Nicholas J. Seewald, Ph.D.

Curriculum Vitae

Professional Data

Department of Health Policy and Management
Johns Hopkins Bloomberg School of Public Health
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Education

2021	Ph.D.	Statistics. University of Michigan. Advised by Daniel Almirall, Ph.D. Thesis "Design and Analytic Considerations for Sequential, Multiple-Assignment Randomized Trials with Continuous Longitudinal Outcomes"
2018	M.A.	Statistics. University of Michigan.
2015	M.S.	Biostatistics. University of Michigan.
2013	B.S.	Mathematics (with Life Science), *cum laude*. University of Notre Dame.

Academic Positions

2021-23 Postdoctoral Fellow, Johns Hopkins Bloomberg School of Public Health.
Advised by Elizabeth A. Stuart, Ph.D. and Emma E. (Beth) McGinty, Ph.D.

Awards

1. Excellence in Teaching. Johns Hopkins Bloomberg School of Public Health, AY 2022-23, First Term.
2. Junior Researcher Travel Grant, American Causal Inference Conference, 2022. Supported by the National Science Foundation, awarded to Duke University.
3. Brenda Gunderson Graduate Student Instructor Award. Department of Statistics, University of Michigan, 2021. (Inaugural recipient)
4. Outstanding Graduate Student Instructor. Rackham Graduate School, University of Michigan, 2021. (University-wide)
5. Outstanding Graduate Student Instructor. Department of Statistics, University of Michigan, 2020.
6. Best Departmental Poster, Statistics. Michigan Student Symposium for Interdisciplinary Statistical Sciences, 2017.
7. Best Departmental Poster, Biostatistics. Michigan Student Symposium for Interdisciplinary Statistical Sciences, 2015.

Publications

Peer-Reviewed Articles

1. McGinty, E.E., **Seewald, N.J.**, Bandara, S., Cerdá, M., Daumit, G., Eisenberg, M., Griffin, B.A., Igusa, T., Jackson, J.W., Kennedy-Hendricks, A., Marsteller, J., Miech, E.J., Purtle, J., Schmid, I., Schuler, M.S., Yuan, C.T., Stuart, E.A. (2022) "Scaling interventions to manage chronic disease: Innovative methods at the intersection of health policy research and implementation science." *Prevention Science*. https://doi.org/jbkm

2. McGinty, E.E., Bicket, M.C., **Seewald, N.J.**, Stuart, E.A., Alexander, G.C., Barry, C.L., McCourt, A.D., Rutkow, L. (2022) "Effects of state opioid prescribing laws on use of opioid and other pain treatments among commercially insured U.S. adults." *Annals of Internal Medicine*, 175:5, 617-627. https://doi.org/hss3

3. **Seewald, N.J.**, Kidwell, K.M., Wu, T., Nahum-Shani, I., Almirall, D. (2020) "Sample size considerations for comparing dynamic treatment regimens in a sequential multiple-assignment randomized trial with a continuous longitudinal outcome." *Statistical Methods in Medical Research*, 29:7, 1891-1912. https://doi.org/gf85ss

4. **Seewald, N.J.**, Smith, S.N., Lee, A.J., Klasnja, P., Murphy, S.A. (2019) "Practical Considerations for Data Collection and Management in Mobile Health Micro-randomized Trials." *Statistics in Biosciences*, 11:2, 355-370. https://doi.org/gfsvx7

5. Klasnja, P., Smith, S., **Seewald, N.J.**, Lee, A., Hall, K., Luers, B., Heckler, E., Murphy, S.A. (2018), "Efficacy of contextually-tailored suggestions for physical activity: A micro-randomized optimization trial of HeartSteps." *Annals of Behavioral Medicine*, 53:6, 573-582. https://doi.org/hh5s

6. Kidwell, K.M., **Seewald, N.J.**, Tran, Q., Kasari, K., Almirall, D. (2018), "Design and analysis considerations for comparing dynamic treatment regimens with binary outcomes from sequential multiple assignment randomized trials." *Journal of Applied Statistics*, 45:9, 1628-1651. https://doi.org/hh5r

7. Meurer, W. J., **Seewald, N. J.**, Kidwell, K. M. (2017), "Sequential Multiple Assignment Randomized Trials: An Opportunity for Improved Design of Stroke Reperfusion Trials." *Journal of Stroke and Cerebrovascular Diseases*, 26:4, 717-724. https://doi.org/hh5t

