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Education

Postdoctoral research fellow, University of California, Berkeley — 2016 - 2017
Supervisor: Mark van der Laan

PhD. Biostatistics, University of Washington — 2010 - 2015
Advisors: Peter Gilbert and Marco Carone
Dissertation: Data-Adaptive Estimation in Longitudinal Data Settings with Applications in Vaccine Efficacy Trials

MPH Biostatistics, University of Georgia — 2008 - 2010

B.S. Statistics, University of Georgia — 2006 - 2010

Peer-reviewed publications

h-index: 39 (Google scholar)
† denotes equal contribution. * denotes student included on paper.

First/senior author

FS35. Rogawski McQuade ET, Nabi R, Codi A, Dean N, Lipsitch M, Benkeser D, "Vaccine efficacy against naturally asymptomatic infections: A novel estimand for quantifying vaccine effects." *In Press: Epidemiology*.

FS34.* Ran J, Schultz S, Risk BB, Benkeser D, "Nonparametric motion control in functional connectivity studies in children with autism spectrum disorder." *In Press: Biometrics*.

FS33.* Wu E, Rogawski McQuade E, Stensrud M, Nabi R, Benkeser D, "Target trial emulation without matching: a more efficient approach for evaluating vaccine effectiveness using observational data." *In Press: Epidemiology*.

FS32.* Jin Y, Luedtke A, Moodie Z, Janes H, Benkeser D, "Comparing HIV Vaccine Immunogenicity across Trials with Different Populations and Study Designs." *In Press: Statistics in Medicine*.

FS31.* Schader LM, Zissette S, Mishara F, Charles M, Shah S, Benkeser D, on behalf of the PROTECT study team (2025), "Analytic Considerations for the Evaluation of Tuberculosis Preventive Treatment Effectiveness Among People Living with HIV." *Observational Studies*. doi: 10.1353/obs.2025.a973070.

FS30.* Nizam S, Codi A, Rogawki McQuade E, Benkeser D(2024), "Highly Adaptive Lasso for estimation of heterogeneous treatment effects and treatment recommendation." *Journal of Causal Inference*. doi: 10.1515/jci-2023-0085.

FS29a*. Schader LM, Benkeser D, Codi A (2025), "The Authors Respond" *Epidemiology*. doi: 10.1097/EDE.0000000000001861.

FS29*. Schader LM, Song W, Kempker R, Benkeser D(2024), "Don't let your analysis go to seed: on the impact of random seed on machine learning-based causal inference." *Epidemiology*. doi: 10.1097/EDE.0000000000001782. PMID: 39150861.

FS28. Benkeser D[†], Montefiori DC[†], McDermott AB[†], Fong Y, Janes HE, Deng W, Zhou H, Houchens CR, Matins K, Jayashankar L, Castellino F, Flach B Lin BC, O'Connell S, McDanal C, Eaton A, Sarzotti-Kelsoe M, Lu Y, Yu C, Borate B, van der Laan LWP, Hejazi NS, Keeny A, Carone M, Huynh C, Miller J, El Sahly HM, Baden LR, Andrasik MP, Kublin JG, Corey L, Neuzil KM, Carpp L, Pajon R, Follmann D, Donis RO, Koup RA, Gilbert PB (2023+), "Comparing and combining antibody assays as correlates of protection against symptomatic COVID-19 in the COVE mRNA-1273 vaccine efficacy clinical trial." *Science: Translational Medicine*. doi: 10.1126/scitranslmed.ade9078. PMID: 37075127.

FS27. Benkeser D, Fong Y, Janes HE, Kelly EJ, Hirsch I, Sproule S, Houchens CR, Martins K, Jayashankar L, Castellino F, Ayala V, Petropoulos CJ, Leith A, Haugaard D, Webb B, Lu Y, Yu C, Borate B, van der Laan LWP, Hejazi NS, Carpp LN, Randhawa AK, Andrasik MP, Kublin JG, Brewinski Isaacs M, Makhere M, Tong T, Robb ML, Corey L, Neuzil KM, Follmann D, Hoffman C, Falsey AR, Sobieszczyk M, Koup RA, Donis RO, Gilbert PB (2023), "Immune Correlates Analysis of the AZD1222 COVID-19 Vaccine Efficacy Clinical Trial." *npj Vaccine*. doi: 10.1038/s41541-023-00630-0. PMID: 36899062.

FS26*. Nizam S, Benkeser D(2023), "Highly Adaptive Regression Trees." *Evolutionary Intelligence*. doi: 10.1007/s12065-023-00836-0.

FS25. Benkeser D, Hejazi NS (2023), "Doubly-Robust Inference in R using `drtmle`." *Observational Studies*. doi: 10.1353/obs.2023.0017.

FS24*. Jin Y, Benkeser D(2022), "Identifying HIV sequences that escape antibody neutralization using random forests and collaborative targeted learning." *Journal of Causal Inference*. doi: 10.1515/jci-2021-0053.

FS23*. Hall EW, Tippett A, Fridkin S, Anderson EJ, Lopman B, Benkeser D[†], Baker JM[†] (2022), "Association Between Rotavirus Vaccination and Antibiotic Prescribing among Commercially Insured US Children, 2007-2018." *Open Forum Infectious Diseases*. doi: 10.1093/ofid/ofac276. PMID: 35855006

FS22. Hejazi NS, van der Laan MJ, Benkeser D(2022), "`haldensify`: Highly adaptive lasso conditional density estimation in R." *Journal of Open Source Software*. doi: 10.21105/joss.04522.

FS21*. Wu Z, Berkowitz S, Heagerty P, Benkeser D (2022), "A two-stage super learner for healthcare expenditures." *Health Services and Outcomes Research*. doi: 10.1007/s10742-022-00275-x. PMID: 36437854

FS20*. Yang G, Balzer LB, Benkeser D (2022), "Causal Inference Methods for Vaccine Sieve Analysis with Effect Modification." *Statistics in Medicine*. doi: 10.1002/sim.9302. PMID: 35044691

FS19*. Benkeser D, Ran J (2021), "Nonparametric inference for interventional effects with multiple mediators." *Journal of Causal Inference*. doi: 10.1515/jci-2020-0018. NSF-ID: 10292500

FS18*. Williamson BD, Magaret CA, Gilbert PB, Nizam S, Simmons C, Benkeser D (2021), "Super LeArner Prediction of NAb Panels (SLAPNAP): A Containerized Tool for Predicting Combination Monoclonal Broadly Neutralizing Antibody Sensitivity." *Bioinformatics*. doi: 10.1093/bioinformatics/btab398. PMID: 34021743

FS17a. Benkeser D[†], Díaz I[†], Luedtke A[†], Segal J, Scharfstein D, Rosenblum M (2021), "Rejoinder to 'Improving precision and power in randomized trials for COVID-19 treatments using covariate adjustment, for binary, ordinal, and time-to-event outcomes'." *Biometrics*. doi: 10.1111/biom.13495. PMID: 34050931

FS17. Benkeser D[†], Díaz I[†], Luedtke A[†], Segal J, Scharfstein D, Rosenblum M (2020), "Improving Precision and Power in Randomized Trials for COVID-19 Treatments Using Covariate Adjustment, for Binary, Ordinal, and Time-to-Event Outcomes." *Biometrics*. doi: 10.1111/biom.13377. PMID: 32978962

FS16*. McLaughlin TA, Nizam A, Odhiambo FH, Ouma GS, Campbell A, Khayumbi J, Ongalo J, Gurrion Ouma S, Shah NS, Altman JD, Kaushal D, Rengarajan J, Ernst JD, Blumberg HM, Waller L, Gandhi NR, Day CL, Benkeser D (2020) "*Schistosoma mansoni* Infection is Associated with a Higher Probability of Tuberculosis Disease in HIV-Infected Adults in Kisumu, Kenya." *Journal of Acquired Immune Deficiency Syndrome*. doi: 10.1097/QAI.0000000000002536. PMID: 33074856

FS15. Hejazi N, Benkeser D (2020), "txshift: Efficient estimation of the causal effect of stochastic interventions in R." *Journal of Open Source Software*. doi: 10.21105/joss.02447.

