

CONTACT INFORMATION

Vanderbilt University Medical Center

Department of Biostatistics

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EDUCATION AND TRAINING

- B.S., Mathematics. Northeastern University, Boston, MA, 2011
- M.S., Biostatistics. University of Washington, Seattle, WA, 2015
- Ph.D., Biostatistics. University of Washington, Seattle, WA, 2016
 - **Dissertation:** Recovering Natural History: Modeling Cardiovascular Biomarkers in the Presence of Endogenous Medication Use
- Postdoctoral Researcher, University of Pennsylvania, Department of Biostatistics, Epidemiology, and Informatics, and Center for Causal Inference, 2016–2018
- Associate Fellow, Leonard Davis Institute of Health Economics, 2017–2018

ACADEMIC APPOINTMENTS

- Assistant Professor of Biostatistics, Vanderbilt University Medical Center, 2018–

OTHER EMPLOYMENT

- Research Assistant, Beth Israel Deaconess Medical Center, 2010–2012
- Research Assistant, Collaborative Health Studies Coordinating Center, 2012–2015
- Research Assistant, Fred Hutchinson Cancer Research Center, 2015–2016

PROFESSIONAL ORGANIZATIONS

- International Biometric Society (Western North American Region), 2015–2017
- International Biometric Society (Eastern North American Region), 2014–
- American Statistical Association, 2018–
- Society for Causal Inference, 2021–
- American Heart Association, 2021–
- International Society for Pharmacoepidemiology, 2021–

AWARDS AND HONORS

- University of Washington Department of Biostatistics: Best Research Poster Award (as selected by incoming students), 2013
- University of Washington Department of Biostatistics: Outstanding Teaching Assistant Award, 2014
- WNAR Student Paper Competition: Most Outstanding Paper Award, 2015
- WNAR Student Paper Competition: Most Outstanding Oral Presentation Award, 2015
- Atlantic Causal Inference Conference: Ten Have Poster Presentation Award Runner-up, 2017
- Vanderbilt Department of Biostatistics: Outstanding Faculty Mentor Award, 2020
- Vanderbilt Department of Biostatistics: Golden Apple Award for Excellence in Teaching, 2021

PROFESSIONAL ACTIVITIES

University of Washington

- Student Representative, Departmental Self-Study Committee, 2012–2013
- Member, Educational Policy and Teaching Evaluation Committee, 2014–2016
- Member, Faculty/Student Relations Committee, 2015–2016

University of Pennsylvania, Department of Biostatistics, Epidemiology, and Informatics

- Member, Post-Doc Training Task Force, 2017–2018

Vanderbilt University Medical Center, Department of Biostatistics

- Member, Selection Committee for Arbogast Collaborative Award, 2020
- Organizer, Weekly Biostatistics Seminar Series, 2018–2021
- Member, Faculty Search Committee, 2019–2021
- Member, Comprehensive Exam Committee, 2019–2021
- Founder/Organizer, Vanderbilt Causal Inference Workshop, 2018–
- Member, Strategic Directions Committee, 2019–
- Chair, Comprehensive Exam Committee, 2021–
- Member, Executive Committee of Graduate Studies, 2022–
- Member, Staff Promotions Committee, 2022–

Vanderbilt University Medical Center

- Member, DSMB: The Effect and Contribution of a Perioperative Ketamine Infusion in an Established Enhanced Recovery Pathway (B. Raymond, P.I.), 2021–
- Member, Geoffrey Fleming Academy for Excellence in Education Mentorship Program, 2021–

Extramural Professional Activities

Editorial

- Associate Editor, *Observational Studies* (2021–)

Leadership

- Program Chair, Biometrics Section, Joint Statistical Meetings (2022)

Conference committees

- Member, David P. Byar Young Investigator Award Committee, (2018, 2019)
- ENAR Poster Session Judge (2019)
- Member, ENAR Distinguished Student Paper Awards Committee (2018-2020)
- ICSA Applied Statistics Symposium Poster Session Judge (2020)
- Member, ASA Statistics in Epidemiology Young Investigator Awards Committee, (2022)
- ENAR Regional Advisory Board (2022-2024)

Conference sessions organized and chaired

- Chair: Survival Analysis and Semi-parametric and Non-parametric Models. ENAR: Washington, D.C., March 2017.
- Chair: Recent Developments in Observational Data. WNAR: Santa Fe, NM, June 2017.
- Chair: Comparative Effectiveness Research. ENAR: Atlanta, GA, March 2018.
- Organizer and Chair: Recent Advances in Bayesian Methods for Cost and Cost-Effectiveness Analysis. ICHPS: San Diego, CA, January 2020.
- Organizer and Chair: Recent Advances in Causal Inference. 13th International Conference on Computational and Methodological Statistics: London, UK, December 2021.