8. Kadakia, K.C., Kidwell, K.M., **Seewald, N.J.**, Snyder, C.F., Storniolo, A.M., Otte, J.L., Flockhart, D.A., Hayes, D.F., Stearns, V., Henry, N.L. (2017), "Prospective assessment of patient-reported outcomes and estradiol and drug concentrations in patients experiencing toxicity from adjuvant aromatase inhibitors." *Breast Cancer Research and Treatment*, 164, 411-419. https://doi.org/gbktjs

9. Hertz, D.L., Kidwell, K.M., **Seewald, N.J.**, Gersch, C.L., Desta, Z., Flockhart, D.A., Storniolo, A-M., Stearns, V., Skaar, T.C., Hayes, D.F., Henry, N.L., and Rae, J.M. (2016), "Polymorphisms in Drug-Metabolizing Enzymes and Steady-State Exemestane Concentration in Postmenopausal Patients with Breast Cancer." *The Pharmacogenomics Journal*, 17, 521-527. https://doi.org/f9pc88

10. Kadakia, K. C., Snyder, C. F., Kidwell, K. M., **Seewald, N. J.**, Flockhart, D.A., Skaar, T.C., Desta, Z., Rae, J.M., Otte, J.L., Carpenter, J.S., Storniolo, A.M., Hayes, D.F., Stearns, V., Henry, N. L. (2016), "Patient-Reported Outcomes and Early Discontinuation in Aromatase Inhibitor-Treated Postmenopausal Women With Early Stage Breast Cancer." *The Oncologist*, 21:5, 539-546. https://doi.org/hh5w

11. Hertz, D.L., Caram, M.V., Kidwell, K.M., Thibert, J.N., Gersch, C., **Seewald, N.J.**, Smerage, J., Rubenfire, M., Henry, N.L., Cooney, K.A., Leja, M., Griggs, J.J., and Rae, J.M. (2016), "Evidence for association of SNPs in ABCB1 and CBR3, but not RAC2, NCF4, SLC28A3 or TOP2B, with chronic cardiotoxicity in a cohort of breast cancer patients treated with anthracyclines." *Pharmacogenomics*, 17, 231-240. https://doi.org/f83s4t

12. Randolph, A.H., **Seewald, N.J.**, Rickert, K. and Brown, S. N. (2013), "Tris (3, 5-di-tert-butylcatecholato) molybdenum (VI): Lewis acidity and nonclassical oxygen atom transfer reactions." *Inorganic Chemistry*, 52:21, 12587-12598. https://doi.org/f5g68q

13. Marshall-Roth, T., Liebscher, S.C., Rickert, K., **Seewald, N.J.**, Oliver, A.G. and Brown, S.N. (2012), "Nonclassical oxygen atom transfer reactions of oxomolybdenum(vi) bis(catecholate)." *Chemical Communications*, 48, 7826-7828. https://doi.org/hh5x

Peer-Reviewed Book Chapters

1. Smith, S.N., **Seewald, N.J.**, Klasnja, P. (2023), "Design Considerations for Preparation, Optimization, Evaluation and Maintaining Digital Therapeutics". In *Digital Therapeutics for Mental Health and Addiction: State of the Science and Vision for the Future*, edited by N. Jacobson, T. Kowatsch, and L. Marsch, 135-150. Cambridge: Academic Press. https://doi.org/jf2w

2. **Seewald, N.J.**, Hackworth, O., Almirall, D. (2021) "Sequential, multiple assignment, randomized trials (SMART)". In *Principles and Practice of Clinical Trials*, edited by S. Piantadosi and C.L. Meinert. Cham: Springer. https://doi.org/hh5z

3. Smith, S.N., Lee, A.J., Hall, K., **Seewald, N.J.**, Boruvka, A., Murphy, S.A., Klasnja, P. (2017) "Design lessons from a micro-randomized pilot study in mobile health". In *Mobile Health*, edited by J. Rehg, S.A. Murphy, and S. Kumar, 59-82. Cham: Springer. https://doi.org/hh5v

Other Publications

1. **Seewald, N.J.** (2023) "Adaptive Interventions for a Dynamic and Responsive Public Health Approach," *American Journal of Public Health*, 113:1, 37-39. https://doi.org/jqkz

2. **Seewald, N.J.**, Sun, J., Liao, P. (2016), "MRT-SS Calculator: An R Shiny Application for Sample Size Calculation in Micro-Randomized Trials," arXiv:1609.00695 [stat.ME]

In Preparation and Under Review

1. McGinty, E.E., Tormohlen, K., **Seewald, N.J.**, Bicket, M.C., McCourt, A.D., Rutkow, L., White, S.A., Stuart, E.A. "Association of U.S. state medical cannabis laws with treatment of chronic non-cancer pain." Under review at *Annals of Internal Medicine*.

