

David Benkeser

Assistant Professor of Biostatistics and Bioinformatics

Emory University, Rollins School of Public Health
1518 Clifton Rd. NE, Mailstop: 002-3AA
Atlanta, GA 30322

benkeser@emory.edu
(404)712-9975
Updated: May 19, 2023

Education

| | |
|---|-------------|
| Postdoctoral research fellow, University of California, Berkeley Supervisor: Mark van der Laan | 2016 - 2017 |
| PhD. Biostatistics, University of Washington Advisors: Peter Gilbert and Marco Carone Dissertation: Data-Adaptive Estimation in Longitudinal Data Settings with Applications in Vaccine Efficacy Trials | 2010 - 2015 |
| MPH Biostatistics, University of Georgia | 2008 - 2010 |
| B.S. Statistics, University of Georgia | 2006 - 2010 |

Peer-reviewed publications

h-index: 28 ([Google scholar](#)); 22 ([Web of Science](#))

† denotes equal contribution.

First/senior author

- 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." *Accepted: Science: Translational Medicine*.
- 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, Haugeard 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, Makhare 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](https://doi.org/10.1038/s41541-023-00630-0).
- FS26. Nizam S, **Benkeser D**(2023), "Highly Adaptive Regression Trees." *Evolutionary Intelligence*. doi: [10.1007/s12065-023-00836-0](https://doi.org/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](https://doi.org/10.1353/obs.2023.0017).
- FS24. Jin Y (2022), **Benkeser D**, "Identifying HIV sequences that escape antibody neutralization using random forests and collaborative targeted learning." *Journal of Causal Inference*. doi: [10.1515/jci-2021-0053](https://doi.org/10.1515/jci-2021-0053).
- FS23. Hall EW, Tippet 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](https://doi.org/10.1093/ofid/ofac276). PMID: [35855006](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/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](https://doi.org/10.1007/s10742-022-00275-x). PMID: [36437854](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1002/sim.9302). PMID: [35044691](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1515/jci-2020-0018). NSF-ID: [10292500](https://www.nsf.gov/awardsearch/showAward?AWD_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](https://doi.org/10.1093/bioinformatics/btab398). PMID: [34021743](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1111/biom.13495). PMID: [34050931](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1111/biom.13377). PMID: [32978962](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1097/QAI.0000000000002536). PMID: [33074856](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1515/ijb-2019-0061). PMID: [32784265](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1007/s12561-020-09274-3). PMID: [33767798](https://pubmed.ncbi.nlm.nih.gov/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](https://pubmed.ncbi.nlm.nih.gov/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, Mgodini 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](https://doi.org/10.1371/journal.pcbi.1006952). PMID: [30933973](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1111/biom.13121).
- FS6. **Benkeser D**, Petersen M, van der Laan MJ (2019), “Improved small-sample estimation of non-linear cross-validated prediction metrics.” *Journal of the American Statistical Association*. doi: [10.1080/01621459.2019.1668794](https://doi.org/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: [10.1080/01621459.2019.1668794](https://doi.org/10.1080/01621459.2019.1668794). PMID: [31649413](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1093/biomet/asx053). PMID: [29430041](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1002/sim.7337). PMID: [28670687](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1002/sim.7320). PMID: [28474419](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1109/DSAA.2016.93). PMID: [29094111](https://pubmed.ncbi.nlm.nih.gov/29094111/).

First/senior under review

- FS*4. Nizam S, **Benkeser D**(2023+), “Highly Adaptive Lasso for estimation of heterogeneous treatment effects and treatment recommendation” *Submitted to: ICML*.
- FS*3. **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](https://arxiv.org/abs/2103.02643). *Submitted to: Biostatistics*.
- FS*2. 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*1. Ziyue Wu, **Benkeser D**, “A Huber loss-based super learner with applications to healthcare expenditures.” *Submitted to: ICML* arxiv: [2205.06870](https://arxiv.org/abs/2205.06870).

