Updated: 9/25/25

# Daniel Evan Schwartz


**Contact Information**

Massachusetts General Hospital Biostatistics
399 Revolution Drive, Suite 1068
Somerville, MA 02145

https://deschwartz.github.io

dschwartz12@mgh.harvard.edu


**Methodological Interests**

Clinical trials, Bayesian statistics, evidence synthesis, hierarchical modeling, experimental design, statistical computation, causal inference

**Collaborative Interests**

Clinical cancer studies, targeted therapies and personalized medicine, health disparities, risk prediction

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**Current Appointments**

Instructor in Investigation — 2025–Present
Massachussets General Hospital Biostatistics

Instructor in Medicine — 2025–Present
Harvard Medical School

**Previous Appointments**

Postdoctoral Research Fellow — 2022–2025
Department of Biostatistics, Harvard T. H. Chan School of Public Health
Department of Data Science, Dana-Farber Cancer Institute

Advisors: Lorenzo Trippa & Briana Stephenson
Funding: Training Grant in Quantitative Methods for Cancer Research (NIH T32 CA009337)

**Education**

The University of Chicago

Ph.D. in Biostatistics — 2017–2022
Thesis: "Maximizing and Borrowing Information in Randomized Trials"
Minor: Statistical Genetics
Advisor: Yuan Ji

M.S. in Statistics — 2015–2017
Thesis: "Estimation in Multisite Randomized Trials with Heterogeneous Treatment Effects"
Advisors: Matthew Stephens & Stephen Raudenbush

B.A. in Tutorial Studies, with Honors — 2011–2015
Independent major: statistics + education policy
Thesis: "Who Leaves? Predicting User Retention on Khan Academy"
Advisor: Stephen Raudenbush

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PAPERS

* Denotes co-first authors
† Denotes a student

PUBLISHED

**Schwartz, D. E.**, Saha, R.†, Ventz, S., Trippa, L. (2025), "Harmonized Estimation of Subgroup-Specific Treatment Effects in Randomized Trials: The Use of External Control Data," *Journal of the Royal Statistical Society, Series B*, Forthcoming. arXiv:2308.05073, doi:qkaf045

Rudra Gupta, T.*, **Schwartz, D. E.***, Saha, R.†, Wen, P. Y., Rahman, R., Trippa, L. (2025), "Informative Censoring in Externally Controlled Clinical Trials: A Potential Source of Bias," *ESMO Open*, 10(1), 104094.

**Schwartz, D. E.**, Essaoubi, H.†, Trippa, L. (2024), "Clinical trials that leverage external data: Do we need more transparent protocols and statistical plans?" *European Journal of Cancer*, 196, 113443.

Polley, M.-Y., **Schwartz, D. E.**, Karrison, T., Dignam, J. (2024), "Leveraging External Control Data in the Design and Analysis of Neuro-Oncology Trials: Pearls and Perils," *Neuro-Oncology*, 26(5), 796-810.

Raudenbush, S. W., and **Schwartz, D. E.** (2020), "Randomized Experiments in Education, with Implications for Multilevel Causal Inference," *Annual Review of Statistics and Its Application*, 7, 177–208.

Raudenbush, S. W., **Schwartz, D. E.**, McGhee Hassrick, E., and Rosen, L. (2017), "The Impact of Attending an Ambitious Elementary School," in *The Ambitious Elementary School: Its Conception, Design, and Implications for Educational Equality*, 155-168, *University of Chicago Press*.

SUBMITTED

Kotecha, G.*†, **Schwartz, D. E.***, Ventz, S., and Trippa, L. (2025+), "Leveraging external data in the analysis of randomized controlled trials: a comparative analysis," *Invited revision at Statistical Science*. arXiv:2408.13409 (first submission)

**Schwartz, D. E.** and Ji, Y. (2025+), "Dynamic borrowing from historical controls via the synthetic prior with covariates in randomized clinical trials," *Invited revision at Statistics in Medicine*. arXiv:2410.07242

Chabrun, F.*, **Schwartz, D. E.***, Gentile, S.*†, Mai, E. K.*, et al. (2025+) "Enhanced Risk Stratification of Smoldering Multiple Myeloma with Dynamic Biomarkers: A Multinational, Multicenter Study including 2,270 Participants (PANGEA 2.0)," *Under review.*

IN PREPARATION

Gentile, S.†, **Schwartz, D. E.**, Saha, R.†, and Trippa, L., "Fast approximation of the operating characteristics of clinical trials," *In preparation*.