2. **Seewald, N.J.**, Almirall, D. "Sample size and timepoint tradeoffs for comparing dynamic treatment regimens in a longitudinal SMART."

3. **Seewald, N.J.**, Almirall, D. "longsmart: An R package for design and simulation of SMARTs with longitudinal outcomes."

4. **Seewald, N.J.**, McGinty, E.E., Tormohlen, K., Schmid, I., Stuart, E.A. "Shared control individuals in state-level health policy evaluation."

5. **Seewald, N.J.**, McGinty, E.E., Tormohlen, K., Griffin B.A., Stuart, E.A. "Ready to Roll? Whether and when to aggregate individual-level data in state health policy evaluation."

Teaching Experience

Co-Instructor, Johns Hopkins Bloomberg School of Public Health

1. *Seminar on Statistical Methods for Mental Health* — Term 1, AY 2022-3
   Promises and Pitfalls of Prediction Models in Mental Health Research
   Co-taught with Trang Q. Nguyen, Ph.D.

Guest Lecturer, Johns Hopkins Bloomberg School of Public Health

1. *Seminar on Statistical Methods for Mental Health* — Term 3, AY 2021-2
   "Difference in Differences with Variable Treatment Timing."
   Instructor: Elizabeth A. Stuart, Ph.D.

Graduate Student Mentor, University of Michigan

1. *STATS 250: Introduction to Statistics and Data Analysis* — AY 2019-20, AY 2020-1
   Instructor: Brenda Gunderson, Ph.D.; Jack Miller, Ph.D.

Graduate Student Instructor, University of Michigan

1. *STATS 250: Introduction to Statistics and Data Analysis* — Spring 2018, AY 2019-20, AY 2020-1
   Instructor: Brenda Gunderson, Ph.D.; Jack Miller, Ph.D.
2. *STATS 415: Data Mining* — Winter 2018
   Instructor: Liza Levina, Ph.D.
3. *STATS 500: Statistical Learning I: Regression* — Fall 2017
   Instructor: Brian Thelan, Ph.D.

Instructional Assistant, University of Michigan

1. *STATS 250: Introduction to Statistics and Data Analysis* — Summer 2020
   Supervisor: Jack Miller, Ph.D.

Teaching Assistant, Summer Program in Quantitative Methods of Social Research, Inter-university Consortium for Political and Social Research

1. *Multilevel Models I: Introduction and Application* — Summer 2018, Summer 2019
   Instructor: Mark Manning, Ph.D.
2. *Introduction to the R Statistical Computing Environment* — Summer 2018, Summer 2019
   Instructor: John Fox, Ph.D.

Consulting Experience

Statistical Consultant

1. *Committee for Children*, Seattle, WA — May 2021 - Present

Graduate Student Consultant, University of Michigan

1. *Consulting for Statistics, Computing, and Analytics Research (CSCAR)* — Sept. 2018 - Dec. 2018