Other methods

- 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 Pharmaceutical Research*. doi: [10.1080/19466315.2023.2177333](https://doi.org/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](https://doi.org/10.1093/aje/kwac136). PMID: [35896793](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1515/ijb-2019-0092). PMID: [35851449](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1097/EDE.0000000000001525). PMID: [35895578](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1097/EDE.0000000000001452). PMID: [34907974](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1016/j.neuroimage.2022.119296). PMID: [35561944](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.7326/M20-8149). PMID: [33844575](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.7326/M20-6169). PMID: [33090877](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/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](https://doi.org/10.1093/ije/dyx179). PMID: [29024975](https://pubmed.ncbi.nlm.nih.gov/29024975/).

Applied

- A37. Baliashvili D, Blumberg HM, Gandhi NR, Averhoff F, **Benkeser D**, Shadaker S, Gvinjilia L, Turdziladze A, Tukvadze N, Chincharauli M, Butsashvili M, Sharvadze L, Tsertsvadze T, Zarkua J, Kempker RR (2023), “Hepatitis C care cascade among patients with and without tuberculosis: Nationwide observational cohort study in the country of Georgia, 2015-2020.” *PLOS Medicine*. doi: [10.1371/journal.pmed.1004121](https://doi.org/10.1371/journal.pmed.1004121).
- 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](https://doi.org/10.1038/s41467-022-35768-3).
- A35. Fong Y, McDermott AB, **Benkeser D**, Roels S, Stieh DJ, Vandebosch A, Le Gars M, Van Roey GA, Houchens CR, Martins K, Jayashankar L, Castellino F, et al, (2022) “Immune Correlates Analysis of a Single Ad26.COVS.2 S Dose in the ENSEMBLE Vaccine Efficacy Clinical Trial.” *Nature Microbiology*. doi: [10.1038/s41564-022-01262-1](https://doi.org/10.1038/s41564-022-01262-1). PMID: [36357712](https://pubmed.ncbi.nlm.nih.gov/36357712/)