Ad hoc reviewer

- *British Medical Journal* (2016)
- *Pharmacoepidemiology and Drug Safety* (2016)
- *American Journal of Epidemiology* (2015, 2016, 2017, 2018)
- *PLOS One* (2018)
- *International Journal of Biostatistics* (2017, 2019)
- *Cancer* (2020)
- *International Journal of Epidemiology* (2020)
- *Observational Studies* (2020)
- *Biostatistics* (2016, 2017, 2020)
- *Statistics and its Interface* (2020)

- *Statistics in Medicine* (2019, 2020)
- *Circulation: Cardiovascular Quality and Outcomes* (2018, 2021)
- *Journal of the Royal Statistical Society, Series C* (2016, 2021)
- *The Annals of Applied Statistics* (2021)
- *Emerging Infectious Diseases* (2021)
- *Journal of the American Indian Association* (2021)
- *Journal of the American Statistical Association* (2017, 2021)
- *Journal of Pediatric Rehabilitation Medicine* (2021)

Grant review

- Clinical and Translational Research Funding Program of Washington University in St. Louis (2021)

TEACHING ACTIVITIES AND MENTORING

Instructor: High school courses

Massachusetts Institute of Technology Educational Studies Program

- Counting Principles (Summer 2009)
- Calculus AB (September 2009 - May 2010)
- Multivariable Calculus (Summer 2010)
- Counting Principles (Summer 2011)
- Calculus BC (September 2010 - May 2011)
- Calculus BC (September 2011 - May 2012)

Instructor: Undergraduate courses

University of Washington

- Biostatistics 311 - Regression Methods in the Health Sciences (Spring 2016)
– Enrollment: 7

Instructor: Graduate courses

University of Pennsylvania Perelman School of Medicine

- Health Policy Research 604 - Introduction to Statistics for Health Policy (Fall 2017)
– Enrollment: 24

Vanderbilt University Medical Center

- Biostatistics 6312 - Modern Regression Analysis (Spring 2020)
– Enrollment: 18
– TA: Sarah Lotspeich

- Biostatistics 6312 - Modern Regression Analysis (Spring 2021)
 - Enrollment: 19
 - TAs: Jamie Joseph and Caroline Birdrow
- Biostatistics 6312 - Modern Regression Analysis (Spring 2022)
 - Enrollment: 22
 - TAs: Julia Thome and Siwei Zhang

Instructor: Short courses

Vanderbilt Center for Quantitative Science Summer Institute

- Introduction to Causal Inference (2019, 2021)

Massachusetts Institute of Technology Educational Studies Program

- Introduction to Calculus (2008, 2009)
- Group Theory (2008, 2009)
- Number Theory (2009)
- Stochastic Processes (2009)
- Introduction to Topology (2009)
- Introduction to Real Analysis (2009)
- Complex Variables (2009, 2010)

Graduate Teaching Assistantships

University of Washington

- Biostatistics 524 - Design of Medical Studies (Spring 2014)
 - Enrollment: 34
- Biostatistics 570 - Advanced Regression Methods I (Autumn 2014)
 - Enrollment: 44
- Biostatistics 571 - Advanced Regression Methods II (Winter 2015)
 - Enrollment: 36
- Biostatistics 524 - Design of Medical Studies (Spring 2015)
 - Enrollment: 38

Research supervision

Primary advisor

- Aaron Lee (MS, Biostatistics, 2021)

- Caroline Birdrow (MS, Biostatistics, 2021)
- Jackson Resser (MS, Biostatistics)
- Jamie Joseph (PhD, Biostatistics)

Committee membership

- Thomas Klink (MPH, Global Health Track, 2019); Statistical mentor
- Varvara Probst (MPH, Epidemiology Track, 2020); Statistical mentor
- Nicholas Illenberger (PhD, Biostatistics, 2022; University of Pennsylvania); Committee member
- Julia Thome (PhD, Biostatistics); Oral exam committee chair
- Layla Aref (PhD, Chemical and Physical Biology Program); Committee member

Other advising and mentoring

- Marlena Norwood (*Ad hoc* undergraduate honors project), 2016
Topic: Simulation studies and nonparametric bootstrapping methods

RESEARCH PROGRAM

Ongoing research

PMR2065-1B (Grijalva) 10/19/15 – 7.5%
NIH/NIAID Role: Biostatistician
Master Service Agreement between Syneos Health Consulting, Inc. and VUMC

U01 IP 001156-01 (Halasa) 09/01/21 – 08/31/26 10%
NIH/NCIRD Role: Co-investigator
Enhanced Surveillance for New Vaccine Preventable Diseases

1R21HD104983-01A1 (Osmundson) 09/01/21 – 08/31/23 10%
NIH/NICHD Role: Co-investigator
Gestational diabetes drugs and perinatal outcomes in underserved populations

R34 AI 150532-01 (Halasa) 06/04/20 – 02/28/22 5%
NIH/NIAID Role: Co-Investigator
High vs. Standard Dose Flu Vaccine in Pediatric Solid Organ Transplant Recipients

R21 AI 149303-01 (Halasa) 01/14/20 – 12/31/21 5%
NIH/NIAID Role: Co-Investigator
Adenovirus Types and Acute Respiratory Illness Severity in Children

P30 DK 020593-44 (Powers) 12/01/96 – 03/21/22 7.5%
NIH/NIDDK Role: Biostatistician
Vanderbilt Diabetes Research and Training Center

U01 AI 152967-01 (Halasa) 09/01/20 – 06/30/25 5%
NIH/NIAID Role: Co-Investigator
Comparison of High vs. Standard Dose Influenza Vaccines in Adult Solid Organ Transplant Recipients

R01 DK 119282 (Mayberry) 04/15/19 – 03/31/23 7%
NIH/NIDDK Role: Biostatistician
Mobile Phone Support for Adults and Support Persons to Live Well with Diabetes