Presentations and Posters

Presentations at Scientific Meetings

1. Ready to Roll? Practical guidance on whether and when to aggregate data in health policy evaluation
   - International Conference on Health Policy Statistics. Scottsdale, AZ. January 2023
2. Handling correlation in stacked difference-in-differences estimates with application to medical cannabis policy
   - Joint Statistical Meetings. Washington, DC. August 2022.
3. Policy evaluation in the real world: Experiences with translating cutting-edge methods for an applied audience
   - American Causal Inference Conference. Berkeley, CA. May 2022.
4. Budgeting SMART: Sample size and repeated measures with a cost constraint in a longitudinal sequential, multiple-assignment randomized trial.
   - ENAR Spring Meeting. Virtual. March 2021.
5. Sample size and timepoint tradeoffs for comparing dynamic treatment regimens in a longitudinal SMART.
   - Joint Statistical Meetings. Virtual. August 2020.
6. Design considerations for comparing dynamic treatment regimens in a longitudinal SMART.
   - ENAR Spring Meeting. Virtual. March 2020.
7. Sample size considerations for comparing dynamic treatment regimes in a SMART with a longitudinal outcome.
   - International Conference on Computational and Methodological Statistics. London, UK. December 2019
   - Joint Statistical Meetings. Denver, CO. July 2019.
8. Sample size considerations for comparing dynamic treatment regimens in a sequentially-randomized trial with a continuous longitudinal outcome.
   - Society for Clinical Trials Annual Meeting. New Orleans, LA. May 2019.
9. Sample size considerations for comparing dynamic treatment regimens in a sequential multiple-assignment randomized trial with a continuous longitudinal outcome.
   - Joint Statistical Meetings. Vancouver, BC, Canada. July 2018.
   - ENAR Spring Meeting. Atlanta, GA. March 2018.

Invited Colloquia

1. Using individual-level data in difference-in-differences for health policy evaluation.
   - Department of Biostatistics and Data Science, Wake Forest University School of Medicine. Virtual. March 2023.

- Department of Biostatistics, Epidemiology and Informatics, University of Pennsylvania Perelmen Medical School. Virtual. March 2023.
- Department of Public Health Sciences, Henry Ford Health. Virtual. February 2023.
- Division of Biostatistics, Northwestern University Feinberg School of Medicine. Chicago, IL. January 2023.
- Departments of Population Health Sciences and Biostatistics and Medical Informatics, University of Wisconsin-Madison. Madison, WI. January 2023.
- Department of Biostatistics, University of Colorado Anschutz Medical Campus. Virtual. January 2023.
- Johns Hopkins ALACRITY Center Research in Progress Meeting. Virtual. November 2022.

2. A brief introduction to multi-stage trials for developing dynamic treatment regimens.
   - MNeuroNetwork Lab Seminar, University of Michigan. Virtual. March 2022.
   - Working Group on Clinical Research, University of Rochester Medical Center. Virtual. October 2021.
3. Design, analysis, and sizing of sequential multiple assignment randomized trials with binary outcomes.
   - Graduate Student Statistical Topics Seminar Series, Department of Statistics, University of Michigan. September 2015.

Posters

1. "Ready to roll? Practical guidance on whether and when to aggregate data in health policy evaluation"
   - AcademyHealth Annual Research Meeting. Washington, DC. June 2022.
2. Sample size considerations for comparing dynamic treatment regimens in a sequential multiple-assignment randomized trial with a continuous longitudinal outcome.
   - Michigan Student Symposium for Interdisciplinary Statistical Sciences. Ann Arbor, MI. March 2019.
   - Thomas R. Ten Have Symposium on Statistics in Mental Health. Chicago, IL. June 2018.
3. Sample size considerations for the analysis of continuous repeated-measures outcomes in sequential multiple-assignment randomized trials.
   - Michigan Student Symposium for Interdisciplinary Statistical Sciences. Ann Arbor, MI. March 2017.
4. A SMART web-based sample size calculator.
   - Michigan Student Symposium for Interdisciplinary Statistical Sciences. Ann Arbor, MI. March 2015.
   - IMPACT Symposium III: Advances in Clinical Trial Statistics: Multiplicity Adjustment and SMARTs. Cary, NC. November 2014.

Research Grant Participation

1. State Medical Cannabis Laws, Chronic Pain, and Opioids: A Mixed-Methods Approach

   Principal Investigator: Beth McGinty (1R01DA049789)
   Funding Source: National Institutes of Health, National Institute on Drug Abuse
   Role: Investigator

Under Review

1. iHear: Digital Hearing Healthcare Delivery Platform for OTC Hearing Aids

   Principal Investigators: Sumitrajit Dhar and Larry Humes
   Funding Source: National Institutes of Health, National Institute on Deafness and Other Communication Disorders
   Role: Consultant, statistics and trial design
   Submitted: October 2022

Pending Submission

1. Center to Accelerate Translation of Interventions to Decrease Premature Mortality in SMI

   Principal Investigator: Gail L. Daumit
   Funding Source: National Institutes of Health, National Institute of Mental Health
   Role: Project Leader, Methods Core (PI: E.A. Stuart)
   Submission Target: May 2023