- A34. Baliashvili D, Blumberg HM, **Benkeser D**, Kempker RR, Shadaker S, Averhoff F, Gvinjilia L, Adamashvili N, Magee M, Kamkamidze G, Zakalashvili M, Tsertsvadze T, Sharvadze L, Chincharauli M, Tukvadze N, Gandhi NR (2022), "Association of treated and untreated chronic hepatitis C with the incidence of active tuberculosis disease: a population-based cohort study in the country of Georgia." *Clinical Infectious Diseases*. doi: [10.1093/cid/ciac786](https://doi.org/10.1093/cid/ciac786). PMID: [36134743](https://pubmed.ncbi.nlm.nih.gov/36134743/)
- 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](https://doi.org/10.1093/infdis/jiac260). PMID: [35758878](https://pubmed.ncbi.nlm.nih.gov/35758878/)
- A32. Modlin CE, Deng Q, **Benkeser D**, Waller L, Powell PR, Kempker RR (2022), "Authorship Trends for Infectious Disease Research Conducted in Low-Income Countries." *PLoS: Global Health*. doi: [10.1371/journal.pgph.0000275](https://doi.org/10.1371/journal.pgph.0000275).
- A31. Gilbert PB, Montefiori DC, McDermott A, Fong Y, **Benkeser D**, Deng W, Zhou H, Houchens CR, et al. (2021), "Immune Correlates Analysis of the mRNA-1273 COVID-19 Vaccine Efficacy Trial." *Science*. doi: [10.1126/science.abm3425](https://doi.org/10.1126/science.abm3425). PMID: [34812653](https://pubmed.ncbi.nlm.nih.gov/34812653/)
- A30. Gallini J, **Benkeser D**, Cui X, Shah AJ, Phillips LS, Hemnes AR, Hart CM, Trammell AW (2021), "Pulmonary Hypertension: A New Vascular Complication of Diabetes?" *CHEST*. doi: [10.1016/j.chest.2021.09.005](https://doi.org/10.1016/j.chest.2021.09.005). PMID: [34537188](https://pubmed.ncbi.nlm.nih.gov/34537188/)
- A29. Falsey A, Sobieszczyk ME, Hirsch I, Sproule S, Robb ML, Corey L, Neuzil KM, Hahn W, Hunt J, Mulligan MJ, McEvoy C, DeJesus E, Hassman M, Little SJ, Rickner K, Pahud BA, Durbin A, Pickrell P, Daar ES, Bush L, Solis J, Osuna Carr Q, Oyedele T, Buchbinder S, Cowden J, Vargas SL, Guerreros Benavides A, Call R, Keefer MC, Kirkpatrick BD, Pullman J, Tong T, Brewinski Isaacs M, **Benkeser D**, Janes HE, Nason M, et al. (2021), "Phase 3 Safety and Efficacy of AZD1222 (ChAdOx1 nCoV-19) COVID-19 Vaccine." *New England Journal of Medicine*. doi: [10.1056/NEJMoa2105290](https://doi.org/10.1056/NEJMoa2105290). PMID: [34587382](https://pubmed.ncbi.nlm.nih.gov/34587382/)
- A28. Gray GE, Bekker L, Laher F, Malahleha M, Allen M, Janes H, Moodie Z, Grunenberg N, Huang Y, Grove D, Prigmore B, Kee JJ, **Benkeser D**, et al. (2021), "Vaccine efficacy of ALVAC-HIV (vCP2438) and bivalent subtype C gp120/MF59 in HIV-uninfected adults – HVTN 702 (Uhambo)" *New England Journal of Medicine*. doi: [10.1056/NEJMoa2031499](https://doi.org/10.1056/NEJMoa2031499). PMID: [33761206](https://pubmed.ncbi.nlm.nih.gov/33761206/)
- A27. Lyons VH, Floyd AS, Griffin E, Wang J, Hajat A, Carone M, **Benkeser D**, Whiteside L, Haggerty KP, Rivara F, Rowhani-Rahbar A (2021). "Helping Individuals with Firearm Injuries: A Cluster Randomized Trial." *Journal of Trauma and Acute Care Surgery*. doi: [10.1097/TA.0000000000003056](https://doi.org/10.1097/TA.0000000000003056). PMID: [33405475](https://pubmed.ncbi.nlm.nih.gov/33405475/)
- A26. Reback CJ, Rusow JA, Cain D, **Benkeser D**, Arayasirikul S, Hightow-Weidman L, Horvath KJ (2020). "Technology-based Stepped Care to Stem Transgender Adolescent Risk Transmission: Study Protocol for a Randomized Controlled Trial (TechStep)". *Journal of Medical Internet Research Protocols*. doi: [10.2196/18326](https://doi.org/10.2196/18326). PMID: [32788149](https://pubmed.ncbi.nlm.nih.gov/32788149/)
- A25. Millett GA, Jones AT, **Benkeser D**, Baral S, Mercer L, Beyrer C, Honeremann B, Lankiewicz E, Mena L, Crowley J, Sherwood J, Sullivan P (2020). "Assessing Differential Impacts of COVID-19 on Black Communities." *Annals of Epidemiology*. doi: [10.1016/j.annepidem.2020.05.003](https://doi.org/10.1016/j.annepidem.2020.05.003). PMID: [32419766](https://pubmed.ncbi.nlm.nih.gov/32419766/).
- A24. Kempker RR, Mikiashvili L, Zhao Y, **Benkeser D**, Barbakadze K, Bablishvili N, Avaliani Z, Peloquin CA, Blumberg HM, Kipiani M (2019). "Clinical Outcomes among Patients with Drug-resistant Tuberculosis receiving Bedaquiline or Delamanid Containing Regimens." *Clinical Infectious Diseases*. doi: [10.1093/cid/ciz1107](https://doi.org/10.1093/cid/ciz1107). PMID: [31712809](https://pubmed.ncbi.nlm.nih.gov/31712809/).