FS14. Hejazi N, van der Laan MJ, Gilbert P, Janes H, Benkeser D (2020), "Efficient nonparametric inference on the effects of stochastic interventions under two-phase sampling, with applications to vaccine efficacy trials." *Biometrics*. doi: 10.1111/biom.13375.

FS13a. Benkeser D, Cai W, van der Laan MJ (2020). "Rejoinder: A nonparametric super-efficient estimator of the average treatment effect." *Statistical Science*. doi: 10.1214/20-STS789.

FS13. Benkeser D, Cai W, van der Laan MJ (2020). "A nonparametric super-efficient estimator of the average treatment effect." (with discussion). *Statistical Science*. doi: 10.1214/19-STS735.

FS12. Benkeser D, Mertens A, Arnold BF, Colford Jr. JM, Hubbard A, Stein A, van der Laan MJ (2020). "A machine learning-based approach for estimating and testing associations with multivariate outcomes." *International Journal of Biostatistics*. doi: 10.1515/ijb-2019-0061. PMID: 32784265

FS11. Benkeser D, Horvath K, Reback CJ, Rusow J, Hudgens M (2020). "Design and analysis considerations for a sequentially randomized HIV prevention trial." *Statistics in Biosciences* 12(3), 446-467. doi: 10.1007/s12561-020-09274-3. PMID: 33767798

FS10. Benkeser D, Chambaz A (2020), "A Ride in Targeted Learning Territory," *Journal de la Société Française de Statistique*, 161(1), 201-286. [link].

FS9. Benkeser D, Juraska M, Gilbert P (2020), "Assessing trends in vaccine efficacy by pathogen genetic distance," *Journal de la Société Française de Statistique*, 161(1), 164-175. [link]. PMID: 33244440

FS8. Magaret CA†, Benkeser D†, Williamson BD†, Borate BR, Carpp L, Georgiev I, Setliff I, Dingens AS, Simon N, Carone M, Simpkins C, Montefiori D, Alter G, Juraska M, Edelfsen PT, Karuna S, Mgodi NM, Edugupanti S, Gilbert PB (2019). "Prediction of VRC01 neutralization sensitivity by HIV-1 gp160 sequence features." *PLoS Computational Biology*. doi: 10.1371/journal.pcbi.1006952. PMID: 30933973.

FS7. Ju C†, Benkeser D†, van der Laan MJ (2019), "Robust inference on the average treatment effect using the outcome highly adaptive lasso." *Biometrics*. doi: 10.1111/biom.13121.

FS6. Benkeser D, Petersen M, van der Laan MJ (2019), "Improved small-sample estimation of nonlinear cross-validated prediction metrics." *Journal of the American Statistical Association*. doi: 10.1080/01621459.2019.1668794.

FS5. Benkeser D, Carone M, Gilbert P (2019), "Estimating and testing vaccine sieve effects using machine learning." *Journal of the American Statistical Association*, 114:527, 1038-1049. doi: 10.1080/01621459. PMID: 31649413.

FS4. Benkeser D, Carone M, van der Laan M, Gilbert P (2017). "Doubly robust nonparametric inference on the average treatment effect." *Biometrika*. doi: 10.1093/biomet/asx053. PMID: 29430041.

FS3. Benkeser D, Gilbert P, Carone M (2017). "Improved estimation of the cumulative incidence of rare outcomes." *Statistics in Medicine*. doi: 10.1002/sim.7337. PMID: 28670687.

FS2. Benkeser D, Ju C, Lendle S, van der Laan M (2017). "Online cross-validation-based ensemble learning." *Statistics in Medicine*. doi: 10.1002/sim.7320. PMID: 28474419

FS1. Benkeser D, van der Laan M (2016). "The Highly Adaptive Lasso estimator." *Proceedings of the 2016 IEEE International Conference on Data Science and Advanced Analytics*. 689-696. doi: 10.1109/DSAA.2016.93. PMID: 29094111.

First/senior under review

FS*9. * Wu Z, van der Laan L, Jin Y, Juraska M, Benkeser D, "Exposure-Induced Confounding of Missingness in Cause of Failure with Applications in Estimating Strain-Specific Efficacy of Vaccines." *Revision requested: Biometrika.*

FS*8. Nabi R, Hejazi N, van der Laan MJ, Benkeser D, "Statistical learning for constrained functional parameters in infinite-dimensional models with applications in fair machine learning." *Revision requested: Journal of the American Statistical Association.*

FS*7. * Zhao Y, Kempker R, Kipiani M, Benkeser D, "Evaluating Doubly Robust, Machine Learning-based Approaches for Estimating Treatment Effects in Small Observational Studies." *Revision requested: Epidemiology*.

FS*6. * Ziyue Wu, Benkeser D, "A Huber loss-based super learner with applications to healthcare expenditures." *Under revision: International Journal of Biostatistics* arxiv: 2205.06870.

FS*5. Nabi R, Benkeser D(2024+), "Fair Risk Minimization under Causal Path-Specific Effect Constraints" *Revision requested: Journal of Machine Learning Research.*

FS*4. * Benkeser D, Díaz I, Ran J. "Inference for natural mediation effects under case-cohort sampling with applications in identifying COVID-19 vaccine correlates of protection." arxiv: 2103.02643. *Submitted to: Biostatistics*.

FS*3. * Codi A, Rogawski McQuade ET, Nabi R, Stensrud M, Choi K, Benkeser D, "Causal Vaccine Effects on Post-infection Outcomes in the Naturally Infected." arxiv: 2604.00133.

FS*2. * Codi A, Rogawski McQuade ET, Benkeser D, "Estimating the impact of Shigella vaccines on growth outcomes and implications for clinical trial design." medrxiv: 10.64898/2026.04.03.26350105

FS*1. * Codi A, Kim S, Rogawski McQuade ET, Benkeser D, "Machine learning for estimating and comparing clinical rules for treating diarrheal illness with antibiotics." medrxiv: 10.1101/2025.01.10.25320357. *Revision requested: International Journal of Biostatistics*

Other methods

M14. * Ou X, Benkeser D, Nabi R (2026+), "Assessing Racial Disparities in Healthcare Expenditures Using Causal Path-Specific Effects." *In Press: Statistics in Medicine*.

M13. Naimi AI, Benkeser D, Rudolph JE (2025), "Computing True Parameter Values in Simulation Studies Using Monte Carlo Integration." *Epidemiology*. doi: 10.1097/EDE.0000000000001873.

M12. Gilbert PB, Fong Y, Hejazi NS, Kenny A, Huang Y, Carone M, Benkeser D, Follmann D (2024), "Four statistical frameworks for assessing an immune correlate of protection (surrogate endpoint) from a randomized, controlled, vaccine efficacy trial." *Vaccine*. doi: 10.1016/j.vaccine.2024.02.071 PMID: 38458870.

M11. Ho M, Gruber S, Fang Y, Faris DE, Mishra-Kalyari P, Benkeser D, He W, van der Laan MJ (2023), "Examples of applying RWE causal inference roadmap to clinical studies." Statistics in Biopharmaceutical Research. doi: 10.1080/19466315.2023.2177333.