R01 DK 119282-03S (Mayberry) 04/15/19 – 03/31/23 8%
NIH/NIDDK Role: Biostatistician
Supplement: Mobile Phone Support for Adults and Support Persons to Live Well with Diabetes

Completed research

U01 AI 135950-03 (Webber: Site PI) 02/01/18 – 06/30/21 5%
NIH/NCIRD Role: Biostatistician
Exosomes and the Immune Response in Allograft Outcomes in Pediatric Transplant Recipients

K12 HL 137943-04 (Kripalani) 09/01/17 – 08/31/22 10%
NIH/NHLBI Role: Biostatistician
Vanderbilt Scholars in T4 Translational Research (V-STTAR) Program

U01 IP 001063-05-00 (Halasa) 09/01/16 – 08/31/21
NIH/NCIRD Role: Biostatistician
Enhanced Surveillance for New Vaccine Preventable Diseases

U01 AI 132004-03 (Halasa) 07/05/17 – 06/30/21 5%
NIH/NIAID Role: Biostatistician
High vs. Standard Dose Flu Vaccine in Adult Stem Cell Transplant Recipients

R01 DK 100694-06 (Mayberry) 07/21/14 – 04/30/21
NIH/NIDDK Role: Biostatistician
Improving Medication Adherence Among Underserved Patients with Type 2 Diabetes

RWJF 76037 (Spieker: Site PI) 12/01/18 – 11/30/19 Role: Site PI
Implementation of Medicaid Work Requirements: Factors Influencing Physician Willingness to Request Exemptions

U01 AI 125135-03 (Halasa) 08/19/16 – 07/31/19 Role: Biostatistician
NIH/NIAID
Comparison of High vs. Standard Dose Flu Vaccine in Pediatric Stem Cell Transplant Recipients

P30 DK 092986-08 (Elasy) NIH/NIDDK <i>Center for Diabetes Research Pilot & Feasibility Award</i>	08/01/18 – 07/31/19	Role: Biostatistician
P30 CA 068485-25 (Pietenpol) NIH/NCI <i>Cancer Center Support Grant</i>	09/01/98 – 08/31/25	Role: Biostatistician
P50 CA 098131-18 (Pietenpol) NIH/NCI <i>SPORE in Breast Cancer</i>	08/07/03 – 07/21/24	Role: Biostatistician

ORIGINAL PUBLICATIONS

* - Indicates joint authorship/equal contribution.

Peer-reviewed publications

1. Nodera H, Spieker A, Sung M, Rutkove SB. Neuroprotective effects of Kv7 channel agonist, retigabine, for cisplatin-induced peripheral neuropathy. *Neuroscience Letters* 2011; 505(3): 223–227. PubMed PMID: 21945947.
2. Jafarpoor M, Spieker AJ, Li J, Darras BT, and Rutkove SB. (2011). Assessing electrical impedance alterations in spinal muscular atrophy via the finite element method. *Annual International Conference: IEEE Engineering in Medicine and Biology Society 2011*, 1871-1874. PubMed PMID: 22254695.
3. Wang L, Spieker AJ, Li J, Rutkove SB. Electrical impedance myography for monitoring motor neuron loss in the SOD1 G93A amyotrophic lateral sclerosis rat. *Clinical Neurophysiology* 2011; 122(12): 2505–2511. PubMed PMID: 21612980.
4. Narayanaswami P, Spieker AJ, Mongiovi P, Keel, JC, Muzin SC, Rutkove SB. Utilizing a hand-held electrode array for localized muscle impedance measurements. *Muscle and Nerve* 2012; 46(2): 257–263. PubMed PMID: 22806375.
5. Li J, Staats W, Spieker A, Sung M, Rutkove SB. A technique for performing electrical impedance myography in the mouse hind limb: data in normal and ALS SOD1 G93A animals. *PLOS One* 2012; 7(9): e45004. PubMed PMID: 23028733.
6. Sung M, Spieker AJ, Narayanaswami P, Rutkove SB. The effect of subcutaneous fat on electrical impedance myography when using a handheld electrode array: The case for measuring reactance. *Clinical Neurophysiology* 2013; 124(2): 400–404. PubMed PMID: 22917581.

