

Benjamin Ackerman

BIostatistician, DATA SCIENTIST

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Education

PhD, Biostatistics

Baltimore, MD

Johns Hopkins Bloomberg School of Public Health

March 2020

- **Advisor:** Dr. Elizabeth A Stuart
- **Dissertation Title:** “Statistical Methods for Transportability: Addressing External Validity and Measurement Error Concerns in Randomized Trials”

BA, Public Health Studies

Baltimore, MD

Johns Hopkins University

May 2015

- **Minor:** Applied Mathematics and Statistics
- **Honors Thesis:** “The Association Between Genetic Variants and IQ among Individuals with Autism Spectrum Disorders” | Advisor: Dr. Yin Yao

Professional Experience

Johnson & Johnson Innovative Medicine

Raritan, NJ

Principal Statistician

Aug 2022 - Present

- Conducted simulation-based methods research for combining clinical trials with observational data on the Statistical Modeling and Methodology team.
- Led FDA U01 grant-funded research to develop novel methods to improve comparability between real-world and trial oncology endpoints.

Flatiron Health

New York, NY

Quantitative Scientist

June 2020 - Aug 2022

- Developed methods and guidance for using clinico-imaging EHR data to evaluate and improve cancer care in the United States.
- Led team of Quantitative Scientists, managed overall project portfolio, oversaw the study design and delivery of custom data products.

SAJE Consulting

Baltimore, MD

Statistician/Programmer

March 2016 - March 2020

- Conducted data analysis and produced publication-ready graphics for various research studies conducted by pharmaceutical and biotechnology companies.
- Contributed to analyses for reports to the following regulatory agencies: FDA, EMA and NOMA.

Data Science for Social Good

Chicago, IL

Fellow

Summer 2018

- Partnered with AllianceChicago to build a predictive model to identify patients at risk of developing Type 2 Diabetes using de-identified electronic health records (EHR) data.

Research Experience

Measurement Error and Bias in Real-world Oncology Endpoints

Johnson & Johnson Innovative Medicine

Nov 2022 - Present

- Led research across industry, academic, and regulatory colleagues funded by FDA U01 methods grant: “Development of Novel Methods to Enable Robust Comparison of Real-World Progression Free Survival (rwPFS) and Clinical Trial PFS in Multiple Myeloma”
- Conducted simulation studies to quantify bias due to measurement error in median progression-free survival between trials and real-world data (RWD) when constructing external control arms.
- Developed novel statistical methodology and quantitative bias analyses to mitigate and contextualize outcome measurement error and improve comparability of endpoints.

Statistical Methods for Generalizability and Transportability

Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health

June 2016 - May 2020

- Worked with thesis advisor Dr. Elizabeth Stuart to evaluate and develop propensity score-type statistical methods for assessing and improving upon the generalizability of randomized controlled trials.
- Developed methods to improve upon the transportability of measurement error correction from external validation samples to lifestyle intervention trials.

Prenatal Air Pollution Exposure and Autism Spectrum Disorders

Department of Mental Health, Johns Hopkins Bloomberg School of Public Health

Sept 2016 - Aug 2017

- Collaborated with Dr. Heather Volk to examine the relationship between prenatal air pollution exposure and risk of Autism Spectrum Disorders, using data from the Boston Birth Cohort.

HIV Risk among LGBTQ+ Populations in Sub-Saharan Africa

Center for Public Health and Human Rights, Johns Hopkins Bloomberg School of Public Health

Oct 2015 - Oct 2017

- Worked with Dr. Tonia Poteat to estimate HIV risk among MSM, transgender and gender-diverse populations in Africa
- Created unified data model and managed database for surveys across eight different countries, and investigated issues regarding survey methodology and gathering data on sexual orientation and gender identity.