- A23. Gonzalez A, Deng Y, Lane A, **Benkeser D**, Cui X, Staimez L, Ford C, Khan F, Markley Webster S, Leong A, Wilson PWF, Phillips LS, Rhee MK (2019). "Impact of 'Mismatches' in HbA1c vs. Glucose on the Diagnostic Classification as Diabetes and Prediabetes." *Diabetic Medicine*. doi: [10.1111/dme.14181](https://doi.org/10.1111/dme.14181). PMID: [31721287](https://pubmed.ncbi.nlm.nih.gov/31721287/).
- A22. LeGrand S, Knudtson K, **Benkeser D**, Muessig K, McGee A, Sullivan P, Hightow-Weidman L (2019). "ATN 142: P3 (Prepared, Protected, emPowered): Testing the Efficacy of a Social Networking, Gamification App to Improve PrEP Adherence." *Journal of Medical Internet Research Protocols*. doi: [10.2196/10448](https://doi.org/10.2196/10448). PMID: [30563818](https://pubmed.ncbi.nlm.nih.gov/30563818/).
- A21. Juraska M, Magaret C, Shao J, Carpp L, Fiore-Gartland A, **Benkeser D**, Girerd-Chambaz Y, Langevin E, Frago C, Guy B, Jackson N, Duong Thi Hue K, Simmons C, Gilbert P (2018). "Viral Genetic Diversity and Protective Efficacy of a Tetravalent Dengue Vaccine in Two Phase 3 Trials." *Proceedings of the National Academies of Science*. doi: [10.1073/pnas.1714250115](https://doi.org/10.1073/pnas.1714250115). PMID: [30127007](https://pubmed.ncbi.nlm.nih.gov/30127007/).
- A20. Koelman D, **Benkeser D**, Klein J, Mateen F (2017). "Acute disseminated encephalomyelitis: prognostic value of early MRI follow-up." *Journal of Neurology*. doi: [10.1007/s00415-017-8563-3](https://doi.org/10.1007/s00415-017-8563-3). PMID: [28695361](https://pubmed.ncbi.nlm.nih.gov/28695361/).
- A19. Koelman D, **Benkeser D**, Xu Y, Neo S, Tan K, Katsuno M, Sobue G, Natsume J, Chahin S, Mar S, Venkatesan A, Chitnis T, Hoganson G, Yeshokumar A, Barreras P, Majmudar B, Carone M, and Mateen F (2016). "Acute disseminated encephalomyelitis in China, Singapore, and Japan: comparison with the U.S.A." *European Journal of Neurology*. 24(2), 391-396. doi: [10.1111/ene.13220](https://doi.org/10.1111/ene.13220). PMID: [28009079](https://pubmed.ncbi.nlm.nih.gov/28009079/).
- A18. Khandelwal N, **Benkeser D**, Coe N, Engelberg R, Curtis J (2016). "Economic feasibility of staffing the Intensive Care Unit with a communication facilitator." *Annals of the American Thoracic Society*. 13(12), 2190-2196. doi: [10.1513/AnnalsATS.201606-449OC](https://doi.org/10.1513/AnnalsATS.201606-449OC). PMID: [27676259](https://pubmed.ncbi.nlm.nih.gov/27676259/).
- A17. Nagayoshi M, **Benkeser D**, Lutsey PL, Shahar E, Hiroyasu I, Wassel C, Folsom A, Allison M, Criqui MH, Redline S (2016). "Association of sleep apnea and sleep duration with peripheral artery disease: The Multi-Ethnic Study of Atherosclerosis (MESA)" *Atherosclerosis*. 251, 467-475. doi: [10.1016/j.atherosclerosis.2016.06.040](https://doi.org/10.1016/j.atherosclerosis.2016.06.040). PMID: [27423537](https://pubmed.ncbi.nlm.nih.gov/27423537/).
- A16. Onega T, Lee C, **Benkeser D**, Alford-Teaster J, Haas J, Tosteson A, Hill D, Shi X, Henderson L, Hubbard R (2016). "Travel Burden to Breast MRI and Utilization: Are Risk and Sociodemographics Related?" *Journal of the American College of Radiology*, 13(6), 611-619. doi: [10.1016/j.jacr.2016.01.022](https://doi.org/10.1016/j.jacr.2016.01.022). PMID: [27026577](https://pubmed.ncbi.nlm.nih.gov/27026577/).
- A15. Khandelwal N, **Benkeser D**, Engelberg R, Coe N, Curtis J (2016). "Patterns of cost for patients dying in the ICU and implications for cost savings of palliative care interventions within different reimbursement structures." *Palliative Care Medicine*. 19(11), 1171-1178. doi: [10.1089/jpm.2016.0133](https://doi.org/10.1089/jpm.2016.0133). PMID: [27813724](https://pubmed.ncbi.nlm.nih.gov/27813724/).
- A14. Koelman D, Chahin S, Mar S, Venkatesan A, Hoganson G, Yeshokumar A, Barreras P, Majmudar B, **Benkeser D**, Chitnis T, Carone M, Mateen F (2016). "Acute disseminated encephalomyelitis in 228 patients: a retrospective, multi-center U.S. study." *Neurology*. 86(22), 2085-93. doi: [10.1212/WNL.0000000000002723](https://doi.org/10.1212/WNL.0000000000002723). PMID: [27164698](https://pubmed.ncbi.nlm.nih.gov/27164698/).
- A13. Khandelwal N, **Benkeser D**, Coe N, Engelberg R, Curtis J (2016). "Potential influence of advance care planning and palliative care consultation on costs in the ICU." *Critical Care Medicine*, 44(8), 1474-81. doi: [10.1097/CCM.0000000000001675](https://doi.org/10.1097/CCM.0000000000001675). PMID: [26974546](https://pubmed.ncbi.nlm.nih.gov/26974546/).
- A12. Neafsey D, Juraska M, Bedford T[†], **Benkeser D**[†], Valim C[†], Griggs A, Lievens M, et al (2015). "Genetic diversity and protective efficacy of the RTS,S/AS01 Malaria Vaccine." *New England Journal of Medicine*, 373(21), 2025-37. doi: [10.1056/NEJMoa1505819](https://doi.org/10.1056/NEJMoa1505819). PMID: [26488565](https://pubmed.ncbi.nlm.nih.gov/26488565/).