M10. Rudolph JE, Benkeser D, Kennedy EH, Schisterman EF, Naimi AI (2022). "Estimation of the average causal effect in longitudinal data with time-varying exposures: the challenge of non-positivity and the impact of model flexibility." *American Journal of Epidemiology*. doi: 10.1093/aje/kwac136. PMID: 35896793

M9. van der Laan MJ, Benkeser D, Cai W (2022). "Efficient estimation of pathwise differentiable target parameters with the undersmoothed highly adaptive lasso." *International Journal of Biostatistics*. doi: 10.1515/ijb-2019-0092. PMID: 35851449

M8. * Maloney KM, Benkeser D, Sullivan PS, Kelley C, Sanchez T, Jenness SM (2022), "Sexual mixing by diagnosed HIV status and pre-exposure prophylaxis use among men who have sex with men: stochastic reclassification to address information bias in egocentric network data." *Epidemiology*. doi: 10.1097/EDE.0000000000001525. PMID: 35895578

M7. * Smith J, Gandhi N, Silk B, Cohen T, Lopman B, Raz K, Winglee K, Kammerer S, Benkeser D, Kramer MR, Hill AN (2022), "A Cluster-based Method to Quantify Individual Heterogeneity in Tuberculosis Transmission" *Epidemiology*. doi: 10.1097/EDE.0000000000001452. PMID: 34907974

M6. Nebel MB, Lidstone DE, Wang L, Benkeser D, Mostofsky SH, Risk BB (2022), "Accounting for motion in fMRI: What part of the spectrum are we characterizing in autism spectrum disorder?" *NeuroImage*. doi: 10.1016/j.neuroimage.2022.119296. PMID: 35561944

M5. Follmann D, Fintzi J, Fay MP, Janes HE, Baden L, El Sahly H, Fleming TR, Mehrotra DV, Carpp LN, Juraska M, Benkeser D, Donnell D, Fong Y, Han S, Hirsch I, Huang Y, Huang Y, Hyrien O, Luedtke A, Carone M, Nason M, Vandebosch A, Zhou H, Cho I, Gabriel E, Kublin JG, Cohen MS, Corey L, Gilbert PB, Neuzil KM (2021), "A Deferred-Vaccination Design to Assess Durability of COVID-19 Vaccine Effect After the Placebo Group Is Vaccinated." *Annals of Internal Medicine*. doi: 10.7326/M20-8149. PMID: 33844575

M4. Mehrotra DV, Janes HE, Fleming TR, Annunziato PW, Neuzil KM, Carpp LN, Benkeser D, Brown ER, Cho I, Donnell D, Fay MP, Fong Y, Han S, Hirsch I, Huang Y, Huang Y, Hyrien O, Juraska M, Luedtke A, Nason M, Vandebosch A, Zhou H, Cohen M, Corey L, Hartzel J, Follmann D, Gilbert PB (2020). "Clinical Endpoints for Evaluating Efficacy in COVID-19 Vaccine Trials." *Annals of Internal Medicine*. doi: 10.7326/M20-6169. PMID: 33090877

M3. van der Laan MJ, Benkeser D, Cai W (2019), "Causal Inference based on Undersmoothing the Highly Adaptive Lasso." *AAAI Spring Symposium 2019*. [link]

M2. van der Laan M, Benkeser D, Sofrygin O (2018). "Targeted minimum loss-based estimation." *Wiley StatsRef*. John Wiley and Sons Ltd. doi: 10.1002/9781118445112.stat07908.

M1. Kaiser P, Arnold A, Benkeser D, Zeki Al Hazzouri A, Hirsch C, Psaty B, Odden M (2018). "Comparing methods to address bias in observational data: Statin use and cardiovascular events in a US cohort." *International Journal of Epidemiology*. 47(1), 246-254. doi: 10.1093/ije/dyx179. PMID: 29024975.

Other methods under review

M*2. * Guo A, Benkeser D, Nabi R, "Targeted Machine Learning for Average Causal Effect Estimation Using the Front-Door Functional." *Under revision: Journal of the Royal Statistical Society: Series B*.

M*1. * Guo A, Benkeser D, Nabi R, "Causal Inference with the 'Napkin Graph'." arxiv: 2512.19861

Applied

A62. * Shah NS, Mishara F, Zissette S, ..., Benkeser D, Charles M, on behalf of the PROTECT Study team (2026+), "Programmatic effectiveness of tuberculosis preventive treatment for people with HIV in six high tuberculosis burden countries: An observational cohort study using target trial emulation." *In Press: The Lancet HIV*.

A61. * Ogwell B, Khanam F, Badj H, ..., Benkeser D, Rogawski McQuade ET (2026+), "Performance of Fecal Inflammatory Biomarkers to Identify Watery Shigellosis: Findings from the Enterics for Global Health (EFGH) Shigella Surveillance Study, 2022-2024." *In Press: PLOS Neglected Tropical Diseases*.

A60. Janes HE, Fong Y, Huang Y, Benkeser D, Kelly EJ, Hirsch I, Stanley AM, ..., Koup RA, Donis RO, Gilbert PB (2025), "Correlates of severe and delta COVID-19 in a phase 3 trial of the AZD1222 vaccine." *npj Vaccines*. doi: 10.1038/s41541-026-01411-1

A59. Jones J, Manley G, Glynn T, Wall K, Baral S, Harris ED, Benkeser D, Sullivan PS (2025), "Evaluating the effectiveness of a mobile HIV prevention app to increase HIV and STI testing and PrEP initiation among rural men who have sex with men in the southern United States: Protocol." *In Press: Journal of Medical Internet Research Protocols*. doi: 10.2196/69540. PMID: 40699887

A58. * Kim SS, Codi A, Platts-Mills JA, Pavlinac P, Manji K, Sudfeld C, Duggan CP, Dube Q, Bar-Zeev N, Kotloff K, Sow SO, Sazawal S, Singa BO, Walson J, Qamar F, Ahmed T, De Costa A, Benkeser D, Rogawski McQuade ET. Personalized azithromycin treatment rules for children with watery diarrhea using machine learning. *Nature Communications*. doi: 10.1038/s41467-025-60682-9. PMID: 40592849.

A57. * Onwubiko UN, Benkeser D, Holland DP, Baral SB, Marcus JL, Mayer KH, Herrick B, Sinha P, Chamberlain AT, Jenness SM (2025), "Impact of Depression at HIV PrEP Initiation on Sustained PrEP Care Engagement Among US Gay and Bisexual Men." *Journal of Acquired Immune Deficiency Syndrome*. doi: 10.1097/QAI.0000000000003698. PMID: 40373280.

A56. * Zheng B, Fong Y, Dang L, Fintzi J, Chen S, Wang J, Rouphael NG, Branche AR, Diemet DJ, Falsey AR, Gracia DS, Baden LR, Frey SE, Whitaker JA, Little SJ, Kamidani S, Walter EB, Novak RM, Rupp R, Jackson LA, Yu C, Magaret CA, Molitor C, Borate Bhavesh, Busch S, Benkeser D, Netzl A, ..., Roberts PC, Gilbert PB, Follmann D (2025), "Neutralizing antibody immune correlates by prior SARS-CoV-2 infection status in COVAIL trial recipients of an mRNA second COVID-19 vaccine boost." *Nature Communications*. doi: 10.1038/s41467-025-55931-w. PMID: 39824819.

A55. * Collins J, Kipiani M, Jin Y, Sharma AA, Tomalka JA, Avalian R, Gujabidze M, Bakuradze T, Sabanadze S, Avaliani, Z, Blumberg H, Benkeser D, Jones DP, Peloquin C, Kempker RR (2025) "Pharmacometabolomics in TB Meningitis – understanding the pharmacokinetic, metabolic, and immune factors associated with anti-TB drug concentrations in cerebrospinal fluid." *PLoS One* doi: 10.1371/journal.pone.0315999.

A54. * Udodirim O, Baral S, Murray S, Holland DP, Benkeser D, Rao A, Sanchez T, Chamberlain A, Jenness SM (2024+), "Depression and Sustained PrEP Use Among Cisgender Men who Have Sex with Men: A Study of the First 18 Months Following Daily Oral PrEP Initiation." *In Press: PLoS Mental Health*.