7. Li J, Spieker AJ, Rosen GD, Rutkove SB. Electrical impedance alterations in the rat hind limb with unloading. *Journal of Musculoskeletal and Neuronal Interactions* 2013; 13(1): 37–44. PubMed PMID: 23445913.
8. Spieker AJ, Narayanaswami P, Fleming L, Keel JC, Muzin SC, Rutkove SB. Electrical impedance myography in the diagnosis of radiculopathy. *Muscle and Nerve* 2013; 48(5): 800–805. PubMed PMID: 23483460.
9. Sung M, Li J, Spieker AJ, Spatz J, Ellman R, Ferguson G, Bateman T, Rosen GD, Bouxsein M, Rutkove SB. Spaceflight and hind limb unloading induce similar changes in electrical impedance characteristics of mouse gastrocnemius muscle. *Journal of Musculoskeletal and Neuronal Interactions* 2013; 13(4): 405–411. PubMed PMID: 24292610.
10. Spieker AJ, Delaney JAC, McClelland RL. Evaluating the treatment effects model for estimation of cross-sectional associations between risk factors and cardiovascular biomarkers influenced by medication use. *Pharmacoepidemiology and Drug Safety* 2015; 24(12): 1286–1296. PubMed PMID: 26419411.
11. Hsi RS, Spieker AJ, Stoller ML, Jacobs DR Jr., Reiner AP, McClelland RL, Kahn AJ, Chi T, Szklo M, Sorensen MD. Coronary artery calcium score and association with recurrent nephrolithiasis: The Multi-Ethnic Study of Atherosclerosis. *Journal of Urology* 2015; 195(4): 971–976. PubMed PMID: 26454103.
12. Johnson M, Pierson ER., Spieker AJ, Nielsen S, Posso S, Kita M, Buckner J, Goverman J. Distinct T cell signatures define subsets of multiple sclerosis patients. *Neurology: Neuroimmunology & Neuroinflammation* 2016; 3(5): e278. PubMed PMID: 27606354.
13. Spieker AJ, Huang Y. A method to address between-subject heterogeneity for identification of principal surrogate markers in repeated low-dose challenge HIV vaccine studies. *Statistics in Medicine* 2017; 36(26): 4167–4181. PubMed PMID: 28758224.
14. Stephens-Shields AJ, Spieker AJ, Yang W, Anderson A, Drawz P, Fischer M, Sozio SM, Feldman H, Joffe M, Green T, The CRIC Study Investigators. Blood pressure and the risk of chronic kidney disease progression using multistate marginal structural models in the CRIC study. *Statistics in Medicine* 2017; 36(26): 4071–4080. PubMed PMID: 28791722.
15. Spieker AJ, Roy JA, Mitra N. Analyzing medical costs with time-dependent treatment: The nested g-formula. *Health Economics* 2018; 27(7): 1063–1073. PubMed PMID: 29663579.

16. Spieker AJ, Delaney JAC, McClelland RL. A method to account for covariate-specific treatment effects when estimating biomarker associations in the presence of endogenous medication use. *Statistical Methods in Medical Research* 2018; 27(8): 2279–2293. PubMed PMID: 29984639.
17. Wan J*, Oganisian A*, Spieker AJ, Hoffstad OJ, Mitra N, Margolis DJ, and Takeshita J. Racial/Ethnic variation in use of ambulatory and emergency care for atopic dermatitis among U.S. children. *Journal of Investigative Dermatology* 2019; 139(9): 1906–1913. PubMed PMID: 30878673.
18. Klink T, Rankin DA, Piya B, Spieker AJ, Faouri S, Shehabi A, Williams JV, Khuri-Bulos N, Halasa NB. Evaluating the diagnostic accuracy of the WHO Severe Acute Respiratory Infection (SARI) criteria in Middle Eastern children under two years over three respiratory seasons. *PLOS One* 2020; 15(4): e0232188. PubMed PMID: 32353012.
19. Nelson LA, Spieker A, Greevy R, LeSturgeon LM, Wallston KA, Mayberry LS. User engagement among diverse adults in a 12-month text message-delivered diabetes support intervention: Results from a randomized controlled trial. *JMIR mHealth and uHealth* 2020; 8(7): e17534. PubMed PMID: 32706738.
20. Gordetsky J, Spieker AJ, Rodriguez Pena MDC, Kamanda S, Anderson MR, Cheville J, Boorjian S, Frank I, Prieto Granada C, Comperat E, Hirsch MS, Iczkowski KA, Imblum B, Schwartz L, Giannico GA, Rais-Bahrami S. Squamous cell carcinoma of the bladder Is not associated with high-risk HPV. *Urology* 2020; 144: 158–163. PubMed PMID: 32681917.
21. Spieker AJ, Ko E, Roy JA, Mitra N. Nested g-computation: A causal approach to analysis of censored medical costs in the presence of time-varying treatment. *Journal of the Royal Statistical Society, Series C (Applied Statistics)* 2020; 69(5):1189–1208 ([arXiv:1705.08742](https://arxiv.org/abs/1705.08742)). PubMed PMID: 34108743.
22. Probst V, Datyner EK, Haddadin Z, Rankin DA, Hamdan L, Rahman HK, Spieker A, Stewart LS, Guevara C, Yepsen E, Schmitz JE, Halasa NB. Human adenovirus species in children with acute respiratory illnesses. *Journal of Clinical Virology* 2021; 134: 104716. PubMed PMID: 33360858.
23. Nelson LA, Greevy R, Spieker A, Wallston KA, Elasy TA, Kripalani S, Gentry C, Bergner EM, LeSturgeon LM, Williamson SE, Mayberry LS. Effects of a tailored text messaging intervention among diverse adults with type 2 diabetes: Evidence from the 15-month REACH randomized controlled trial. *Diabetes Care* 2021; 44(1): 26–34. PubMed PMID: 33154039.