**Schwartz, D. E.** and Ji, Y., "Bayesian Uncertainty-Directed Designs with Model Averaging for Faster and More Informative Dose-Ranging Trials," *In preparation.*

Raudenbush, S. W.* and **Schwartz, D. E.***, "Treatment Effect Estimation in Multisite Trials with Endogenous Designs: Old Estimators, New Results," *In preparation.*

ABSTRACTS

**Schwartz, D. E.***, Chabrun, F.*, Gentile, S.*†, et al. "Improved Risk Stratification of Smoldering Multiple Myeloma (SMM) Using Trajectory Data in the Pangea 2.0 Model: A Multicenter Study in 1,431 Participants," *American Society of Hematology 2024 Annual Meeting*.

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HONORS

Best Dissertation Award, University of Chicago Department of Public Health Sciences, 2023

NIH T32 Postdoctoral Fellowship, Harvard T.H. Chan School of Public Health, 2022–2025

Poster Award, ISBA World Meeting, 2022

Travel Award, ISBA World Meeting, 2022

Student Poster Award, ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop, 2021

Paul Meier Scholar, University of Chicago Department of Public Health Sciences, 2020–2022

Student Paper Award, Joint Statistical Meetings (from the Social Statistics, Government Statistics, and Survey Statistics Sections), 2020

Tuition Scholarship, University of Chicago Department of Statistics, 2016-17

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## Talks and Posters

Massachusetts General Hospital Biostatistics 3/2025
- Invited talk: "Harmonized Estimation of Subgroup-Specific Treatment Effects Using External Control Data"

Memorial Sloan Kettering Cancer Center, Department of Epidemiology & Biostatistics 3/2025
- Invited talk: "Harmonized Estimation of Subgroup-Specific Treatment Effects Using External Control Data"

Joint Statistical Meetings 8/2024
- Contributed talk: "Dynamic Latent Factor Models To Infer Dietary Patterns From Longitudinal Nutrition Survey Data"

International Society for Bayesian Analysis (ISBA) World Meeting 7/2024
- Contributed poster: "Dynamic Latent Factor Models To Infer Dietary Patterns From Longitudinal Nutrition Survey Data"

Joint Statistical Meetings 8/2023
- Contributed talk: "Harmonized Estimation of Subgroup-Specific Treatment Effects using External Control Data"

Joint Statistical Meetings 8/2022
- Contributed talk: "Bayesian Uncertainty-Directed Designs with Delayed Outcomes"

International Society for Bayesian Analysis (ISBA) World Meeting 6/2022
- Contributed poster: "Bayesian Uncertainty-Directed Designs with Delayed Outcomes"

* Poster Award Winner

University of Chicago, Department of Public Health Sciences Seminar 1/2022
- Invited talk: "Adaptive borrowing from historical controls via robust regression on covariates with the SPx model"

SNO/ASCO Annual Conference on CNS Clinical Trials 10/2021
- Contributed talk: "Hybrid Designs for Using External Controls in Phase 3 Glioblastoma Trials"

Design and Analysis of Experiments (DAE) Conference Series 10/2021

- Invited talk: "Bayesian Uncertainty-Directed Designs with Model Averaging for Faster and More Informative Dose-Ranging Trials"
  * With discussion (by Peter Müller)

New England Statistics Symposium 10/2021
- Contributed talk: "Adaptive borrowing from historical controls via robust regression on covariates with the SPx model"

ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop 9/2021
- Contributed poster: "More informative Phase II dose-ranging trials through Bayesian uncertainty-directed designs with model averaging"
  * Poster Award Winner

Bayesian Young Statisticians Meeting (BAYSM) 9/2021
- Contributed talk: "Bayesian Uncertainty-Directed Designs with Model Averaging for More Informative Dose-Ranging Trials"
  * With discussion (by David Rossel)

