

Lauren Ruth Samuels

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Education

Yale University, New Haven, CT

B.A. Religious Studies, 1994

Vanderbilt University, Nashville, TN

M.Ed. Secondary Education, 2002

Ph.D. Biostatistics, 2017

Academic Appointments

Department of Biostatistics, Vanderbilt University School of Medicine

Instructor, 2017–2018

Research Assistant Professor, 2019–present

Other Employment

Center for Evaluation Research and Methodology, Vanderbilt University

Research assistant, 1999–2000

Bowie Reading and Learning Center, Nashville, TN

Math and science tutor, 2003–2005

Center for Evaluation and Program Improvement, Vanderbilt University

Research assistant, 2005–2006

Data manager, 2006–2008

SAS programmer, 2008–2011

Vanderbilt Memory & Alzheimer's Center

Graduate research assistant, 2013–2016

Professional Organizations

American Statistical Association, 2011–present

International Biometric Society, Eastern North American Region, 2014–present

Institute for the Quantitative Study of Inclusion, Diversity, and Equity, 2022–present

Professional Activities

Intramural: Department of Biostatistics, Vanderbilt University School of Medicine

Co-coordinator, weekly health services research, diagnosis, and prognosis clinic, 2017–2018

Organizer, faculty-student causal inference reading group (semimonthly meetings), 2017–2018

Organizer, “Statistical Inference in the 21st Century” discussion group (weekly meetings), summer 2019

Committee member (judge), Arbogast Collaborative Paper Award, 2020

Organizer, “Ethical Responsibilities Regarding Race in Research” discussion group (monthly meetings), July 2021–present

Extramural

Statistical Reviewer, JAMA Network Open (6/2019–present; one article per month)

Ad hoc reviewing:

BMJ Open (2019)

Journal of General Internal Medicine (2018, 2019)

Teaching Activities

Research Supervision

MPH thesis reader, Gretchen Edwards, MD, 2019–2020

K award advisory team, Ashley Leech, PhD, 7/2020–present

K award mentorship committee, Shannon Markus, MD, 10/2020–7/2021

Graduate School Courses, Vanderbilt University

Principles of Modern Biostatistics (BIOS 311)

Lab instructor and teaching assistant, Fall 2010, Fall 2011, Fall 2013

Advanced Methods for Epidemiology (EPID 8332)

Propensity Scores for Continuous Exposures: Instructor, Summer 2021

Clinical Trials and Experimental Design (BIOS 6321)

Instructor, Spring 2023

Guest Lectures, Vanderbilt University

Epidemiologic Methods: Design and Analysis with Time-to-Event Data (EPID 8323)

Time-to-event analysis using electronic health record data, 3/2017

Causal Inference (BIOS 8375)

Lesser-known estimands: ATM and ATO, 3/2018

The average treatment effect...on whom? Cohort pruning, the ATM, and the ATO, 3/2020, 2/2022

Measurement and Analysis for Healthcare Improvement (PUBH 5510)

Introduction to interrupted time series analysis, 11/2018

Anti-Racism and Human Genetics (HGEN 8395)

Anti-racism and human genetics: Statistical issues, 4/2022

MPH Biostatistics I (PUBH 5502)

Statistical issues in observational studies, 10/2022

Seminars and Workshops, Vanderbilt University School of Medicine

Biostatistics Seminar Series, Department of Biostatistics

New developments in the estimation of treatment effects in observational studies: The use of data resampling with propensity score matching, 1/2015

What do biostatisticians need to know about race, ethnicity, sex, and gender?, 10/2021

Statistical Computing Series, Department of Biostatistics

Automating data-integrity checks in R, 10/2011

Evaluating and (automatically) typesetting symbolic calculus and linear algebra expressions using Sage and L^AT_EX, 1/2013

Data manipulation with the apply functions in R, Part I: apply, tapply, and lapply, 8/2013

Really easy slide presentations with slidify and RStudio, 2/2014

Catching up on (a few) talks from useR! and rstudio::conf, 10/2022

Continuing Education Seminar Series, Department of Biostatistics

Keeping up with changing ideas about sex, gender, race, and ethnicity, 1/2019

Biostatistics Seminar Series, Center for Health Services Research

Making robust studies: Design strategies for reducing model dependence, 5/2014

Workshop: Designing robust studies for reducing model dependence. With Robert Greevy. 6/2014

Advances in PS weighted analyses (BOOM and the ATM). With Robert Greevy. 8/2016

Preventing future headaches: Reproducible research using Stata, 5/2020

Community-Based Seminars and Workshops

Vignettes from user! 2016, Nashville R Users Group, 8/2016

New data-cleaning tools in R, R-Ladies Nashville, 12/2017

Research Program

Current Funding

DOJ/VUMC 74521/15JC1V19P00000597 (PI: Stevenson) 09/2019–09/2023
Nursing Home Oversight
Role: Statistician