- 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](https://doi.org/10.1007/s00330-015-4074-8). PMID: [26560729](https://pubmed.ncbi.nlm.nih.gov/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: [jj-adohealth.2015.10.249](https://doi.org/10.1016/j.jadohealth.2015.10.249). PMID: [26802989](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1111/petr.12225). PMID: [24438462](https://pubmed.ncbi.nlm.nih.gov/24438462/).
- A8. Kizer J, **Benkeser D**, Arnold A, Ix J, Mukamal K, Djousse L, Tracy R, Siscovick D, Psaty B, Zieman S (2014). "Advanced glycation/glycoxidation endproduct carboxymethyl-lysine and incidence of coronary heart disease and stroke in older adults." *Atherosclerosis*, 235(1), 116-21. doi: [10.1016/j.atherosclerosis.2014.04.013](https://doi.org/10.1016/j.atherosclerosis.2014.04.013). PMID: [24825341](https://pubmed.ncbi.nlm.nih.gov/24825341/).
- 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](https://doi.org/10.1378/chest.14-0182). PMID: [25451349](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1053/j.jvca.2014.11.009). PMID: [25802193](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1016/j.amjcard.2013.09.027). PMID: [24169012](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1161/circheartfailure.113.000521). PMID: [23926204](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1210/jc.2012-2103). PMID: [23162097](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.1161/circulationaha.112.135202). PMID: [23159554](https://pubmed.ncbi.nlm.nih.gov/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](https://doi.org/10.2337/dc11-1519). PMID: [22148099](https://pubmed.ncbi.nlm.nih.gov/22148099/).