Publications

Peer-Reviewed/In Press:

1. **Ackerman, B.**, Gan, R., Meyer, C.S., Wang, J.R., Zhang, Y., Hayden, J., et al. (2024). "Measurement error and bias in real-world oncology endpoints when constructing external control arms." *Frontiers in Drug Safety and Regulation*.
2. **Ackerman, B.**, Siddique, J., Stuart, E.A. (2021). "Calibrating validation samples when accounting for measurement error in intervention studies." *Statistical Methods in Medical Research*.
3. Seamans, M.J., Hong, H., **Ackerman, B.**, Schmid, I., Stuart, E.A. (2021). "Generalizability of subgroup effects." *Epidemiology*.
4. Rao, A., Rucinski, K., Jarrett, B., **Ackerman, B.**, Wallach, S., Marcus, J., et al. (2021). "Perceived interruptions in HIV prevention and treatment services associated with COVID-19 for gay, bisexual, and other men who have sex with men in 20 countries." *Journal of Acquired Immune Deficiency Syndromes*.
5. **Ackerman, B.**, Lesko, C.R., Siddique, J., Susukida, R., Stuart, E.A. (2020). "Generalizing randomized trial findings to a target population using complex survey population data." *Statistics In Medicine*.
6. Ackerman, S.E., Gonzalez, J.C., Pearson, C.I., Gregorio, J.D., Hartmann, F.J., Kenkel, J.A., Luo, A., Ho, Po, LeBlanc, H., Kimmey, S.C., Nguyen, M.L., Paik, J.C., Sheu, L.Y., **Ackerman, B.**, et al. (2020). "Immune-stimulating antibody conjugates elicit robust myeloid activation and durable antitumor immunity." *Nature Cancer*.
7. Santos, G.M., **Ackerman, B.**, Rao, A., Wallach, S., Ayala, G., Lamontage, E., et al. (2020). "Economic, mental health, HIV prevention and HIV treatment impact of COVID-19 and the COVID-19 response on a global sample of cisgender gay men and other men who have sex with men." *AIDS and Behavior*.
8. Lesko, C.R., **Ackerman, B.**, Webster-Clark, M., Edwards, J.K. (2020). "Target validity: bringing treatment of external validity in line with internal validity." *Current Epidemiology Reports*.
9. Schmid, I., Rudolph, K.E., Nguyen, T.Q., Hong, H., Seamans, M.J., **Ackerman, B.**, Stuart, E.A. (2020). "Comparing the performance of statistical methods that generalize effect estimates from randomized controlled trials to much larger target populations." *Communications in Statistics - Simulation and Computation*.
10. **Ackerman, B.**, Schmid, I., Rudolph, K.E., Seamans, M.J., Susukida, R., Mojtabai, R., Stuart, E.A. (2019). "Implementing statistical methods for generalizing randomized trial findings to a target population." *Addictive Behaviors*.

11. Nguyen, T.Q., **Ackerman, B.**, Schmid, I., Cole, S., Stuart, E.A. (2018). "Sensitivity analyses for effect modifiers not observed in the target population when generalizing treatment effects from a randomized controlled trial: Assumptions, models, effect scales, data scenarios, and implementation details." *PLoS One*.
12. Lenis, D., **Ackerman, B.**, Stuart, E.A. (2018). "Measuring model misspecification: Application to propensity score methods on complex survey data." *Computational Statistics & Data Analysis*.
13. Poteat, T., **Ackerman, B.**, Diouf, D., Ceesay, N., Mothopeng, T., Odette, K-Z, et al. (2017). "HIV prevalence and behavioral and psychosocial factors among transgender women and cisgender men who have sex with men in 8 African countries: A cross-sectional analysis." *PLoS Medicine*.
14. Stuart, E.A., **Ackerman, B.**, Westreich, D.(2017). "Generalizability of randomized trial results to target populations: Design and analysis possibilities." *Research on Social Work Practice*.
15. Tao, Y., Gao, H., **Ackerman, B.**, Guo, W., Saffen, D., Shugart, Y.Y. (2016). "Evidence for contribution of common genetic variants within chromosome 8p21.2-8p21.1 to restricted and repetitive behaviors in autism spectrum disorders." *BMC Genomics*.
16. Lazarovitch, T., Amity, K., Coyle, J. R., **Ackerman, B.**, Tal-Jasper, R., Ofer-Friedman, H., et al. (2015). "The complex epidemiology of carbapenem-resistant enterobacter infections: A multicenter descriptive analysis." *Infection Control and Hospital Epidemiology*.