NICHD R01HD100458-03 (PI: Heerman) 08/2020–06/2025
COACH: Competency Based Approaches for Community Health
Role: Co-Investigator

NIDDK KDK118192-03 (PI: Hawkins) 10/2020–7/2023
Novel Assessment of the Role of Surgery in Recurrent Diverticulitis
Role: Biostatistician

NICHD R01HD100458-03S1 (PI: Heerman) 08/2022–06/2023
COACH Neighborhood Environment supplement
Role: Co-Investigator

VA/VUMC 108562 (PI: Lewis) 1/2023–9/2023
VA Lung Precision Oncology Program (LPOP)
Role: Statistician

Completed Funding

PCORI CDRN-1306-04869 (PI: Rothman) 1/2017–9/2018
Mid-South Clinical Data Research Network
Role: Biostatistician

CMS 1L1CMS331549 (PI: Rothman) 1/2017–9/2019
The Mid-South Practice Transformation Network
Role: Biostatistician

NHLBI K23 HL127104-01A1 (PI: Heerman) 7/2018–12/2020
GROW Baby: Improving Maternal Gestational Weight Gain in the Growing Right Onto Well-ness (GROW) Trial
Role: Biostatistician

PCORI/VUMC 69039 (PI: Mushlin) 3/2019–10/2021
 Comparative Effectiveness of Metformin for Type 2 Diabetes with Chronic Kidney Disease
 Role: Biostatistician

VA/VUMC 82868 (PI: Roumie) 6/2020–12/2022
 National program evaluation of VA-Partnership to Increase Access to Lung Screening (VA-PALS)
 Role: Statistician

Publications and Presentations

Articles in Refereed Journals

1. Gifford KA, Liu D, Damon SM, Chapman WG, Romano RR, Samuels LR, Lu Z, Jefferson AL, for the Alzheimer's Disease Neuroimaging Initiative. Subjective memory complaint only relates to verbal episodic memory performance in mild cognitive impairment. *Journal of Alzheimer's Disease* 44(1), 309–318 (2015).
2. Gifford KA, Phillips JS, Samuels LR, Lane EM, Bell SP, Liu D, Hohman TJ, Romano RR, Fritzsche LR, Damon SM, Lu Z, Jefferson AL, for the Alzheimer's Disease Neuroimaging Initiative. Associations between verbal learning slope and neuroimaging markers across the cognitive aging spectrum. *Journal of the International Neuropsychological Society* 21(6), 455–467 (2015).
3. Hohman TJ, Samuels LR, Liu D, Gifford KA, Mukherjee S, Benson EM, Abel T, Ruberg FL, Jefferson AL. Stroke risk interacts with Alzheimer's disease biomarkers on brain aging outcomes. *Neurobiology of Aging* 36(9), 2501–2508 (2015).
4. Bell SP, Liu D, Samuels LR, Shah AS, Gifford KA, Hohman TJ, Jefferson AL. Late-life body mass index, rapid weight loss, apolipoprotein E ϵ 4 and the risk of cognitive decline and incident dementia. *The Journal of Nutrition, Health and Aging* 21(10), 1259–1267 (2017).
5. Heerman WJ, Jaka MM, Berge JM, Trapl ES, Sommer EC, Samuels LR, Jackson N, Haapala JL, Kunin-Batson AS, Olson-Bullis BA, Hardin HK, Sherwood NE, Barkin SL. The dose of behavioral interventions to prevent and treat childhood obesity: A systematic review and meta-regression. *International Journal of Behavioral Nutrition and Physical Activity* 14, 157 (2017).
6. Samuels LR, Greevy RA. Visual Pruner: Visually guided cohort selection for observational studies. *Observational Studies* 4, 150–170 (2018).
7. Osborn KE, Liu D, Samuels LR, Moore EE, Cambronerio FE, Acosta LMY, Bell SP, Babicz MA, Gordon EA, Pechman KR, Gifford KA, Hohman TJ, Blennow K, Zetterberg H, Jefferson AL. Cerebrospinal fluid β -amyloid₄₂ and neurofilament light relate to white matter hyperintensities. *Neurobiology of Aging* 68, 18–25 (2018).
8. Apple R, Samuels LR, Foncesbeck C, Schlundt D, Mulvaney S, Hargreaves M, Crenshaw D, Wallston KA, Heerman WJ. Body mass index and health related quality of life. *Obesity Science & Practice* 4(5), 417–426 (2018).