A53. * Udodirim O, Murray S, Rao A, Chamberlain A, Sanchez T, Benkeser D, Holland DP, Jenness SM, Baral S (2024+), "Individual & Joint Associations of Sexual Stigma and Mental Distress with PrEP Uptake, Adherence and Persistence Among US Gay and Bisexual Men." *Social Science & Medicine*. doi: 10.1016/j.socscimed.2024.117493.

A52. * Hightow-Weidman LB, Rainer C, Schader L, Rosso M, Benkeser D, Cottrell M, Tompkins L, Claude K, Stocks JB, Yigit I, Budhwani H, Meussig KE (2025), "Prepared, Protected, emPowered (P3): Primary Results of a Randomized Controlled Trial Using a Social Networking, Gamification, and Coaching App to Promote Pre-exposure Prophylaxis (PrEP) Adherence for Sexual and Gender Minority (SGM) Youth Living in the United States." *AIDS and Behavior*. doi: 10.1007/s10461-024-04547-0. PMID: 39531118.

A51. Carpp LN, Hyrien O, Fong Y, Benkeser D, Roels S, Stieh DJ, Van Dromme I, ..., Follmann D, Koup RA, Donis RO, Gilbert PB (2024+), "Neutralizing Antibody Correlate of Protection Against Severe-Critical COVID-19 in the ENSEMBLE Single-Dose Ad26.COV2.S Vaccine Efficacy Trial." *Nature Communications*. doi: 10.1038/s41467-024-53727-y. PMID: 39532861

A50. Reback CJ, Landovitz RJ, Benkeser D, Jalali A, Shoptaw S, Li MJ, Mata RP, Ryan D, Jeng PJ, Murphy SM (2024+), "Protocol for a randomized controlled trial with a stepped care approach, utilizing PrEP navigation with and without contingency management, for transgender women and sexual minority men with a substance use disorder: Assistance Services Knowledge-PrEP (A.S.K.-PrEP)." *Addiction Science & Clinical Practice*. doi: 10.1186/s13722-024-00482-6. PMID: 39521970.

A49. * Reback CJ, Cain D, Rusow JA, Benkeser D, Schader L, Gwiazdowski BA, Skeen SJ, Hannah M, Belzer M, Castillo M, Mayer KH, Paul ME, Hill-Rorie J, Dorcey Johnson N, McAvoy-Banerjea J, Sanchez T, Hightow-Weidman LB, Sullivan PS, Horvath KJ (2024), "Technology-Based Interventions, with a Stepped Care Approach, for Reducing Sexual Risk Behaviors and Increasing PrEP Initiation Among Transgender and Gender Expansive Youth and Young Adults." *In Press: AIDS and Behavior*. 10.1007/s10461-024-04513-w. PMID: 39304589.

A48. Liu C, Hui Q, Wells QS, Farber-Eger E, Gaziano JM, Wilson PWF, Quyyumi AA, Vaccarino V, Hu Y, Benkeser D, Million Veterans Program, Phillips LS, Joseph H, Sun YV (2024), "A Multivariable Mendelian Randomization Study of Systolic and Diastolic Blood Pressure, Lipid Profile, and Heart Failure Subtypes." *Genes*. doi: 10.3390/genes15091126 . PMID: 39336717

A47. Zhang B, Fong Y, Fintzi J, Janes HE, Kenny A, Carone M, Benkeser D, van der Laan LWP, Deng W, Zhou H, ..., Kalams S, US Government COVID-19 Immune Assays Team (2024). "Omicron COVID-19 immune correlates analysis of a third dose of mRNA-1273 in the COVE trial." *Nature Communications*. doi: 10.1038/s41467-024-52348-9. PMID: 39261482.

A46. Kenny A, van Duijn J, Dintwe O, Heptinstall J, Burnham R, Sawant S, Zhang L, Mielke D, Khuzwayo S, Laher Omar F, Stanfield-Oakley S, Keyes T, Dunn B, Goodman D, Fong Y, Benkeser D, Zou R, Hural J, ..., Tomaras GD, Gilbert PB (2024), "Immune correlates analysis of the Imbokodo (HVTN 705/HPX2008) efficacy trial of a mosaic HIV-1 vaccine regimen evaluated in Southern African people assigned female sex at birth: a two-phase case-control study."*eBioMedicine*. doi: 10.1016/j.ebiom.2024.105320. PMID: 39236556.

A45. Juraska M, Early AM, Li, L, Schaffner SF, Lievens M, Khorgade A, Simpkins B, Hejazi NS, Benkeser D, Wang Q, Mercer LD, ..., Neafsey DE (2024). "Genotypic analysis of RTS,S/AS01E malaria vaccine efficacy against parasite infection as a function of dosage regimen and baseline malaria infection status in children aged 5–17 months in Ghana and Kenya: a longitudinal phase 2b randomised controlled trial." *The Lancet Infectious Diseases*. doi: 10.1016/S1473-3099(24)00179-8. 38723650.

A44. Magaret CA, Li L, deCamp AC, Rolland M, Juraska M, Williamson BD, Ludwig J, Molitor C, Benkeser D, Luedtke A, Carpp LN, Greninger A, Roychoudhury P, Sadoff J, Gray GE, Vandebosch A, LeGars M, Grinsztejn B, Goefert PA, Truyers C, Van Dromme I, Swann E, Marovich MA, Neuzil KM, Corey L, Hyrien O, Gilbert PB (2024). "Quantifying how single dose Ad26.CoV2.S vaccine efficacy depends on spike sequence features." *Nature Communications*. doi: 10.1038/s41467-024-46536-w. PMID: 37398105.

A43. Huang Y, Hejazi NS, Blette B, Carpp LN, Benkeser D, Montefiori DC, McDermott AB, Fong Y, Janes HE, Deng W, ..., Gilbert PB (2023), "Stochastic interventional vaccine efficacy and principal surrogate analyses of antibody markers as correlates of protection against symptomatic COVID-19 in the COVE mRNA-1273 Trial." *Viruses*. doi: 10.3390/v15102029. PMID: 37896806

A42. Dayan GH, Rouphael N, Walsh SR, Chen A, Grunenberg N, Allen M, ..., Benkeser D, ..., Sridhar S, VAT00008 Study Team (2023) , "Efficacy of a bivalent (D614+B.1.351) SARS-CoV-2 recombinant protein vaccine with AS03 adjuvant in adults: a phase 3, parallel, randomised, modified double-blind, placebo-controlled trial." doi: 10.1016/S2213-2600(23)00263-1. PMID: 37716365.

A41. Hejazi NS, Shen X, Carpp LN, Benkeser D, Follmann D, Janes HE, Baden LR, El Sahly HM, ..., Montefiori DC, Gilbert PB (2023). "Stochastic interventional approach to assessing immune correlates of protection: Application to the COVE messenger RNA-1273 vaccine trial." *International Journal of Infectios Disease*. doi: 10.1016/j.ijid.2023.09.012. PMID: 37820782.

A40. Williamson BD, Magaret CA, Karuna S, Carpp LN, Gelderblom H, Huang Y, Benkeser D, Gilbert PB (2023). "Application of the SLAPNAP statistical learning tool to broadly neutralizing antibody HIV prevention research." *iScience*. doi: 10.1016/j.isci.2023.107595. PMID: 37654470.

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A36. Fong Y, Huang Y, Benkeser D, Carpp LN, Áñez G, Woo W, McGarry A, Dunkle LM, Cho I, Houchen CR, Martins K, Jayashankar L, Castellino F, Petropoulos CJ, Leith A, Haugaard D, Webb B, Lu Y, Yu C, Borate B, van der Laan LWP, Hejazi NS, Randhawa AK, Andrasik MP, Kublin JG, Hutter J, Keshtkar-Jahromi M, Beresnev TH, Core L, Neuzil KM, Follmann D, Ake JA, Gay CL, Kotloff KL, Koup RA, Donis RO, Gilbert PB (2023), "Immune Correlates Analysis of the PREVENT-19 COVID-19 Vaccine Efficacy Clinical Trial." *Nature Communications*. doi: 10.1038/s41467-022-35768-3. PMID: 36949083.