Applied under review

- A*5. Jin Y, **Benkeser D**, Kipiani M, Mikiashvili L, Barbakadze K, Avaliani Z, Alghamdi WA, Alshaer MH, Peloquin CA, Blumberg HM, Kempker RR (2023+). "The effect of anti-tuberculosis drugs including their pharmacokinetics on QTc prolongation." *Revision requested: International Journal of Antimicrobial Agents*.

- A*4. Follmann D, O'Brien MP, Fintzi J, Fay MP, Montefiori D, Matega A, Herman GA, Hooper A, Turner KC, Chan KC, Forleo-Neto E, Flonza I, Baden LR, El Sahly HM, Janes H, Doria-Rose N, Miller J, Zhou H, Dang W, **Benkeser D**, Fong Y, Gilbert PB, Marovich M, Cohen MS (2023+), "Examining Protective effects of SARS-CoV-2 Neutralizing antibodies after vaccination or monoclonal antibody administration." *Nature Communications*.
- A*3. Williamson BD, Margaret CA, Karuna S, Carpp LN, Gelderblom H, Huang Y, **Benkeser D**, Gilbert PB (2023+). "Super LeArner Prediction of NAb Panels (SLAPNAP) Repository for Combination Monoclonal Broadly Neutralizing Antibody HIV Prevention Research." *Submitted to: Cell Host Microbe*.
- A*2. Margaret 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, Truysers C, Van Dromme I, Swann E, Marovich MA, Neuzil KM, Corey L, Hyrien O, Gilbert PB (2023+). "Quantifying how single dose Ad26.CoV2.S vaccine efficacy depends on spike sequence features." *Submitted to: Nature Medicine*.
- A*1. Hejazi NS, Shen X, Carpp LN, **Benkeser D**, Follmann D, Janes HE, Baden LR, El Sahly HM, ..., Montefiori DC, Gilbert PB (2023+). "Stochastic Interventional Correlates of Protection Analysis of the COVE Trial, with Application to Predict mRNA-1273 Vaccine Efficacy Against SARS-CoV-2 Variants." *Submitted to: The Lancet Microbe*.

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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1007/978-3-319-65304-4_18).

Funding

Principal Investigator

National Science Foundation

Division of Mathematical Sciences Statistics Program 8/2020 - 8/2023
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) 7/2017 -
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 \approx 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 \approx 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 \approx 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 \approx 15%
- Foundation for Atlanta Veterans Research 7/2019 - 6/2020
MOU; FTE \approx 7.5%

Foundations

- Wellcome Trust Foundation
Effect of Rotavirus Vaccine on Antibiotic Prescribing and Antimicrobial Resistance 6/2020 - 6/2022
PI: Lopman; FTE \approx 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 \approx 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 (INFO 550) 41 students | 2022 |
| Causal Inference (BIOS761/EPI760) 25 students | 2021 |
| 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 |
| <u>University of California, Berkeley</u> | |
| Targeted Learning with Biomedical Big Data (PB HLTH 295) | 2016 |
| Short courses | |
| Modern Statistical Learning Methods for Observational Biomedical Data <i>Summer Institute in Statistics for Clinical and Epidemiological Research</i> 25 participants | 2022 |
| Statistical Learning in Mediation Analysis <i>Summer Institute in Statistics for Clinical and Epidemiological Research</i> 22 participants | 2022 |
| Modern Statistical Learning Methods for Observational Biomedical Data <i>Summer Institute in Statistics for Clinical and Epidemiological Research</i> 25 participants | 2022 |
| Introduction to Reproducible Workflows in R <i>Centers for Disease Control and Prevention, Statistical Advisory Group</i> ≈ 90 participants | 2022 |
| Statistical Learning in Mediation Analysis <i>Summer Institute in Statistics for Clinical and Epidemiological Research</i> 34 participants | 2021 |
| Modern Statistical Learning Methods for Observational Biomedical Data <i>Summer Institute in Statistics for Clinical and Epidemiological Research</i> 39 participants | 2021 |
| Introduction to causal inference with machine learning <i>6th Seattle Symposium in Biostatistics</i> 182 participants | 2020 |
| Modern Statistical Learning Methods for Observational Biomedical Data <i>Summer Institute in Statistics for Clinical and Epidemiological Research</i> 42 participants | 2020 |
| Modern Methods for Observational Biomedical Data <i>International Conference on Health Policy Statistics</i> 52 participants | 2020 |
| Modern Statistical Learning Methods for Observational Biomedical Data <i>Summer Institute in Statistics for Clinical and Epidemiological Research</i> 27 participants | 2019 |