Non Peer-Reviewed/In Press:

17. Gerke, T., **Ackerman, B.**, Long, L., Baxi, S., Miksad, R., Adamson, B., et al. (2021). "Representativeness of real world data: a framework for assessing oncology EHR-derived data." *SSRN*.
18. Stuart, E.A. and **Ackerman, B.** (2020). "Commentary on Yu et al.: opportunities and challenges for matching methods in large databases." *Statistical Science*.

Honors and Awards

- 2022 **Flatiron Values Award: "Know when to startup and when to scale"**, Flatiron Health
- 2020 **Student Recognition Award**, Student Assembly, Johns Hopkins Bloomberg School of Public Health
- 2020 **Student Travel Award**, 13th International Conference on Health Policy Statistics (ICHPS)
- 2019 **Special Award for Outstanding Student Service**, Johns Hopkins Department of Biostatistics
- 2019 **Best Student Paper Award - 3rd Place**, Joint Statistical Meetings (JSM) - Biopharmaceutical Section
- 2019 **3 Minute Thesis (3MT) Competition - 3rd Place + Alumni Choice Winner**, Johns Hopkins University
- 2017 **Delta Omega Poster Competition - 2nd Place (Applied Research)**, Johns Hopkins Bloomberg School of Public Health
- 2015 **Best Senior Thesis in Public Health**, Johns Hopkins University

Computing Projects and Resources

generalize (R Package)

- Software for implementing statistical methods to assess and improve upon generalizability of RCTs to well-defined target population
- <https://benjamin-ackerman.github.io/generalize>

How will the House Tax Bill Impact Graduate Students? (R Shiny App)

- Web app to calculate estimated 2018 federal income tax under proposed H.R. 1 tax bill}
- *Featured in "Science Magazine"* (see section on Tuition Waivers)
- <https://benjaminackerman.shinyapps.io/GOPTax2017/>

Professional Activities

Peer Reviewer: *Statistics in Medicine, American Journal of Epidemiology, Pharmaceutical Statistics, Biometrics, PLOS ONE, The Journal of Experimental Education, Sexuality Research and Social Policy*

Society Membership:

- American Statistical Association (ASA)
- Eastern North America Region of the International Biometrics Society (ENAR)
- Society for Research on Educational Effectiveness (SREE)

Educational Outreach:

- Guest Lecturer at Columbia University's Summer Institute in Biostatistics and Data Science (BEST/SIBDS) for undergraduate students interested in careers in biostatistics (2022, 2023)
- 2017-2018 "This is Public Health" Ambassador for the Association of Schools and Programs of Public Health (ASPPH)

Academic Service

2019-2020 **Co-President**, JHSPH Mental Health Grad Network

2016-2020 **Tea Time Organizer**, Johns Hopkins Department of Biostatistics

2018-2019 **PhD Representative to Faculty Meetings**, Johns Hopkins Department of Biostatistics

Talks and Presentations

Invited Talks

2024 **Augmenting Randomized Trials with Real-world Data: a Simulation Study Evaluating Methods for Hybrid Control Arm Analyses**

ENAR Spring Meeting, Baltimore, MD.

2022 **Using Real-World Data to Assess Representativeness and Improve Generalizations of Study Findings**

Society for Clinical Trials, 43rd Annual Meeting, San Diego, CA.

2020 **Estimating Population Effects: Generalizing Randomized Trial Findings to a Target Population**

Department of Biostatistics, Vanderbilt University School of Medicine, Virtual (due to COVID-19).

Generalizing Randomized Trial Findings to a Target Population using Complex Survey Population Data

Society for Research on Educational Effectiveness (SREE) Spring 2020 Conference, Virtual (due to COVID-19).

2019 **Sensitivity Analysis for Unobserved Effect Modification when Generalizing Findings from Randomized Trials to Target Populations**

FCSM/WSS Workshop on Sensitivity Analysis with Integrated Data, Washington, DC.

Using Statistics and Data Science for Public Health and Social Good

Department of Global and Community Health, George Mason University, Fairfax, VA.

Invited talk for National Public Health Week 2019.

Conference Talks and Posters

2021 **Trends in Diagnosis and Treatment of Early Breast Cancer in the United States during the COVID-19 Era**

ASCO Quality Care Symposium, Virtual (due to COVID-19), Poster.