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A33. * Moodie Z, Dintwe O, Sawant S, Grove D, Huang Y, Janes H, Hepinstall J, Laher F, Cohen K, DeRosa SC, Zhang L, Yates NL, Sarzotti-Kelsoe M, Seaton K, Laher F, Bekker LG, Malahleha M, Innes C, Kassim S, Naicker N, Govender V, Sebe M, Singh N, Kotze P, Lazarus E, Nchabeleng M, Meintjies G, Brumskine W, Dubula T, Randhawa AK, Grunenberg N, Hural J, Kee JJ, Benkeser D, Jin Y, Carpp LN, Allen M, D'Souza P, Tartaglia J, DiazGrandos CA, Koutsoukos M, Gilber PB, Kulbin JG, Corey L, Andersen-Nissen E, Gray GE, Tomaras GD, McElrath MJ, (2022) "Analysis of the HVTN 702 Phase 2b-3 HIV-1 vaccine trial in South Africa assessing RV144 antibody and T-cell correlates of HIV-1 acquisition risk." *The Journal of Infectious Diseases*. doi: 10.1093/infdis/jiac260. PMID: 35758878

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A11. Castells X, Domingo L, Sala M, Hubbard R, Benkeser D, O'Meara E, Hofvind S, Sebuodegard S (2015). "Cross-national comparison of accuracy measures in mammography screening between USA, Norway, and Spain." *European Radiology*. doi 10.1007/s00330-015-4074-8. PMID: 26560729.

A10. Dixon S, Hoopes A, Benkeser D, Grigg A, Grow M (2015). "Characterizing key components of a medical home among rural adolescents." *Journal of Adolescent Health*, 58(2), 141-7. doi: j.jadohealth.2015.10.249. PMID: 26802989.

A9. Chapman T, Bodmer N, Benkeser D, Hingorani S, Parisi M (2014). "Transient renal enlargement in pediatric hematopoietic cell transplant recipients." *Pediatric Transplantation*, 18(3), 288-93. doi: 10.1111/petr.12225. PMID: 24438462.

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A7. Khandelwal N, Engelberg R, Benkeser D, Coe N, Curtis J (2014). "End-of-life expenditure in the ICU and perceived quality of dying." *CHEST*, 146(6), 1594-1603. doi: 10.1378/chest.14-0182. PMID: 25451349.

A6. Khandelwal N, Engelberg R, Benkeser D, Treggiari M (2014). "Variation in reintubation rates in Washington hospitals." *Journal of Cardiothoracic and Vascular Anesthesia*, 29(3). doi: 10.1053/j.jvca.2014.11.009. PMID: 25802193.

A5. Karas M, Benkeser D, Arnold A, Djousse L, Mukamal K, Ix J, Zieman S, Siscovick D, Tracy R, Mantzoros C, Gottdiener J, deFilippi C, Kizer J (2013). "Relations of plasma total and high-molecular-weight adiponectin to new-onset heart failure in adults ≥ 65 years of age (from the Cardiovascular Health Study)." *American Journal of Cardiology*, 113(2), 328-34. doi: 10.1016/j.amjcard.2013.09.027. PMID: 24169012.

A4. Djousse L, Benkeser D, Arnold A, Kizer J, Zieman S, Lemaitre R, Tracy R, Gottdiener J, Mozaffarian D, Siscovick D, Ix, J (2013). "Plasma free fatty acids and risk of heart failure: The Cardiovascular Health Study." *Circulation: Heart Failure*, 6(5), 964-969. doi: 10.1161/circheartfailure.113.000521. PMID: 23926204.

A3. Kizer J, Benkeser D, Arnold A, Djousse L, Zieman S, Mukamal K, Tracy R, Mantzoros C, Siscovick D, Gottdiener J, Ix J (2012). "Total and high-molecular-weight adiponectin and risk of coronary heart disease and ischemic stroke in older adults." *The Journal of Clinical Endocrinology & Metabolism*, 98(1), 255-63. doi: 10.1210/jc.2012-2103. PMID: 23162097.

A2. Kizer J, Benkeser D, Arnold A, Mukamal K, Ix J, Zieman S, Siscovick D, Tracy R, Mantzoros C, Defilippi C, Newman A, Djousse L (2012). "Associations of total and high-molecular-weight adiponectin with all-cause and cardiovascular mortality in older persons: The Cardiovascular Health Study." *Circulation*, 126(25), 2951-61. doi: 10.1161/circulationaha.112.135202. PMID: 23159554.

A1. Kizer J, Arnold A, Benkeser D, Ix J, Djousse L, Zieman S, Barzilay J, Tracy R, Mantzoros C, Siscovick D, Mukamal K (2011). "Total and high-molecular-weight adiponectin and risk of incident diabetes in older persons." *Diabetes Care*, 35, 415-423. doi: 10.2337/dc11-1519. PMID: 22148099.

Applied under review

A*1. Udodirim O, Baral S, Benkeser D, Murray S, Holland DP, Rao A, Sanchez T, Chamberlain A, Jenness SM (2024+), "Intersecting Realities: Understanding Stigma, Poverty, and Mental Health in HIV-Negative Men who have Sex with Men in the United States." *Revision requested: AIDS and Behavior*.

Book chapters

1. van der Laan M, Benkeser D, "Highly adaptive lasso (HAL)." (2018) *Targeted Learning in Data Science: Causal Inference for Complex Longitudinal Studies*. Springer New York. 10.1007/978-3-319-65304-4_6.

2. Benkeser D, Carone M, Gilbert P, "Targeted estimation of cumulative vaccine sieve effects." (2018) *Targeted Learning in Data Science: Causal Inference for Complex Longitudinal Studies*. Springer New York. 10.1007/978-3-319-65304-4_11.

3. van der Laan M, Benkeser D, "Online super learning." (2018) *Targeted Learning in Data Science: Causal Inference for Complex Longitudinal Studies*. Springer New York. 10.1007/978-3-319-65304-4_18.

Funding

Principal Investigator

Bill and Melinda Gates Foundation

Geographic and time trends in etiology-specific diarrhea burden 4/2024 - 4/2025
Award amount: $99,418; FTE: 10%

National Science Foundation

Division of Mathematical Sciences Statistics Program 8/2020 - 8/2024
Accurate and Interpretable Machine Learning for Prediction and Precision Medicine
Award amount: $219,995; FTE: 10%

Co-investigator

National Institutes of Health

Emory/Georgia TB Research Advancement Center (TRAC) 7/2021 -
Award number: P30AI168386-01 (PI: Gandhi, Rengarajan); FTE: 10%

Statistical approaches to improving functional connectivity estimates with an application to autism 4/2022 - 3/2027
Award number: R01MH129855 (PI: Risk); FTE: 10%

SDMC: *HIV Vaccine Trials Network* 7/2017 -
Award number: 5UM1AI068635 (PI: Gilbert); FTE: 25%

Statistical Methods for Incorporating Machine Learning Tools in Inference and Large-Scale Surveillance Using Electronic Medical Records Data 7/2019 - 7/2024
Award number: 1R01HL137808 (PI: Carone); FTE: 20%

Engaging African American and Latino MSM for HIV Testing and Prevention Services Through Technology 9/2017 - 7/2022
Award number: 1U01PS005181 (PI: Sullivan); FTE ≈ 5%

The UNC/Emory Center for Innovative Technology (iTech) Across the Prevention and Care Continuum, iTech Analytic Core 9/2017 - 7/2022
Award number: 1U19HD089881 (PI: Hightow-Weidman); Sub ID: 8777 (PI: Muessig); FTE ≈ 10%

A *Clinical Pharmacology Study of a Novel Drug Regimen for Pre-XDR and XDR Tuberculosis* 10/2018 - 1/2019
Award number: 1R21AI122001 (PI: Kempker); FTE ≈ 12.5%

