz-Snyder
Worked on research projects for internal use, including developing models to determine maximal terminal velocity for spacecraft while preventing injury risk for astronauts and designing simulations to assess feasibility of maintaining healthy nutrition for astronauts on long-term space missions to Mars given the prevailing space food advancements at that time

Teaching

- Spring 2022, **Guest Lecturer**, *Advanced Topics in Epidemiologic Research*, EPID702, University of Pennsylvania
Spring 2023
Guest lecture on Bayesian thinking and analysis
- Fall 2022 **Guest Lecturer**, *Causal Inference in Biomedical Research*, BSTA7900, University of Pennsylvania
Guest lecture on causal inference with interference
- Fall 2021 **Instructor**, *Public Health Methods and Measures*, SPHG712, UNC - Chapel Hill
○ Adjunct faculty instructor for introductory epidemiology course for MPH students (online)
○ Strong teaching evaluations from students - contact me for scores
- Spring 2020 **Academic Enrichment Program Tutor**, *Intro to Biostatistics / Intro to Epidemiology*, BIOS 600 / EPID 600, UNC - Chapel Hill
Acted as the official school of public health tutor for introductory courses in biostatistics and epidemiology
- Fall 2017 **Teaching Assistant**, *Intro to Biostatistics*, BIOS 600, UNC - Chapel Hill
Assisted professor in writing exams and quizzes, created formats for students to take quizzes online, graded exams, hosted review sessions for exams, and assisted students one-on-one throughout the semester (TAs not reviewed for this course)

- Spring 2015 **Teaching Assistant**, *Intro to Statistics*, STA 2023, University of Florida
- Managed the tutoring room for several hours each week, proctored exams, graded papers and exams, and taught multiple lab classes each week
 - Strong teaching evaluations from students - contact me for scores

Honors and Awards

- 2022 ASA Biometrics Section Paper Award (awarded to 5 students or recent graduates out of 121 applicants)
- 2020 ASA Biopharmaceutical Section Scholarship Award
- 2020 AcademyHealth HSRProj Research Competition - Finalist, with Natalie Smith and Katherine Miller
- 2018,2019 UNC Conference Travel Award
- 2017 National Defense Science and Engineering Graduate Fellowship - Alternate Selection (received a fundable score but ultimately not selected for funding)
- 2016 UW SIS MID Travel Award
- 2015 Mohberg Scholarship (awarded to one first-year Biostatistics Ph.D. student)
- 2015 Anderson Scholar (one of the top graduating students from UF Liberal Arts and Sciences)
- 2014 Elected to Phi Beta Kappa, Phi Kappa Phi, and Golden Key Honour Societies
- 2012 University of Florida Presidential Scholar
- 2012 National Merit Scholar

Leadership Experience

- 2021–2022 **Co-chair**, *Council for Emerging and New Statisticians*, ENAR
- Co-led CENS activities for the 2021-2022 term, including leading teams to run networking events and invited sessions at ENAR and JSM
- 2020–2022 **Steering Committee**, *Council for Emerging and New Statisticians*, ENAR
- Organized council events and activities for 2-year term
- 2018–2020 **Officer, Webmaster**, *Biostatistics Student Association*, UNC - Chapel Hill
- Redesigned website and added new content for prospective students

Service

- 2022–present **Co-organizer**, *2023 University of Pennsylvania Conference on Statistical Issues in Clinical Trials*
- 2021–present **Co-organizer**, *Center for Causal Inference*, Seminar Series, Spring 2022, Fall 2022, Spring 2023
- 2019–present **Referee**, *Biometrics*, *International Journal of Infectious Diseases*, *The Pediatric Infectious Disease Journal*, *PLOS ONE*, *Statistics in Medicine*, <https://www.webofscience.com/wos/author/record/1568666>
- 2023 **Reviewer**, *Selection Committee*, 2023 ASA Biometrics Section Paper Award Competition
- 2019–2022 **Council Member**, *ENAR*, Council for Emerging and New Statisticians

- 2021 **Session Chair**, *ENAR*, Contributed Papers: Handling of Missing Data
- 2018–2020 **Student Delegate**, *Graduate Admissions Committee*, Department of Biostatistics, UNC - Chapel Hill
- 2019 **Panelist**, *Choosing a Dissertation Advisor Panel*, Department of Biostatistics, UNC - Chapel Hill
- 2016 **Panelist**, *Finding an Internship Panel*, Department of Biostatistics, UNC - Chapel Hill