24. Halasa N, Piya B, Stewart LS, Rahman H, Payne DC, Woron A, Thomas L, Constantine-Renna L, Garman K, McHenry R, Chappell J, Spieker AJ, Fannesbeck C, Batarseh E, Hamdan L, Wikswo ME, Parashar U, Bowen MD, Vinjé J, Hall AJ, Dunn JR. The changing landscape of pediatric viral enteropathogens in the post-rotavirus vaccine era. *Clinical Infectious Diseases* 2021; 72(4): 576–585. PubMed PMID: 32009161.
25. Howard LM, Rankin DA, Spieker AJ, Gu W, Haddadin Z, Probst V, Rahman H, McHenry R, Guevara-Pulido C, Williams JV, Faouri S, Shehabi A, Khuri-Bulos N, Halasa NB. Clinical features of parainfluenza infections among young children hospitalized for acute respiratory illness in Amman, Jordan. *BMC Infectious Diseases* 2021; 21(1): 323. PubMed PMID: 33827449.
26. Spieker AJ, Illenberger N, Roy JA, Mitra N. Net benefit separation and the determination curve: A probabilistic framework for cost-effectiveness estimation. *Statistical Methods in Medical Research* 2021; 30(5): 1306–1319 ([arXiv:1912.00039](https://arxiv.org/abs/1912.00039)). PubMed PMID: 33826460.
27. Spieker AJ, Delaney JAC, McClelland RL. Semi-parametric estimation of biomarker age trends with endogenous medication use in longitudinal data. *Observational Studies* 2021; 7(2): 127-148 ([arXiv: 2101.09233](https://arxiv.org/abs/2101.09233)). PubMed PMID: 34179898.
28. Haddadin Z, Schuster JE, Spieker AJ, Rahman H, Blozinski A, Stewart L, Campbell AP, Lively JY, Michaels MG, Williams JV, Boom JA, Sahni LC, Staat M, McNeal M, Selvarangan R, Harrison CJ, Weinberg GA, Szilagyi PG, Englund JA, Klein EJ, Curns AT, Rha B, Langley GE, Hall AJ, Patel MM, Halasa NB. Acute respiratory illnesses in children in the SARS-CoV-2 pandemic: Prospective multicenter study. *Pediatrics* 2021; 148(2): e2021051462. PubMed PMID: 33986150.
29. Schmidt H*, Spieker AJ*, Luo T, Szymczak J, Grande D. Physicians and Medicaid work requirements: Variability in primary care physician attitudes toward Medicaid Work Requirement exemption requests made by patients with depression. *JAMA Health Forum* 2021; 2(10):e212932.
30. Haddadin Z, Rankin DA, Lipworth L, Suh M, McHenry R, Blozinski A, George SS, Fernandez KN, Varjabedian R, Spieker AJ, Shepard DS, Halasa NB. Respiratory virus surveillance in infants across different clinical settings. *Journal of Pediatrics* 2021; 234: 164-171. PubMed PMID: 33774057.
31. Wiese AD, Osmundson SS, Mitchel EM Jr., Adgent M, Phillips S, Patrick SW, Spieker AJ, Grijalva CG. The risk of serious opioid-related events associated with common opioid prescribing regimens in the postpartum period after cesarean. *American Journal of Obstetrics and Gynecology, Maternal-Fetal Medicine* 2021; 2021(3):1-12. PubMed PMID: 34455101.

32. Haddadin Z, Batarseh E, Hamdan L, Stewart LS, Piya B, Rahman H, Spieker AJ, Chappell J, Wikswo ME, Dunn JR, Payne DC, Vinjé J, Hall A, Halasa N. Characteristics of GII.4 norovirus versus other genotypes in sporadic pediatric infections in Davidson County, Tennessee, USA. *Clinical Infectious Diseases* 2021; 73(7): e1525-e1531. PubMed PMID: 32667045.
33. Spieker AJ*, Gordetsky J*, Maris AS, Dehan LM, Denney JE, Arnold Egloff SA, Scarpato K, Barocas D, Giannico GA. PTEN expression and morphologic patterns in prostatic adenocarcinoma. *Histopathology* 2021; 79(6): 1061-1071. PubMed PMID: 34324714.
34. Hamdan L, Vandekar S, Spieker AJ, Rahman H, Ndi D, Shekarabi ES, Thota J, Rankin DA, Haddadin Z, Markus T, Aronoff DM, Schaffner W, Gaddy JA, Halasa NB. Epidemiological trends of racial disparities in early- and late-onset group B streptococcus disease in Tennessee. *Clinical Infectious Diseases* 2021; 73(11): e3634-e3640. PubMed PMID: 33031511.
35. Haddadin Z, Beveridge S, Fernandez K, Rankin DA, Probst V, Spieker AJ, Markus TM, Stewart LS, Schaffner W, Lindegren ML, Halasa N. Respiratory syncytial virus disease severity in young children. *Clinical Infectious Diseases* 2021; 73(11): e4384-e4391. PubMed PMID: 33095882.
36. Nelson LA*, Spieker AJ*, Mayberry LS, McNaughton C, Greevy R. Estimating the impact of engagement with digital health interventions on patient outcomes in randomized trials. *Journal of the American Medical Informatics Association* 2022; 29(1): 128-136.
37. Hamdan L, Probst V, Haddadin Z, Rahman H, Spieker AJ, Vandekar S, Stewart LS, Williams J, Boom JA, Munoz F, Englund JA, Selvarangan R, Staat MA, Weinberg GA, Azimi PH, Klein EJ, McNeal M, Sahni LC, Singer MN, Szilagyi PG, Harrison CJ, Patel M, Campbell AP, Halasa NB. Influenza clinical testing and oseltamivir treatment in hospitalized children with acute respiratory illness, 2015-2016. To appear in *Influenza and Other Respiratory Viruses*, 2022+. PubMed PMID: 34704375.
38. Nelson LA, Spieker AJ, Kripilani S, Rothman R, Roumie C, Coco J, Fabbri D, Levy P, Collins SP, McNaughton CD. User preferences for and engagement with text messages to support antihypertensive medication adherence: Findings from a pilot study evaluating an emergency department-based behavioral intervention. To appear in *Patient Education and Counseling*, 2022+. PubMed PMID: 34690012.
49. Probst V, Rankin DA, Haddadin Z, Hamdan L, Rahman HK, Yanis A, Talj R, Spieker AJ, Stewart LS, Guevara C, Yepsen E, Faouri S, Shehabi A, Williams JV, Chappell J, Khuri-Bulos N, Halasa NB. Adenovirus infection in hospitalized children with acute respiratory infection in Jordan. To appear in *The Pediatric Infectious Disease Journal*, 2022+.