Sympatho-Inhibition with Mindfulness in Chronic Kidney Disease 9/2019 - 8/2021
Award number: 1R61AT010457 (PI: Park); FTE: 5%

Government contract

Center for Disease Control
Influenza Division: Epidemiology and Prevention Branch 1/2018 - 3/2020
IPA; FTE ≈ 15%

Foundation for Atlanta Veterans Research 7/2019 - 6/2020
MOU; FTE ≈ 7.5%

Foundations

Wellcome Trust Foundation
Effect of Rotavirus Vaccine on Antibiotic Prescribing and Antimicrobial Resistance 6/2020 - 6/2022
PI: Lopman; FTE ≈ 10%

Bill and Melinda Gates Foundation
Healthy Birth, Growth and Development Knowledge Initiative 7/2017 - 2/2018
Award number: OPP1147962 (PI: van der Laan); FTE: 34%

PATH
MAL-095 Ancillary Amplicon Sequencing Study: Molecular Detection and Genotyping of Plasmodium falciparum Parasites in Young African Children after Immunization with RTS,S/AS01E Malaria

Vaccine 7/2017 - 7/2021
PI: Wirth; FTE ≈ 15%

Emory University

Transplant rejection diagnosis and classification using machine learning on whole-slide imaging in pediatric and adult kidney transplant recipients 10/2018 - 10/2019
PI: Hogan; FTE: 5%

Teaching

Formal courses

Emory University

Data Science Toolkit (DATA 550, 56 students)	Spring 2026
Current Topics in Data Science (DATA 555, 70 students)	Spring 2025
Data Science Toolkit (DATA 550, 61 students)	Fall 2025
Current Topics in Data Science (DATA 555, 63 students)	Spring 2025
Data Science Toolkit (DATA 550, 48 students)	Spring 2025
Data Science Toolkit (DATA 550, 46 students)	Fall 2024
Causal Inference (BIOS761/EPI760, 33 students)	Spring 2024
Data Science Toolkit (DATA 550, 57 students)	Spring 2024
Causal Inference (BIOS761/EPI760, 33 students)	2023
Data Science Toolkit (INFO 550, 41 students)	2022
Causal Inference (BIOS761/EPI760, 25 students)	2022
Data Science Toolkit (INFO 550, 34 students)	2021
Causal Inference (BIOS761/EPI760 30 students)	2021
Data Science Toolkit (INFO 550, 39 students)	2020
Introduction to Statistical Inference (BIOS 511, 23 students)	2020
Introduction to Statistical Inference (BIOS 511, 22 students)	2019
Artificial Intelligence and the Ethical Dimensions of Data Science (Academic Learning Community)	2019

University of California, Berkeley

Targeted Learning with Biomedical Big Data (PB HLTH 295)	2016

Short courses

Modern Statistical Learning Methods for Observational Biomedical Data 2025
Summer Institute in Statistics for Clinical and Epidemiological Research
13 participants

Hitchhikers Guide to Reproducible Research 2024
Summer Institute in Statistics and Modeling in Infectious Diseases
19 participants

Modern Statistical Learning Methods for Observational Biomedical Data 2024
Summer Institute in Statistics for Clinical and Epidemiological Research
31 participants

Statistical Learning in Mediation Analysis 2024
Summer Institute in Statistics for Clinical and Epidemiological Research
20 participants

Modern Statistical Learning Methods for Observational Biomedical Data 2023
Summer Institute in Statistics for Clinical and Epidemiological Research
34 participants

Statistical Learning in Mediation Analysis 2023
Summer Institute in Statistics for Clinical and Epidemiological Research

18 participants

Modern Statistical Learning Methods for Observational Biomedical Data 2022
Summer Institute in Statistics for Clinical and Epidemiological Research
25 participants

Statistical Learning in Mediation Analysis 2022
Summer Institute in Statistics for Clinical and Epidemiological Research
22 participants

Modern Statistical Learning Methods for Observational Biomedical Data 2022
Summer Institute in Statistics for Clinical and Epidemiological Research
25 participants

Introduction to Reproducible Workflows in R 2022
Centers for Disease Control and Prevention, Statistical Advisory Group
$\approx$ 90 participants

Statistical Learning in Mediation Analysis 2021
Summer Institute in Statistics for Clinical and Epidemiological Research
34 participants

Modern Statistical Learning Methods for Observational Biomedical Data 2021
Summer Institute in Statistics for Clinical and Epidemiological Research
39 participants

Introduction to causal inference with machine learning 2020
6th Seattle Symposium in Biostatistics
182 participants

Modern Statistical Learning Methods for Observational Biomedical Data 2020
Summer Institute in Statistics for Clinical and Epidemiological Research
42 participants

Modern Methods for Observational Biomedical Data 2020
International Conference on Health Policy Statistics
52 participants

Modern Statistical Learning Methods for Observational Biomedical Data 2019
Summer Institute in Statistics for Clinical and Epidemiological Research
27 participants

Modern Statistical Learning Methods for Observational Biomedical Data 2018
5th Annual Summer Institute for Statistics in Clinical Research
29 participants

Modern Statistical Learning Methods for Observational Data and Applications to Comparative Effectiveness Research 2017
4th Annual Summer Institute for Statistics in Clinical Research
50 participants

Teaching Assistant, University of Washington
Categorical Data Analysis (BIOS 536) 2013
Advanced Regression Methods I (BIOS 570) 2012

Students

PhD supervision
Ziyue Wu 2019 - 2022
Sohail Nizam 2019 - 2023
Yutong Jin 2019 - 2023
Lindsey Schader 2019 - 2023
Jialu Ran (co-advisor with Ying Guo) 2019 - 2024
Sydney Busch 2023 - 2026

Seth Zissette (co-advisor with Patrick Sullivan)	2023 - 2026
Emily Wu	2023 -

PhD committee

Oluseye Ogunmoroti (EPI)	2025 -
Wenyi Wang (BIOS)	2025 -
Anna Guo (BIOS)	2024 -
Sara Kim (EPI)	2024 -
Shane Conyers (EPI)	2023 -
Jacob Englert (BIOS)	2024 - 2025
Udodirim Onwubiko (EPI)	2022 - 2024
Chang Liu (EPI)	2022 - 2024
Andrea Lane (BIOS)	2020 - 2022
Davit Baliashvili (EPI)	2020 - 2021
Kevin Maloney (EPI)	2019 - 2021
Jonathan Smith (EPI)	2018 - 2020

Masters capstone

Courtney Simmons – *The effect of hyperparameter tuning on the prediction of HIV-1 pseudovirus sensitivity to antibody neutralization*	2021

Masters thesis

Allison Codi – *Machine learning for estimating and comparing clinical rules for treating diarrheal illness with antibiotics*	2024
Wencheng Wu – *A Density Ratio Super Learner*	2024
Haoyong Yu – *Bagging for the highly adaptive lasso*	2020
Zhenghao Hu – *Using deep learning methods to predict the VRC01 neutralization sensitivity by HIV-1 gp160 sequence features*	2020
Weishan Song – *Stability of Inference Derived from Machine Learning-based Doubly Robust Estimators of Treatment Effects*	2020
Qiao Deng – *Trends of authorship equity in global health research in infectious disease over the past two decades*	2020
Yuan Zhao – *Targeted Maximum Likelihood Estimation to Evaluate Effect of Novel Regimens on Multidrug Resistant Tuberculosis*	2019

Software

1. Benkeser D, Hejazi N, "`survtmle`: Targeted Minimum Loss-Based Estimation for Survival Analysis in R." CRAN/GitHub. doi: 10.5281/zenodo.835868.
    - *implements methods of Benkeser, Gilbert, Carone (2017), Stat. in Med. and Benkeser, Carone, Gilbert (2019) JASA.*
    - 22503 total downloads (as of 2025-07-14)
2. Benkeser D, "`drtmle`: Doubly-Robust Inference in R." CRAN/GitHub. doi: 10.5281/ zenodo.844836.
    - *implements methods of Benkeser, Gilbert, van der Laan, Carone (2018), Biometrika and Benkeser, Cai, van der Laan (2020) Stat. Sci.*
    - 37549 total downloads (as of 2025-07-14)
3. Benkeser D, "`nlpred`: Estimators of Non-Linear Cross-Validated Risks Optimized for Small Samples." CRAN/GitHub.
    - *implements methods of Benkeser, Petersen, van der Laan (2019) JASA.*
    - 20455 total downloads (as of 2025-07-14)
4. Benkeser D, "`drord`: Doubly-Robust Estimators for Ordinal Outcomes." CRAN/GitHub.