Identifying COVID-19 Diagnoses Using Unstructured Electronic Health Records

Joint Statistical Meetings (JSM), Virtual (due to COVID-19), Contributed SPEED Talk.

2020 **Generalizing Randomized Trial Findings to a Target Population using Complex Survey Population Data**

- ENAR Spring Meeting, *Virtual (due to COVID-19)*, Contributed Talk.
- 13th International Conference on Health Policy Statistics (ICHPS), *San Diego, CA*, Poster.
- The Statistical and Applied Mathematical Sciences Institute (SAMSI) Program on Causal Inference Opening Workshop, *Durham, NC*, Poster.

2019 **Calibrating Validation Samples when Correcting for Measurement Error in Intervention Study Outcomes**

- Joint Statistical Meetings (JSM), *Denver, CO*, Topics Contributed Talk.
- ENAR Spring Meeting, *Philadelphia, PA*, Contributed Talk.

generalize: Statistical Software for Implementing Methods to Generalize Trial Findings to a Well-Defined Target Population

- Society for Research on Educational Effectiveness (SREE) Spring 2019 Conference, *Washington, DC*, Poster.
- Institute of Education Sciences (IES) Annual PI Meeting, *Washington, DC*, Poster.

2018 **Supporting Proactive Diabetes Screenings to Improve Health Outcomes**

Data Science for Social Good Data Fest, Chicago, IL, Speed Talk and Poster.

Sensitivity Analysis for an Unobserved Moderator in Trial-to-Target-Population Generalization of Treatment Effects

Society for Research on Educational Effectiveness (SREE) Spring 2018 Conference, Washington, DC, Contributed Talk.

Estimating Population Effects: Case Study of Generalizing Results of a Methamphetamine Dependence Trial

12th International Conference on Health Policy Statistics (ICPHS), Charleston, SC, Contributed Talk.

2017 **Characterizing the Burden of HIV and Specific Vulnerabilities among Transgender Women compared to Men who have Sex with Men across Eight Sub-Saharan African Countries**

- Joint Statistical Meetings (JSM), *Baltimore, MD*, Contributed Talk.
- Johns Hopkins LGBT Research Day, *Baltimore, MD*, Talk.

2016 **Sensitivity Analysis for an Unobserved Moderator in RCT-to-Target-Population Generalization of Treatment Effects**

Joint Statistical Meetings (JSM), Chicago, IL, SPEED Talk and Poster.

2015 **Genetic Variants and IQ Among Individuals with Autism Spectrum Disorder**

- 6th Annual Undergraduate Conference in Public Health, *Baltimore, MD*, Talk and Poster.
- National Institutes of Health Summer Research Program Poster Day (2014), *Bethesda, MD*, Poster.

Teaching Experience

2018- **Advanced Data Science I (Guest Lecturer)**, *JHSPH (25 graduate students)*

2019 Professors: Dr. Stephanie Hicks, Dr. Roger Peng

Designed and led an 80-minute tutorial on creating R packages, Shiny apps and GitHub pages.

Teaching Assistant

2018- **Causal Inference in Medicine and Public Health I**, *JHSPH (60 graduate students)*

2020 Professor: Dr. Elizabeth Stuart

TA. Held weekly office hours to review causal inference topics for both experimental and non-experimental studies, gave lecture on generalizability of randomized controlled trials.

2016- **Public Health Biostatistics**, *JHU (225 undergraduate students)*

2019 Professors: Dr. Margaret Taub, Dr. Leah Jager

Section Instructor, Guest Lecturer. Reviewed introductory statistical concepts and R programming skills. Designed and led lecture on linear regression through case study analysis of the 2001 Harvard College Alcohol Study.

2017- **Statistical Methods in Public Health III & IV**, *JHSPH (500 MPH students)*

2018 Professors: Dr. Marie Diener-West, Dr. Leah Jager, Dr. Jim Tonascia

TA. Held weekly office hours for to review regression topics, provided assistance with STATA programming.

Technical Skills

Programming Languages

Proficient: R, SQL. Intermediate: Python, JavaScript, SAS, Stata, SPSS.

Markup

Quarto, LaTeX, knitr, markdown, Typst

Other

Git, Microsoft Office, G Suite