

David Benkeser

Assistant Professor of Biostatistics and Bioinformatics

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Updated: January 6, 2021

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: 18 ([Google scholar](#)); 16 ([Web of Science](#))

† denotes equal contribution.

Methods + papers as first/senior author

- 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).
- 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).
- 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).
- 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.” arxiv: [2003.13771](https://arxiv.org/abs/2003.13771). *Biometrics*. doi: [10.1111/biom.13375](https://doi.org/10.1111/biom.13375).
- 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).
- 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).
- 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).
- 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).

12. **Benkeser D**, Chambaz A (2020), “A Ride in Targeted Learning Territory,” *Journal de la Société Française de Statistique*, 161(1), 201-286. [\[link\]](#).
11. **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. [\[link\]](#).
10. 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/).
9. 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).
8. **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).
7. van der Laan MJ, **Benkeser D**, Cai W (2019), “Causal Inference based on Undersmoothing the Highly Adaptive Lasso.” *AAAI Spring Symposium 2019*. [\[link\]](#)
6. **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/).
5. 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).
4. **Benkeser D**, Carone M, van der Laan M, Gilbert P (2018). “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/).
3. **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/).
2. **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/)
1. **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/).

Methods under review

3. **Benkeser D**[†], Williamson BD[†], Magaret CA, Nizam S, Gilbert PB, “Super LeArner Prediction of NAb Panels (SLAPNAP): A Containerized Tool for Predicting Combination Monoclonal Broadly Neutralizing Antibody Sensitivity.” bioRxiv: [10.1101/2020.06.23.167718v1](https://doi.org/10.1101/2020.06.23.167718v1). Revision requested: *Bioinformatics*.
2. **Benkeser D**, “Nonparametric inference for interventional effects with multiple mediators.” arxiv: [2001.06027](https://arxiv.org/abs/2001.06027). Submitted to: *Journal of Causal Inference*.
1. van der Laan MJ, **Benkeser D**, Cai W. “Efficient Estimation of Pathwise Differentiable Target Parameters with the Undersmoothed Highly Adaptive Lasso.” arxiv: [1908.05607](https://arxiv.org/abs/1908.05607). Submitted to *International Journal of Biostatistics*.

Applied

29. Lyons VH, Floyd AS, Griffin E, Wang J, Hajat A, Carone M, **Benkeser D**, Whiteside L, Haggerty KP, Rivara F, Rowhani-Rahbar A, “Helping Individuals with Firearm Injuries: A Cluster Randomized Trial.” *Accepted: Journal of Trauma and Acute Care Surgery*.
28. 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).
27. 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).
26. Millett GA, Jones AT, **Benkeser D**, Baral S, Mercer L, Beyrer C, Honermann 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/).
25. 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/).
24. 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/).
23. 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/).
22. 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/).
21. 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/).
20. 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/).
19. 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/).
18. 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/).

17. 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.
16. 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.
15. 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.
14. 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.
13. 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.
12. 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.
11. 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.
10. 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: [10.1016/j.jadohealth.2015.10.249](https://doi.org/10.1016/j.jadohealth.2015.10.249). PMID: 26802989.
9. 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.
8. 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.
7. 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.
6. 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.
5. 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.

4. 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/).
3. 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/).
2. 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/).
1. 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

2. 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**, Hural J, Innes C, Lazarus E, Meintjies G, Naicker N, Kalonji D, Nchabeleng M, Sebe M, Singh N, Kotze K, Kassim S, Dubula T, Naicker V, Brumskine W, Bentley C, Ramirez S, Takuva S, Jones M, Mpho S, Atujuna M, Andrasik M, Puren A, Wiesner L, Phogat S, Diaz Granados C, Koutsoukos M, Van Der Meer O, Barnett S, Kanesa-thasan N, Pensiero M, Johnston MI, Kublin J, McElrath J, Gilbert PB, Corey L, "Vaccine efficacy of ALVAC-HIV (vCP2438) and bivalent subtype C gp120/MF59 in HIV-uninfected adults – HVTN 702 (Uhambo)" Submitted to: *New England Journal of Medicine*.
1. Modlin CE, Deng Q, **Benkeser D**, Waller L, Powell PR, Kempker RR, "Authorship Trends for Infectious Disease Research Conducted in Low-Income Countries." Submitted to: *Clinical Infectious Diseases*

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

- 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 -
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 -
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 coursesEmory University

Data Science Toolkit (INFO 550)	2020
39 students; Evaluations (92.3% response): Course – 4.7/5, Instructor – 4.9/5	
Introduction to Statistical Inference (BIOS 511)	2020
23 students; Evaluations (91.3% response): Course – 4.6/5, Instructor – 4.7/5	
Introduction to Statistical Inference (BIOS 511)	2019
22 students; Evaluations (95.5% response): Course – 4.7/5, Instructor – 4.8/5	
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
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Short courses

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 -
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PhD committee

Davit Baliashvili (EPI)	2020 -
Kevin Maloney (EPI)	2019 -
Jonathan Smith (EPI)	2018 - 2020

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</i>	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*.
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.*
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*.
4. **Benkeser D**, “drord: Doubly-Robust Estimators for Ordinal Outcomes.” [CRAN/GitHub](#).
 - implements methods of Benkeser, Diaz, Luedtke, et al (2020) *Biometrics*.
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*.

Honors and Awards

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

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

Grant review

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

Presentations

- 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”
- Georgia Clinical and Translational Science Alliance Research Forum, May 2020. *postponed due to COVID-19*
- 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 (topic 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 talk).
“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 talk), 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 talked), June 2017.
“The highly adaptive lasso estimator and efficient estimation of causal effects.”
- University of Paris, Nanterre, Department of Mathematics (invited talk), May 2017.
“Vaccine sieve analysis.”
- University of California, San Francisco, TAPS/Methods Core Seminar (invited talk), 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 talk), November 2015.
“Applications of data-adaptive estimation in preventive vaccine efficacy trials.”
- JSM (topic contributed talk), 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.”

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
Department chair search committee	2019 - 2020

Emory University, Department of Epidemiology

PhD curriculum committee	2019 - 2020
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Emory University, Rollins School of Public Health

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