- *implements methods of Benkeser, Diaz, Luedtke, et al (2020) Biometrics.*
- 15188 total downloads (as of 2025-07-14)

5. Hejazi N, Benkeser D. "`txshift`: Efficient estimation of the causal effects of stochastic interventions in `R`". CRAN/GitHub.
   - *implements methods of Hejazi, et al (2020) Biometrics.*
   - 15584 total downloads (as of 2025-07-14)
6. Hejazi N, Benkeser D. "`haldensify`: Highly Adaptive Lasso Conditional Density Estimation". CRAN/GitHub.
   - *developed in support of methods proposed in Hejazi, et al (2020) Biometrics.*
   - 26611 total downloads (as of 2025-07-14)

Honors and Awards

Visiting Professor, University of Paris Cité	2026
HIV Vaccine Trials Network: Bonnie Mathieson Young Investigator Award	2024
Emory Department of Biostatistics: Michael J. Lynn Award in Collaborative Biostatistics	2021
Emory Department of Biostatistics and Bioinformatics Teaching Award (runner-up)	2019
NIAID Travel Scholarship Workshop Big Data and Infectious Diseases	2015
WNAR Distinguished Oral Presentation	2015
NCI Cancer Epidemiology Training Grant	2013 - 2015
NHLBI Cardiovascular Epidemiology Training Grant	2010 - 2012
University of Georgia College of Public Health Excellence in Biostatistics Award	2010

Professional Service

Editorial

International Journal of Biostatistics, Associate Editor	2016 -
Biometrics, Associate Editor	2021 - 2025
Journal of Causal Inference, Associate Editor	2016 - 2025

Peer Review

Biometrics, Annals of Applied Statistics, Statistical Methods in Medical Research, Statistics in Medicine, BMJ Open, PLOS One: Computational Biology, The R Journal, Journal of Palliative Medicine, Annals of Epidemiology, American Journal of Epidemiology, Biometrika, JRSS-C, Epidemiology, Journal of Applied Statistics, Journal of the American Statistical Association, JRSS-B, Global Epidemiology, Epidemiology, Clinical Trials, Nature Communications, Journal of the International AIDS Society, Biostatistics, Annals of Statistics, Journal of Infectious Disease

Grant review

Patient-Centered Outcomes Research Institute	2022
Patient-Centered Outcomes Research Institute	2021
National Science Foundation Review Panel, Division of Mathematical Statistics	2021
National Science Foundation Review Panel, Special Panel Multimodal Sensor Systems	2020
Wellcome Trust, Postdoctoral Fellowship	2020
NIH: National Institute on Drug Abuse, Special Emphasis Panel	2020
National Science Foundation Review Panel, Division of Mathematical Statistics	2019
National Science Foundation Review Panel, Division of Mathematical Biology	2018

Conference organization

Invited session organizer, JSM	2021
Organizer, Program in Quantitative Genomics Conference, Harvard TH Chan School of Public Health	2021

Presentations

International Symposia on Nonparametric Statistics (invited), July 2026.
"Nonparametric Assessment of Causal Interactions with Continuous-Valued Exposures Under Time-Varying Confounding."

CMStatistics (invited), December 2025.
"Causal vaccine effects in the naturally infected."

CMStatistics (invited), December 2024.
"Statistical learning for constrained functional parameters in infinite-dimensional models with applications in fair machine learning"

WHO Technical consultation on immune correlates of protection for the evaluation of malaria vaccines (invited), June 2024.
"Statistical frameworks for evaluating correlates of protection for preventive malaria vaccines"

International Society For Clinical Biostatistics (invited), August 2023.
"A value system for evaluating estimands in randomized trials"

Society for Epidemiologic Research (invited), June 2023.
"Sewing the parachute while failling: A COVID-19 vaccine story"

Brown/Boston Center for AIDS Research (invited), June 2023.
"Using target trials to study effectiveness of TB Preventive Therapy in people living with HIV"

Lifetime Data Science Conference (invited), June 2023.
"Targeted machine learning in settings with competing risks with applications in studies of preventive vaccines"

National Institute of Statistical Sciences (invited), May 2023.
Panel on the Role of Biostatistics in an Increasingly Big Data/Data Science World

University of Iowa, Department of Biostatistics (invited), May 2023.
"Exposure-Induced Confounding of Missingness in Cause of Failure with Applications in Estimating Strain-Specific Efficacy of Vaccines"

CMStatistics (invited), December 2022.
"Identifying HIV sequences that escape antibody neutralization using random forests and collaborative targeted learning"

JSM (invited), August 2022.
"Exposure-Induced Confounding of Missingness in Cause of Failure with Applications in Estimating Strain-Specific Efficacy of Vaccines"

Online Causal Inference Seminar, Stanford University, May 2022.
"Discussion of: Estimands and estimation of COVID-19 vaccine effectiveness under the test-negative design: connections to causal inference"

FDA, Center for Biologics Evaluation and Research, April 2022.
"Immune Correlates Analysis of the mRNA-1273 Vaccine Efficacy Trial"

Vanderbilt University, Department of Biostatistics, March 2022.
"Immune Correlates Analysis of the mRNA-1273 Vaccine Efficacy Trial"

Emory University, Department of Quantitative Theory and Methods, February 2022.
"Immune Correlates Analysis of the mRNA-1273 Vaccine Efficacy Trial"

Georgia Clinical and Translational Science Alliance Research Forum, October 2021.
"Design and analysis considerations for a sequentially randomized HIV prevention trial in transgender adolescents"

Journal Club for the International Biometrics Society (invited), October 2021.
"Improving Precision and Power in Randomized Trials for COVID-19 Treatments Using Covariate Adjustment, for Binary, Ordinal, or Time to Event Outcomes"

ICSA 2021 (invited), September 2021.
"Inference for natural mediation effects under case-cohort sampling: identifying COVID-19 vaccine correlates of protection"

JSM (invited), August 2021.
"Improving Precision and Power in Randomized Trials for COVID-19 Treatments Using Covariate Adjustment, for Binary, Ordinal, or Time to Event Outcomes"