Software

1. SMARTsize: A sample size calculator for sequential, multiple-assignment, randomized trials with binary or continuous outcomes in which the primary aim is to compare two embedded dynamic treatment regimes.
   https://nseewald1.shinyapps.io/SMARTsize/

2. MRT-SS Calculator: A sample size calculator for micro-randomized trials in which the primary aim is to detect the proximal effect of providing an intervention.
   https://pengliao.shinyapps.io/mrt-calculator/

Professional Service

Public Training Materials

1. "Building Effective Adaptive Interventions in Mental Health Services Research."
   Johns Hopkins ALACRITY Center for Health and Longevity in Mental Illness
   https://youtube.com/playlist?list=PLj4-nn-p-zv1o-cR9jiITTRfgkwmyqjoD

Media and Outreach

1. "SMART and MRT: Emerging Methods in Public Health", *American Journal of Public Health Podcast*.
   http://bit.ly/3TPzud8

Workshop Design and Facilitation

1. "Introduction to Adaptive Interventions and Sequential Multiple Assignment Randomized Trials"
   - Pre-conference workshop: Society of Behavioral Medicine Annual Meeting, Baltimore, MD. April 6, 2022. *Co-designer and facilitator with Ahnalee Brincks, Ph.D., and Shawna N. Smith, Ph.D.*
2. "Building Just-in-Time Adaptive Interventions."
   - Center for Dissemination and Implementation Science Summer Institute, University of Illinois Chicago. Virtual. October 25-26, 2021. *Small group expert facilitator*.
3. "Using SMART Design in Responsive Survey Design."
   - Responsive Survey Design: A Research Education Program. Institute for Social Research, University of Michigan. June 19, 2019. *Co-designer and facilitator with Ahnalee Brincks, Ph.D.*
4. "Getting SMART about Adaptive Interventions in Education."
   - Institute of Education Sciences-funded training institute at the University of Michigan. March 11-14, 2019. *Co-designer and facilitator with other members of d^{3}lab (d3lab.isr.umich.edu)*.
5. "Getting SMART: Experimental Design and Analysis Methods for Developing Adaptive Interventions"
   - University of California, San Francisco. May 19, 2015. *Co-facilitator with Inbal Nahum-Shani, Ph.D.*
6. "Experimental Design and Analysis Methods for Developing Adaptive Interventions: Getting SMART"
   - Methodology Center Summer Institute. Ann Arbor, MI. June 19-20, 2014. *Small group faciliator*.

Journal Peer Review Activities

American Journal of Epidemiology
American Journal of Public Health
Annals of Applied Statistics
Behavior Research Methods
Frontiers in Digital Health
Journal of the American Statistical Association (Theory and Methods)
Psychological Methods
R Journal
Statistics and Public Policy
Statistics in Medicine
Value in Health

Departmental Service

1. Student Representative, Faculty Diversity, Equity, and Inclusion Committee. Department of Statistics, University of Michigan. AY 2020-2021.
2. Co-Lead, Graduate Student Instructor Foundations Colloquium. Department of Statistics, University of Michigan. AY 2020-2021.
3. Steering Committee Member, Graduate Student Diversity, Equity, and Inclusion Working Group. Department of Statistics, University of Michigan. 2020-2021.

Professional Memberships

American Statistical Association (2015 - present)
- Session Chair, Joint Statistical Meetings (2022)

International Biometrics Society, Eastern North American Region (ENAR) (2015 - present)
Society for Clinical Trials (2015 - present)
Society of Industrial and Applied Mathematics (SIAM) (2020-2021)
Society of Behavioral Medicine (2022 - present)

Professional Development

1. U-M Graduate Teacher Certificate. Rackham Graduate School and Center for Research on Learning and Teaching, University of Michigan. Completed April 2021. crlt.umich.edu/um.gtc
2. Inclusive STEM Teaching Project. Completed December 2020. inclusivestemteaching.org
3. Preparing to Teach: Workshop to prepare graduate students for a role as undergraduate faculty responsible for teaching statistics and data science. May 2020. preparingtoteach.org
4. Professional Development Diversity, Equity, and Inclusion Certificate. Rackham Graduate School, University of Michigan. Completed April 2020. rackham.umich.edu