

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: March 19, 2019

Education

- | | |
|--|-------------|
| Postdoctoral research fellow, University of California, Berkeley
Supervisor: Mark van der Laan | 2016 - 2017 |
| Ph.D. 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 |

Publications

32. Magaret CA[†], **Benkeser D**[†], Williamson BD[†], Borate BR, Carpp L, Georgiev I, Setliff I, Dingsen AS, Simon N, Carone M, Simpkins C, Montefiori D, Alter G, Juraska M, Edelfsen PT, Karuna S, Mgodhi NM, Edugupanti S, Gilbert PB. “Prediction of VRC01 neutralization sensitivity by HIV-1 gp160 sequence features.” *Accepted: PLoS Computational Biology*
31. van der Laan MJ, **Benkeser D**, Cai W. “Causal Inference based on Undersmoothing the Highly Adaptive Lasso.” *Accepted: AAAI Spring Symposium 2019*.
30. LeGrand S, Knudtson K, **Benkeser D**, Muessig K, McGee A, Sullivan P, Hightow-Weidman L, “ATN 142: P3 (Prepared, Protected, emPowered): Testing the Efficacy of a Social Networking, Gamification App to Improve PrEP Adherence” *Accepted: Journal of Medical Internet Research Protocols*.
29. **Benkeser D**, Juraska M, Gilbert P, “Assessing trends in vaccine efficacy by pathogen genetic distance,” *Accepted: Journal de la Société Française de Statistique*.
28. **Benkeser D**, Carone M, Gilbert P, “Estimating and testing vaccine sieve effects using machine learning.” *Journal of the American Statistical Association*. doi: [10.1080/01621459.2018.1529594](https://doi.org/10.1080/01621459.2018.1529594).
27. 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).
26. 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/).
25. 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).
24. **Benkeser D**, Carone M, van der Laan M, Gilbert P (2018). “Nonparametric doubly-robust inference on the average treatment effect.” *Biometrika*. doi: [10.1093/biomet/asx053](https://doi.org/10.1093/biomet/asx053).

23. 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/).
22. **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/).
21. **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).
20. **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/).
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](https://pubmed.ncbi.nlm.nih.gov/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](https://pubmed.ncbi.nlm.nih.gov/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](https://pubmed.ncbi.nlm.nih.gov/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](https://pubmed.ncbi.nlm.nih.gov/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](https://pubmed.ncbi.nlm.nih.gov/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](https://pubmed.ncbi.nlm.nih.gov/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](https://pubmed.ncbi.nlm.nih.gov/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](https://pubmed.ncbi.nlm.nih.gov/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](https://pubmed.ncbi.nlm.nih.gov/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](https://pubmed.ncbi.nlm.nih.gov/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](https://pubmed.ncbi.nlm.nih.gov/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](https://pubmed.ncbi.nlm.nih.gov/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](https://pubmed.ncbi.nlm.nih.gov/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/).

† denotes equal contribution.

Under Review

1. Ju C[†], **Benkeser D**[†], van der Laan MJ. “A flexible and robust method for variable selection and hyper-parameter optimization in estimating the average causal effect of a treatment.” *Revision requested: Biometrics*.
2. **Benkeser D**, Petersen M, van der Laan MJ. “Improved small-sample estimation of nonlinear cross-validated prediction metrics.” *Revision requested: JASA*
3. **Benkeser D**, Cai W, van der Laan MJ. “A nonparametric super-efficient estimator of the average treatment effect.” *Revision requested: Statistical Science*
4. **Benkeser D**, Khandelwal N, Coe N, Engelberg R, Curtis J. “Machine learning for estimation of the effect of an intervention on ICU costs.”

5. **Benkeser D**, Mertens A, Arnold BF, Colford Jr. JM, Hubbard A, Stein A, van der Laan MJ. “A machine learning-based approach for estimating and testing associations with multivariate outcomes.”

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).

Software

1. **Benkeser D**, Hejazi N, “survtmle: Targeted Minimum Loss-Based Estimation for Survival Analysis in R.” Available via: [CRAN](#) and [GitHub](#). doi: [10.5281/zenodo.835868](https://doi.org/10.5281/zenodo.835868).
2. **Benkeser D**, “drtmle: Doubly-Robust Inference in R” Available via: [CRAN](#) and [GitHub](#). doi: [10.5281/zenodo.844836](https://doi.org/10.5281/zenodo.844836).

Honors and Awards

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

Presentations

- 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.”
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.”

WNAR (invited talk), 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 talk), July 2016.

“Circumventing the curse of dimensionality in asymptotic efficient estimation.”

WNAR/IBC (invited talk), 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 (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.”

Teaching Experience

Instructor, University of California, Berkeley

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

Teaching Assistant, University of Washington

Categorical Data Analysis (BIOS 536) 2013

Advanced Regression Methods I (BIOS 570) 2012

Tutor, University of Washington

School of Public Health, Introductory Biostatistics and Statistics courses 2013 - 2015

Service and Affiliations

Department of Biostatistics and Bioinformatics, Emory University, Atlanta, GA

- **High performance computing working group** 2017

- **Curriculum committee** 2017 -

- **RSPH Computation and Data Science Advisory Group** 2018 -