9. Samuels LR, Greevy RA. Bagged one-to-one matching for efficient and robust treatment effect estimation. *Statistics in Medicine* 37(29), 4353–4373 (2018).
10. Heerman W, Burgess LE, Escarfuller J, Teeters L, Slesur L, Liu J, Qi A, Samuels LR, Singer-Gabella M. Competency Based Approach to Community Health (COACH): The methods of a family-centered, community-based, individually adaptive obesity randomized trial for pre-school child-parent pairs. *Contemporary Clinical Trials* 73, 1–7 (2018).
11. Liberman JS, Samuels LR, Goggins K, Kripalani S, Roumie CL, for the VICS (Vanderbilt Inpatient Cohort Study). Opioid prescriptions at hospital discharge are associated with more postdischarge healthcare utilization. *Journal of the American Heart Association* 8(3), e010664 (2019).
12. Trumbo SP, Iams WT, Limper HM, Goggins K, Gibson J, Oliver L, Leverenz DL, Samuels LR, Brady DW, Kripalani S. De-implementation of routine chest x-rays in adult intensive care units. *Journal of Hospital Medicine* 14(2), 83–89 (2019).
13. Wilson JE, Boehm L, Samuels LR, Unger D, Leonard M, Roumie C, Ely EW, Dittus B, Misra S, Han JH. Use of the brief Confusion Assessment Method in a veteran palliative care population: A pilot validation study. *Palliative & Supportive Care* 17(5), 569–573 (2019).
14. Heerman WJ, Sommer EC, Slaughter JC, Samuels LR, Martin NC, Barkin SL. Predicting early emergence of childhood obesity in underserved preschoolers. *The Journal of Pediatrics* 213, 115–120 (2019).
15. Heerman W, Teeters L, Sommer E, Burgess L, Escarfuller J, VanWyk C, Barkin S, Duhon A, Cole J, Samuels L, Singer-Gabella M. Competency-Based Approaches to Community Health: A randomized controlled trial to reduce childhood obesity among Latino preschoolers. *Childhood Obesity* 15(8), 519–531 (2019).
16. Apple R, Samuels LR, McGee-Swope K, Alsup C, Dewey C, Roumie CL. The relationship between institution-affiliated childcare and employee stress. *Journal of Occupational and Environmental Medicine* 62(1), 87–92 (2019).
17. Lewis JA, Samuels LR, Denton J, Edwards GC, Matheny ME, Maiga A, Slatore CG, Grogan E, Kim J, Sherrier RH, Dittus RS, Massion PP, Keohane L, Nikpay S, Roumie CL. National lung cancer screening utilization trends in the Veterans Health Administration. *JNCI Cancer Spectrum*, 4(5), pkaa053 (2020).
18. Heerman WJ, Samuels LR, Barr L, Burgess LE, Hartmann KE, Barkin SL. The effect of a general healthy lifestyle intervention delivered around pregnancy on gestational weight gain and infant growth. *Maternal and Child Health Journal* 24, 1404–1411 (2020).
19. Osmundson SS, Min JY, Wiese AD, Hawley RE, Mitchel E, Patrick SW, Samuels LR, Griffin MR, Grijalva CG. Opioid prescribing after childbirth and risk for serious opioid-related events: A cohort study. *Annals of Internal Medicine* 173, 412–414 (2020).
20. Heerman WJ, Sommer EC, Qi A, Burgess LE, Mitchell SJ, Samuels LR, Martin NC, Barkin SL. Evaluating dose delivered of a behavioral intervention for childhood obesity prevention: A secondary analysis. *BMC Public Health* 20, 885 (2020).