40. Yanis A*, Haddadin Z*, Spieker AJ, Waqfi D, Talj R, Rankin DA, Thomas L, Birdwell KA, Ezzell L, Blair M, Eason J, Varjabedian R, Warren CM, Nochowicz CH, Olson EC, Simmons JD, Yoder S, Guy M, Thomsen I, Chappell JD, Kalams SA, Halasa NB. Humoral and cellular immune responses to the SARS-Cov-2 BNT162b2 vaccine in a cohort of solid organ transplant recipients and healthy controls. To appear in *Transplant Infectious Disease*, 2022+.
41. Spieker AJ, Greevy R, Mayberry L, Nelson L. Bounding the local average treatment effect in an instrumental variable analysis of engagement with a mobile intervention. To appear in *The Annals of Applied Statistics*, 2022+ ([arXiv:2008.06473](https://arxiv.org/abs/2008.06473)).

Invited commentaries and responses

42. Spieker AJ. Comment on “Penalized Spline of Propensity Methods for Treatment Comparison” by Zhou, Elliott, and Little. *Journal of the American Statistical Association* 2019; 114(S25): 20–23.
43. Haddadin Z, Spieker AJ, Schaffner W, Halasa N. Reply to Mejias et al. *Clinical Infectious Diseases* 2021; 72(12): e1162-e1163. PubMed PMID: 33216146.

Manuscripts under review or pending submission

44. Spieker AJ, Nelson LA, Rothman R, Roumie C, Kripilani S, Coco J, Fabbri D, Levy P, Collins SP, Wang T, McNaughton CD. Feasibility and short-term effects of a multi-component emergency-department blood pressure intervention: A pilot randomized trial. Provisionally accepted to *Journal of the American Heart Association*.
45. Illenberger N, Mitra N, Spieker AJ. A regression framework for a probabilistic measure of cost-effectiveness. Revised and re-submitted to *Health Economics* ([arXiv:2101.10466](https://arxiv.org/abs/2101.10466)).
46. Haddadin Z, Spieker AJ, Rahman H, Rankin D, Talj R, Yanis A, Schmitz J, Chappell J, Halasa NB. Respiratory pathogens during the COVID-19 pandemic: alterations in detection and seasonality. Revised and re-submitted to *PLOS One*.
47. Straub Hogan MM, Spieker AJ, Orejudos M, Gheit T, Herfs M, Tommasino M, Sanchez DF, Fernandez-Nestosa MJ, Rodriguez Pena MDC, Gordetsky JB, Canete-Portillo S, Magi-Galluzzi C, Epstein JI, Gellert LL, Prieto Granada CN, Cubilla AL, Giannico GA. Pathological characterization and clinical outcome of penile intraepithelial neoplasia (PeIN) variants: a multi-institutional North American series of 64 patients. Undergoing revisions for *Modern Pathology*.
48. Rankin DA, Haddadin Z, Lipworth L, Blozinski AL, Fryzek J, Suh M, Shepard DS, Varjabedian R, Fernandez KN, Salib S, Villarreal J, Bruce M, McHenry R, Spieker AJ, Nelson CB, Halasa NB. Comparison of clinical presentations and burden of Respiratory Syncytial Virus in infants across three distinct healthcare settings in Davidson County, Tennessee. Submitted to *Therapeutic Advances in Infectious Diseases*.