Joint Statistical Meetings 8/2021
- Contributed talk: "Faster and More Informative Phase 2b Dose-Ranging Trials Through Bayesian Uncertainty-Directed Designs with Model Averaging"

University of Chicago, Workshop on Quantitative Research Methods (QMEHSS) 6/2021
- Invited talk: "Fast and Informative Phase 2b Dose-ranging Trials Using Bayesian Uncertainty-Directed Designs with Model Averaging"

Society for Clinical Trials Annual Meeting 5/2021
- Contributed talk: "Fast and Informative Phase 2b Dose-ranging Trials Using Bayesian Uncertainty-Directed Designs with Model Averaging"

Stat4Onc Annual Symposium 5/2021
- Contributed poster: "Adaptive borrowing from historical controls via robust regression on covariates with the CPx model"

University of Chicago, Department of Public Health Sciences Seminar 11/2020
- Invited talk: "Adaptive borrowing from historical controls via robust regression on covariates with the CPx model"

Joint Statistical Meetings 8/2020
- Contributed talk: "An Overlooked Bias-Variance Tradeoff for Average Treatment Effects in Multisite Randomized Trials"
  * Student Paper Award Winner

University of Chicago, Department of Public Health Sciences Seminar 11/2020
- Invited talk: "Bayesian uncertainty-directed designs with model averaging for more informative Phase 2 dose-ranging trials"

International Chinese Statistical Association Midwest Chapter Meeting 10/2019
- Contributed poster: "More informative Phase II dose-ranging trials through Bayesian uncertainty-directed designs with model averaging"

Joint Statistical Meetings 8/2017
- Contributed talk: "Estimation in Multisite Randomized Trials with Heterogeneous Treatment Ef-

fects"

Atlantic Causal Inference Conference 5/2017
- Contributed Poster: "Estimation in Multisite Randomized Trials with Heterogeneous Treatment Effects"

University of Chicago, Workshop on Quantitative Research Methods (QMEHSS) 2/2017
- Invited talk, joint w/ S.W. Raudenbush: "Estimation in Multisite Randomized Trials with Heterogeneous Treatment Effects"

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## Teaching

**The University of Chicago**

Applied Bayesian Modeling and Inference (STAT 35920), Winter 2021 Grader
- Guest lecture: "RJags and distributed computing for Bayesian computation"
- Invited for repeat guest lecture in Spring 2022
- Gave detailed, useful comments on all homework problems

Multilevel Modeling (PBHS 33400), Fall 2019 TA
- Guest lecture: "Count Outcomes"
- Gave detailed, useful grading comments on all homework problems
- Held weekly office hours

Biostatistical Methods (STAT 22700), Winter 2019 TA
- Guest lecture: "Poisson Regression"
- Gave detailed, useful grading comments on all homework problems
- Held weekly office hours

Hierarchical Linear Models for Multilevel Causal Inference, Summer 2016 TA
- Short course offered by the Society for Research on Educational Effectiveness

## Service

**Harvard T.H. Chan School of Public Health**

Quantitative Methods for Cancer Research Working Group Meeting, 2022–2025
- Organizer and facilitator of weekly seminar series in the Department of Biostatistics
- Speakers are primarily PhD student trainees on NIH T32 training grant, + some faculty speakers

## Mentoring

**Harvard T.H. Chan School of Public Health**

Hannah Essaouabi (high school summer research student, 2023)
- Served as primary day-to-day supervisor
- Project: survey of clinical trials using external data (published in European Journal of Cancer)

Susanna Gentile (visiting PhD student, 2023–2025)
- Assisted with PhD supervision + collaborative work
- Main project: "Fast approximation of the operating characteristics of clinical trials"

Tulika Rudra Gupta (junior postdoctoral fellow, 2023–2025)
- Supervised transition to applied/methodological biostatistics work from theoretical statistics background

– Main project: "Informative Censoring in Externally Controlled Clinical Trials: A Potential Source of Bias"

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**Professional Memberships**

American Statistical Association, International Society for Bayesian Analysis, Society for Clinical Trials, American Society of Clinical Oncology

**Programming**

Statistical Software: R, JAGS, Stan, STATA

Languages: Python, C/C++