21. Edwards GC, Martin RL, Samuels LR, Wyman K, Bailey CE, Kiernan CM, Snyder RA, Dittus RS, Roumie CL. Association of adherence to quality metrics with recurrence or mortality among Veterans with colorectal cancer. *J Gastrointest Surg* 25(8), 2055–2064 (2021).
22. Wiese AD, Osmundson SS, Mitchel E, Adgent M, Phillips S, Patrick SW, Horn A, Samuels LR, Griffin MR, Grijalva CG. Prescription opioid dose after vaginal delivery and the risk of serious opioid-related events: A retrospective cohort study. *Women's Health Issues* 31(4), 376–383 (2021).
23. Martin RL, Edwards GC, Samuels LR, Eng C, Roumie CL. Colorectal cancer adjuvant chemotherapy trends among a nonelderly veteran cohort at a southern Veterans Health Administration. *Cancer Reports* 5(7), e1508 (2022).
24. Hawkins AT, Samuels LR. Use of confidence intervals in interpreting nonstatistically significant results. *JAMA* 326(20), 2068–2069 (2021).
25. Spalluto LB, Lewis JA, Samuels LR, Callaway-Lane C, Matheny ME, Denton J, Robles JA, Dittus RS, Yankelevitz DY, Henschke CI, Massion PP, Moghanaki D, Roumie CL. Association of rurality with annual repeat lung cancer screening in the Veterans Health Administration. *Journal of the American College of Radiology* 19(1B), 131–138 (2022).
26. Hawkins AT, Samuels LR, Rothman R, Geiger TM, Penson DF, Resnick MJ. National variation in elective colon resection for diverticular disease. *Annals of Surgery* 275(2), 363–370 (2022).
27. Heerman WJ, Samuels LR, González Peña T, van Wyk C, Mayberry LS, Lounds Taylor J, Martin NC. Family resilience and childhood obesity among children exposed to adverse childhood experiences in a national survey. *Obes Sci Pract* 8(1), 3–11 (2022).
28. Lewis JA, Samuels LR, Denton J, Matheny ME, Maiga A, Slatore CG, Grogan E, Kim J, Sherrier RH, Dittus RS, Massion PP, Keohane L, Roumie CL, Nikpay S. The association of healthcare system resources with lung cancer screening implementation: A cohort study. *CHEST* 162(3), 701–711 (2022).
29. Lake AM, Goleva SB, Samuels LR, Carpenter LM, Davis LK. Sex differences in health conditions associated with sexual assault in a large hospital population. *Complex Psychiatry* 8, 80–89 (2022).
30. Sneed NM, Ukwuani S, Sommer EC, Samuels LR, Truesdale KP, Matheson D, Noerper TE, Barkin SL, Heerman WJ. Reliability and validity of assigning ultraprocessed food categories to 24-h dietary recall data. *The American Journal of Clinical Nutrition* 117(1), 182–190 (2023).
31. McMahon E, Van Wyk C, González Peña T, Samuels LR, Teeters LA, Worsley SB, Heerman WJ. Feasibility evaluation of the Reaching Out to Kids with Emotional Trauma (ROCKET) intervention in an elementary school: a single-arm, single-centre, feasibility study based on the RE-AIM framework. *BMJ Open*, 13:e068375 (2023).
32. Blasingame M, Samuels LR, Heerman WJ. The combined effects of social determinants of health on childhood overweight and obesity. *Childhood Obesity*, online ahead of print (2023). <https://doi.org/10.1089/chi.2022.0222>

33. Heerman WJ, Sneed NM, Sommer EC, Truesdale KP, Matheson D, Noerper TE, Samuels LR, Barkin SL. Ultra-processed food consumption and BMI-Z among children at risk for obesity from low-income households. *Pediatric Obesity*, e13037 (2023). <https://doi.org/10.1111/ijpo.13037>
34. Sack DE, Shepherd BE, Carolyn M Audet CM, De Schacht C, Samuels LR. Inverse probability weights for quasi-continuous ordinal exposures with a binary outcome: Method comparison and case study. *American Journal of Epidemiology*, kwad085 (2023). <https://doi.org/10.1093/aje/kwad085>

Invited Presentations at Scientific Meetings

1. Samuels LR, Greevy RA. The average treatment effect on the evenly matchable units (ATM): A valuable estimand in causal inference. International Biometric Society Eastern North American Region Spring Meeting, Atlanta, GA. March 2018.
2. Samuels LR. The critical role of sex, gender, race, ethnicity, and sexual orientation in health policy research (session organizer); Keeping up with changing understandings of sex, gender, race, and ethnicity (author/presenter). International Conference on Health Policy Statistics, San Diego, CA. January 2020.

Contributed Presentations at Scientific Meetings

1. Samuels LR. Visual Pruner: A Shiny app for cohort selection in observational studies. The R User Conference 2016, Stanford University, Stanford, CA. June 2016.
2. Samuels LR, Greevy RA. Bagged one-to-one matching for efficient and robust treatment effect estimation. Joint Statistical Meetings 2016, Chicago, IL. August 2016.
3. Samuels LR. Solving real-world problems, or making them worse? The collection and analysis of race data. Conference on Statistical Practice 2021, online. February 2021.
4. Samuels LR. Evaluating and improving textbook examples involving race, ethnicity, sex, and gender. United States Conference on Teaching Statistics 2021, online. June 2021.

Software

Samuels LR, Greevy RA. Visual Pruner: Visually guided cohort selection for observational studies. <https://biostat.app.vumc.org/wiki/Main/VisualPruner>.

National Service

AmeriCorps TenneSenior Service Corps, 2002–2003