49. Illenberger N, Spieker AJ, Mitra N. Identifying optimally cost-effective dynamic treatment regimes with a Q-learning approach. Submitted to *The Annals of Applied Statistics*.
50. Haddadin Z*, Spieker AJ*, Resser JJ, Faouri S, Shehabi A, Williams JV, Khuri-Bulos N, and Halasa NB. A machine-learning based risk index for major medical interventions and events in young children hospitalized with respiratory syncytial virus. Submitted to *PLOS One*.
51. Probst V*, Spieker AJ*, Stopczynski T, Stewart LS, Haddadin Z, Selvarangan R, Harrison CJ, Schuster JE, Staat MA, McNeal M, Weinberg GA, Szilagyi PG, Boom JA, Sahni LC, Englund J, Klein EJ, Williams JV, Michaels MG. Adenovirus detection alone vs. adenovirus co-detected with other respiratory viruses in children with acute respiratory illnesses in the U.S. Pending submission to *Clinical Infectious Diseases*.
52. Talj R, Amarin J, Rankin D, Bloos S, Shawareb Y, Rahman H, Haddadin Z, Howard L, Probst V, Spieker AJ, Fauri S, Shehabi A, Chappell J, Khuri-Bulos N, Williams JV, Halasa N. Clinical characteristics, outcomes, and seasonality of rhinovirus species among hospitalized children in Amman, Jordan. Pending submission to *Clinical Infectious Diseases*.
53. Schuster JE, Hamdan L, Dulek D, Kitko CL, Batarseh E, Haddadin Z, Stewart LS, Blozinski A, Rahman H, Kalams S, Coffin S, Ardura MI, Wattier R, Maron G, Bocchini CE, Moulton EA, Grimley M, Paulsen G, Harrison CJ, Freedman J, Carpenter P, Englund J, Danziger-Isakov L, Munoz FM, Spieker AJ*, Halasa N*. Safety and immunogenicity of high-dose influenza vaccine in pediatric hematopoietic cell transplant recipients. Pending submission to *New England Journal of Medicine*.
54. Spieker AJ*, Wiese AD*, Adgent MA, Osmundson SS, Phillips SE, Mitchel E Jr., Grijalva CG. Modeling strategies for examination of dose-response relationships of prescription drugs using administrative data. Pending submission to *American Journal of Epidemiology*.
55. Haddadin Z, Spieker AJ, Hall M, Thurm C, Danziger-Isakov L, Godown J, Halasa NB, Dulek DE. Incidence of and risk factors for influenza-associated hospitalization in pediatric solid organ transplant recipients. Pending submission to *American Journal of Transplantation*.
56. Spieker AJ, Harrell FE. The case against stratifying baseline descriptive statistics by exposure group in a randomized controlled trial. Pending submission to *British Medical Journal*.
57. Pham A, Wiese A, Spieker AJ, Johnson K, Phillips S, Adgent M, Grijalva CG, Osmundson S. Social vulnerability and initiation of pharmacotherapy for gestational diabetes mellitus in a Medicaid population. Pending submission to *American Journal of Obstetrics and Gynecology*.

58. Rankin DA, Spieker AJ, Perez A, Haddadin Z, Probst V, Schuster J, Stahl A, Rahman HK, Stewart L, Rha B, Michaels MG, Williams JV, Boom J, Sahni LC, Staat MA, Schlaudecker E, McNeal M, Selvarangan R, Harrison CJ, Weinberg GA, Szilagyi PG, Englund JA, Klein EJ, Mc-Morrow M, Patel M, Chappell JD, Midgley CM, Halasa NB. Circulation of rhinovirus/enterovirus respiratory infections in children from 2020-2021 in the United States. Pending submission to *JAMA Pediatrics*.

PRESENTATIONS

Invited workshops

1. Computing session for propensity score methods. First Causal Inference and Big Data Summer Institute: Philadelphia, PA, July 2017.
2. Computing session for propensity score and matching methods. Second Causal Inference and Big Data Summer Institute: Philadelphia, PA, June 2018.
3. Introduction to causal inference. Causal Inference and Pharmacoepidemiology Summer Institute: Piscataway, NJ, July 2019.
4. Propensity scores: Matching and inverse probability of treatment weighting. Summer Short Course on Causal Inference, University of Pennsylvania Center for Causal Inference (Virtual), June 2020.
5. Propensity scores: Matching and inverse probability of treatment weighting. Causality in Clinical Research: What, Why, When and How, University of Pennsylvania Center for Causal Inference (Virtual), December 2020.
6. Propensity score and matching methods. Vanderbilt University Medical Center, Department of Biostatistics Continuing Education Seminar Series (Virtual), January 2021.

Invited conference presentations

1. Causal approaches to cost and cost-effectiveness analysis with time-dependent treatment regimes. ENAR: Atlanta, GA, March 2018.
2. Approaches to cost-effectiveness analysis based on individual monetary benefit. ENAR: Philadelphia, PA, March 2019.
3. Population-level cost-effectiveness analysis: The individual net benefit from a causal perspective. Third International Conference on Econometrics and Statistics: Taichung, Taiwan, June 2019.

4. Comment on “Penalized Spline of Propensity Methods for Treatment by Zhou, Elliott, and Little”. JSM: Denver, CO, July 2019.
5. A second-generation cost-effectiveness acceptability curve based on the Bayesian credible interval for net monetary benefit. International Conference on Health Policy Statistics: San Diego, CA, January 2020.
6. Bounds for local average treatment effects in instrumental variable analyses of mobile interventions. ICSA Applied Statistics Symposium (Virtual): December 2020.
7. Bounding local average treatment effects under exclusion-restriction violations in mobile health interventions. Fourth International Conference on Econometrics and Statistics (Virtual): June 2021.
8. Semi-parametric estimation of biomarker age trends with endogenous medication use in longitudinal data. Thirteenth International Conference on Computational and Methodological Statistics: London, UK, December 2021.
9. A semi-parametric g-computation approach based on cumulative probability models. JSM: Washington, DC, August 2022.

Department seminars

1. Flexible modeling of biomarker associations in the presence of endogenous treatment. Collaborative Health Studies Coordinating Center. Seattle, WA, March 2015.
2. Extending Heckman’s treatment effects model to allow heterogeneity in the effects of medication use. FDA Center for Drug Evaluation and Research. White Oak, MD, September 2015.
3. Understanding natural history in the presence of endogenous medication use. Weill Cornell Medical College Division of Biostatistics and Epidemiology. New York, NY, January 2016.
4. Accounting for endogenous medication use when estimating natural biomarker associations using observational data. Stanford Medicine Quantitative Sciences Unit. Palo Alto, CA, March 2016.
5. Recovering natural history: Modeling biomarker age trends in the presence of endogenous medication use. University of Pennsylvania Division of Biostatistics. Philadelphia, PA, October 2016.
6. The nested g-formula: A causal approach to analysis of medical cost data in the presence of censoring. University of Washington, Collaborative Health Studies Coordinating Center. Seattle, WA, May 2017.