| | |
|---|------|
| Modern Statistical Learning Methods for Observational Biomedical Data <i>5th Annual Summer Institute for Statistics in Clinical Research</i> 29 participants | 2018 |
| Modern Statistical Learning Methods for Observational Data and Applications to Comparative Effectiveness Research <i>4th Annual Summer Institute for Statistics in Clinical Research</i> 50 participants | 2017 |
| 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 |
| Lindsey Schader | 2019 - |
| Yutong Jin | 2019 - |
| Jialu Ran (co-advisor with Ying Guo) | 2019 - |

PhD committee

| | |
|-------------------------|-------------|
| Udodirim Onwubiko (EPI) | 2022 - |
| Chang Liu (EPI) | 2022 - |
| Andrea Lane (BIOS) | 2020 - 2022 |
| Davit Baliashvili (EPI) | 2020 - 2021 |
| Kevin Maloney (EPI) | 2019 - 2021 |
| Jonathan Smith (EPI) | 2018 - 2020 |

Masters capstone

| | |
|---|------|
| Courtney Simmons – <i>The effect of hyperparameter tuning on the prediction of HIV-1 pseudovirus sensitivity to antibody neutralization</i> | 2021 |
|---|------|

Masters thesis

| | |
|--|------|
| Haoyong Yu – <i>Bagging for the highly adaptive lasso</i> | 2020 |
| Zhenghao Hu – <i>Using deep learning methods to predict the VRC01 neutralization sensitivity by HIV-1 gp160 sequence features</i> | 2020 |
| Weishan Song – <i>Stability of Inference Derived from Machine Learning-based Doubly Robust Estimators of Treatment Effects</i> | 2020 |
| Qiao Deng – <i>Trends of authorship equity in global health research in infectious disease over the past two decades</i> | 2020 |
| Yuan Zhao – <i>Targeted Maximum Likelihood Estimation to Evaluate Effect of Novel Regimens on Multidrug Resistant Tuberculosis</i> | 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*.
 - 21642 total downloads (as of 2023-05-19)
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.*

- 29021 total downloads (as of 2023-05-19)
- 3. **Benkeser D**, “n1pred: Estimators of Non-Linear Cross-Validated Risks Optimized for Small Samples.” [CRAN/GitHub](#).
 - *implements methods of Benkeser, Petersen, van der Laan (2019) JASA.*
 - 14911 total downloads (as of 2023-05-19)
- 4. **Benkeser D**, “drord: Doubly-Robust Estimators for Ordinal Outcomes.” [CRAN/GitHub](#).
 - *implements methods of Benkeser, Diaz, Luedtke, et al (2020) Biometrics.*
 - 10790 total downloads (as of 2023-05-19)
- 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.*
 - 9623 total downloads (as of 2023-05-19)
- 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.*
 - 17812 total downloads (as of 2023-05-19)

Honors and Awards

| | |
|---|-------------|
| 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

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

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, 2021
Harvard TH Chan School of Public Health

Presentations

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

| | |
|---------------------------------------|-------------|
| High performance computing committee | 2017 - |
| PhD curriculum committee | 2017 - |
| 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 |