University of Washington Clinical Learning, Evidence and Research Center for Musculoskeletal Disorders (invited), July 2021.
"Causal inference and the role of machine learning"
Society for Clinical Trials (invited), May 2021.
"Design and analysis of correlates data for COVID-19 vaccine trials"
University of Florida, Center for Statistics and Quantitative Infectious Diseases, March 2021.
"COVID-19 vaccines: correlates and sieve analysis"
ENAR (invited), March 2021.
"Improving Precision and Power in Randomized Trials for COVID-19 Treatments Using Covariate Adjustment, for Binary, Ordinal, or Time to Event Outcomes"
Dana Farber Cancer Institute Zoominars for Data Science (invited), December 2020.
"COVID-19 Vaccine Trial Design"
COPSS-NISS COVID-19 Data Science Webinar Series (invited), December 2020.
"The Statistics of COVID-19 Vaccine Trials"
University of Washington, Department of Biostatistics, seminar (invited), October 2020.
"At warp speed: Statistics and COVID-19 vaccine development"
CDC Statistical Advisory Group, seminar (invited), October 2020.
"Targeted machine learning for generating reliable, robust, real world evidence"
Yale Biostatistics Seminar Series, seminar (invited), October 2020.
"At warp speed: Statistics and COVID-19 vaccine development"
University of Louisville Dept. of Bioinformatics & Biostatistics, seminar (invited), October 2020.
"At warp speed: Statistics and COVID-19 vaccine development"
JSM (contributed), August 2020.
"Design and analysis considerations for a sequentially randomized HIV prevention trial in transgender adolescents"
Food and Drug Administration, webinar (invited), June 2020.
"Practical Issues in Targeted Learning"
St. Jude Children's Research Hospital, Data-Driven Precision Medicine and Translational Research in the Era of Big Data (invited), May 2020.
"Causal inference and the role of machine learning."
Clemson University School of Mathematical and Statistical Sciences Seminar (invited), April 2020.
postponed due to COVID-19
National Institute of Arthritis and Musculoskeletal and Skin Diseases Roundtable on Subset Analysis in Clinical Studies (invited), March 2020.
"Machine learning and causal inference with applications in subgroup analysis."
Emory Center for AIDS Research Network Science Seminar, January 2020.
"SLAPNAP: An automated pipeline for prediction of neutralization sensitivity by HIV sequence features."
Computational and Mathematical Statistics (contributed), December 2019.
"Collaborative inference for causal effect estimation and general missing data problems."
Georgia Statistics Day, October 2019.
"Collaborative inference for causal effect estimation and general missing data problems."
University of Georgia, Department of Statistics (invited), September 2019.
"Collaborative inference for causal effect estimation and general missing data problems."
JSM (contributed), July 2019.
"Targeted Machine Learning for Real World Evidence Analytics."
WNAR (invited), June 2019.
"Design and analysis considerations for a sequentially randomized HIV prevention trial in transgender adolescents."
Institute for Computational and Experimental Research in Mathematics, Providence RI, January 2019. TRIPODS: Models and Machine Learning for Causal Inference and Decision Making in Health Research (invited).
"Super efficient estimation of the average treatment effect."

Georgia Statistics Day, October 2018.
"Nonparametric doubly-robust inference for the mean outcome under a longitudinal treatment decision rule."
Centre de Recherches Mathematiques, Montreal Canada, June 2018. Workshop on causal inference for complex graphical structures workshop (invited).
"Inference on vaccine sieve effects using machine learning."
Emory Center for AIDS Research Network Science Seminar, January 2019.
"Sieve analysis: Analyzing the role of pathogen genetics in vaccine efficacy"
International Conference on Health Policy Statistics (invited), January 2018.
"Estimation and inference for the causal effect of a treatment on a rare outcome using bounded statistical models."
University of Florida Winter Workshop (poster), January 2018.
"Online super learning."
Georgia Statistics Day, October 2017.
"The highly adaptive lasso and efficient estimation of causal effects."
WNAR (invited), June 2017.
"The highly adaptive lasso estimator and efficient estimation of causal effects."
University of Paris, Nanterre, Department of Mathematics (invited), May 2017.
"Vaccine sieve analysis."
University of California, San Francisco, TAPS/Methods Core Seminar (invited), March 2017.
"Optimally combining outcomes to improve prediction."
University of California, Berkeley, Evaluation and Assessment Research Center Seminar (talk), November 2016.
"Optimally combining outcomes to improve prediction."
IEEE Conference on Data Science and Advanced Analytics (special session), October 2016.
"The highly adaptive lasso estimator."
University of California, Berkeley Biostatistics Department Seminar (invited talk), August 2016.
"Targeted estimation of vaccine sieve effects in the RTS,S/AS01 preventive malaria vaccine efficacy trial."
WNAR/IBC (invited talked), July 2016.
"Circumventing the curse of dimensionality in asymptotic efficient estimation."
WNAR/IBC (invited talked), July 2016.
"Nonparametric doubly-robust inference for the average treatment effect."
University of Washington, Biostatistics Department Seminar (invited talk), January 2016.
"Genetic diversity and protective efficacy of the RTS,S/AS01 malaria vaccine."
NIAID Big Data Workshop (invited), November 2015.
"Applications of data-adaptive estimation in preventive vaccine efficacy trials."
JSM (contributed), August 2015.
"Methods for increased power in vaccine efficacy trials",
WNAR Student Paper Competition (talk), June 2015.
"Robust estimation of cumulative incidence in the setting of competing risks."

Selected Press

Mallapaty S, Ledford H, "COVID-vaccine results are on the way — and scientists' concerns are growing." *Nature News*. Sept 25, 2020. url: https://www.nature.com/articles/d41586-020-02706-6. [link].
Johnson CY, "Johnson & Johnson, Eli Lilly pause covid-19 trials for possible safety issues." *Washington Post*. Oct 13, 2020. url: https://www.washingtonpost.com/health/2020/10/13/covid-vaccine-trial-pause/. [link]
Salzman S, "Pfizer vaccine news 'as good as you could hope for'." *ABC News*. Nov 9, 2020. url: https://abcnews.go.com/Health/pfizer-vaccine-news-good-hope/story?id=74114151. [link].
Ghorayshi A, Vergano D, "Pfizer's Coronavirus Vaccine Is More Than 90% Effective, Early Data Says ." *BuzzFeed News*. Nov 9, 2020. url: https://www.buzzfeednews.com/article/azeenghorayshi/

coronavirus-vaccine-pfizer-results [link].
Salzman S, "Moderna to seek FDA emergency authorization after COVID-19 vaccine shows 94% efficacy in final analysis." *ABC News*. Nov 30, 2020. url: https://abcnews.go.com/Health/moderna-seek-fda-emergency-authorization-covid-19-vaccine/story?id=74454936. [link].
Johnson CY, McGinley L, "FDA review confirms safety, efficacy of single-shot Johnson & Johnson coronavirus vaccine, especially against severe cases." *Washington Post*. Feb 24, 2021. url: https://www.washingtonpost.com/health/2021/02/24/johnson-and-johnson-vaccine/. [link].
Johnson CY, "AstraZeneca says its vaccine is 76 percent effective in an updated company analysis released after earlier challenge." *Washington Post*. March 24, 2021. url: https://www.washingtonpost.com/health/2021/03/24/astrazeneca-vaccine-new-analysis/. [link].
Irfan U, "AstraZeneca's absurd and unprecedented dispute with regulators, explained." *Vox*. March 25, 2021. url: https://www.vox.com/22346789/astrazeneca-covid-19-vaccine-oxford-efficacy-results-nih-fda. [link].
Rothman S, Salzman S, "COVID-19 reinfections rare, but older adults are more at risk, large study suggests." *ABC News*. March 17, 2021. url: https://abcnews.go.com/Health/covid-19-reinfections-rare-older-adults-risk-large/story?id=76510156. [link].
Palca J, "Scientists May Have Found A Marker Of How Effective COVID-19 Vaccines Are" *National Public Radio: All Things Considered*. August 10, 2021. url: https://www.npr.org/2021/08/10/1026500551/scientists-may-have-found-a-marker-of-how-effective-covid-19-vaccines-are. [link]

University Service

Emory University, Department of Biostatistics and Bioinformatics

Director of Data Science Programs	2022 -
Director of Data Science Certificate	2023 -
PhD curriculum committee	2017 - 2022
Tenure-track faculty search committee	2018 - 2019
Second year qualifying exam grader	2018 -
Department chair search committee	2019 - 2020
Department admissions committee	2021
Research-track faculty search	2022
Director of Data Science Initiatives	2022 -

Emory University, Department of Epidemiology

PhD curriculum committee	2019 - 2020
Second year qualifying exam grader	2021 -

Emory University, Rollins School of Public Health

Computation and Data Science Advisory Group	2019 -
Faculty Council	2019 - 2022