7. Analyzing medical cost outcomes with time-dependent treatment. New York University Department of Population Health. New York, NY, October 2017.
8. The nested g-formula: A causal approach for analyzing medical cost outcomes. New York University Division of Biostatistics. New York, NY, January 2018.
9. The nested g-formula: A causal approach for analyzing medical cost outcomes. University of Pennsylvania Division of Biostatistics. Philadelphia, PA, January 2018.
10. The nested g-formula: A causal approach for analyzing medical cost outcomes. University of British Columbia Department of Statistics. Vancouver, BC, January 2018.
11. Analyzing medical cost outcomes with time-dependent treatment. British Columbia Children's Hospital Research Institute. Vancouver, BC, January 2018.
12. The nested g-formula: A causal approach for analyzing medical cost outcomes. University of Utah Department of Population Health. Salt Lake City, UT, February 2018.
13. Analyzing medical cost outcomes with time-dependent treatment. Huntsman Cancer Institute. Salt Lake City, UT, February 2018.
14. Analyzing medical cost outcomes with time-dependent treatment. University of Massachusetts Amherst Department of Biostatistics. Amherst, MA, February 2018.
15. The nested g-formula: A causal approach for analyzing medical cost outcomes. Vanderbilt University Department of Biostatistics Seminar. Nashville, TN, February 2018.
16. Analyzing cost outcomes with time-varying treatment: Guidance for resource allocation and health policy decisions. Drexel University Biostatistics Seminar. Philadelphia, PA, February 2018.
17. Analyzing cost outcomes with time-varying treatment: Guidance for resource allocation and health policy decisions. State University of New York at Albany Epidemiology and Biostatistics Seminar. Albany, NY, February 2018.
18. Using observational data to aggregate evidence of clinical efficacy with information on medical costs. Vanderbilt University Medical Center Department of Biomedical Informatics. Nashville, TN, February 2019.
19. Bounding local average treatment effects in studies of engagement with mobile interventions. University of Québec at Montréal (Virtual), September 2020.

20. Bounding local average treatment effects in studies of engagement with mobile interventions. University of Pennsylvania Center for Causal Inference (Virtual), October 2020.
21. Bounding local average treatment effects in studies of engagement with mobile interventions. Fox Chase Cancer Center (Virtual), January 2021.
22. Bounding local average treatment effects in studies of engagement with mobile interventions. Vanderbilt University Medical Center Department of Biostatistics (Virtual), January 2021.
23. Bounding local average treatment effects in studies of engagement with mobile interventions. University of California at Davis (Virtual), March 2021.
24. Methods to evaluate the role of engagement with mobile interventions. University of Louisville (Virtual), September 2021.
25. Methods to evaluate the role of engagement with mobile interventions. University of Colorado (Virtual), October 2021.

Contributed conference presentations

1. (Oral) A comparison of methods for biomarker associations with endogenous treatment. ENAR: Baltimore, MD, March 2014.
2. (Oral) Extending Heckman's treatment effects model to allow for treatment heterogeneity. WNAR: Boise, ID, June 2015. (WNAR Most Outstanding Oral Presentation Award).
3. (Oral) Extending Heckman's treatment effects model to non-additive treatment effects. Joint Statistical Meetings: Seattle, WA, August 2015.
4. (Oral) Accounting for heterogeneity when evaluating surrogate endpoints in a discrete-time survival model. ENAR: Austin, TX, March 2016.
5. (Oral) A constrained covariance modeling approach for estimation of marginal age trends in the presence of endogenous medication use. ENAR: Washington, D.C., March 2017.
6. (Poster) A nested g-computation approach for analysis of censored medical cost data. Atlantic Causal Inference Conference: Chapel Hill, NC, May 2017. (Thomas R. Ten Have Poster Session Runner-up).
7. (Oral) A nested g-computation approach to analyze medical cost outcomes in the presence of censoring. WNAR: Santa Fe, NM, June 2017.

8. (Oral) A new direction for health policy decisions based on subgroup discovery: The cost-effectiveness determination curve. Joint Statistical Meetings: Vancouver, BC, August 2018.
9. (Oral) Bounding local average treatment effects in studies of engagement with mobile interventions. ENAR (Virtual), March 2021.
10. (Oral) Statistical methods to understand the role of engagement in studies of mobile health interventions. JSM (Virtual), August 2021.
11. (Oral) Modeling considerations for semi-continuous dose-response relationships in pharmacoepidemiologic studies. ENAR: Houston, TX, March 2022.

STATISTICAL SOFTWARE PACKAGES (R)

- `rigr`: Emerson SS, [Spieker AJ](#), Williamson BD, Willis AD, Wolock C, and Okonek T. Regression, Inference, and General Data Analysis Tools in R (previously under the title `uwIntroStats`).
- `endogenous`: [Spieker AJ](#). Classical Simultaneous Equation Models.