CONTACT INFORMATION

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EDUCATION

Harvard T.H. Chan School of Public Health, Boston, MA

PhD, Population Health Sciences — 2021

Field of Study: Epidemiology
Concentration: Epidemiologic Methods
Thesis: Bias bounds and target trials for causal inference in observational epidemiology
Thesis Committee: Miguel Hernán, Tyler VanderWeele, Sonia Hernández-Díaz

MS, Biostatistics — 2021

University of California, Berkeley, Berkeley, CA

MS, Epidemiology — 2016

Brown University, Providence, RI

BA, Comparative Literature and Community Health — 2011

AWARDS

Harvard Epidemiology Teaching Assistant Award	2020
Winner, Harvard Epidemiology Student Podcast Competition	2020
Bok Center Certificate of Distinction in Teaching (×3)	2017, 2018, 2019
Runner-up, Harvard T.H. Chan School Poster Day	2019
Ralph & June Catalano Award Scholarship	2015
Reshetko Scholarship	2014
U.C. Berkeley Graduate Division Block Grant	2014
Phi Beta Kappa	2011
Magna cum laude; Brown University departmental honors	2011
C.V. Starr Fellowship for Public Service	2008

PUBLICATIONS

[1] **Smith LH**, Mathur MB, VanderWeele TJ. Multiple-bias sensitivity analysis using bounds. *Epidemiology*. 2021;32(5). *Pre-print available*.

[2] **Smith LH**, Schwartz GL. Mediating to opportunity: The challenges of translating mediation estimands into policy recommendations (commentary). *Epidemiology*. 2021;32(3). doi:10.1097/ede.0000000000001335.

[3] **Smith LH**. Selection mechanisms and their consequences: Understanding and addressing selection bias. *Current Epidemiology Reports*. 2020;7(4). doi:10.1007/s40471-020-00241-6.

[4] Farland LV, Correia KFB, Dodge LE, Modest AM, Williams PL, **Smith LH**, Toth TL, Hacker MR, Missmer SA. The importance of mediation in reproductive health studies. *Human Reproduction*. 2020;36(6). doi:10.1093/humrep/deaa064.

[5] **Smith LH**, VanderWeele TJ. Simple sensitivity analysis for control selection bias (research letter). *Epidemiology*. 2020;31(5). doi:10.1097/ede.0000000000001207.

[6] **Smith LH**, VanderWeele TJ. Mediational E-values: Approximate sensitivity analysis for unmeasured mediator-outcome confounding. *Epidemiology*. 2019;30(6):835–7. doi:10.1097/ede.0000000000001064.

[7] **Smith LH**, VanderWeele TJ. Bounding bias due to selection. *Epidemiology*. 2019;30(4):509–16. doi:10.1097/ede.0000000000001032.

[8] Deardorff J, **Smith LH**, Petito L, Kim H, Abrams BF. Maternal prepregnancy weight and children's behavioral and emotional outcomes. *American Journal of Preventive Medicine*. 2017;53(4):432–40. doi:10.1016/j.amepre.2017.05.013.

[9] Cohen AK, Richards T, Allen BL, Ferrier Y, Lees J, **Smith LH**. Health issues in the industrial port zone of Marseille, France: the Fos EPSEAL community-based cross-sectional survey. *Journal of Public Health*. 2017;26(2):235–43. doi:10.1007/s10389-017-0857-5.

In Progress / Submitted

Smith LH, Dollinger C, VanderWeele TJ, Wyszynski DF, Hernández-Díaz S. Timing and severity of COVID-19 during pregnancy and the risk of preterm birth in the International Registry of Coronavirus Exposure in Pregnancy.

Smith LH, García-Albéniz X, Chan JM, Hernán MA. Emulation of a target trial with sustained treatment strategies: An application to prostate cancer using both inverse probability weighting and the g-formula.

Mathur MB, **Smith LH**, Yoshida K, Ding P, VanderWeele TJ. E-values for effect modification and conservative approximations for causal interaction. *Pre-print available.*

Hernández-Díaz S, **Smith LH**, Dollinger C, Schisterman E, Bellocco R, Wyszynski DF. International Registry of Coronavirus Exposure in Pregnancy (IRCEP) – Cohort description and methodological considerations.

Modest AM, **Smith LH**, Toth TL, Collier AY, Hacker MR. Multifetal gestations mediate the effect of in vitro fertilization (IVF) on ischemic placental disease in autologous oocyte IVF more than donor oocyte IVF. *Abstract available.*

Ramjee D, **Smith LH**, Doanvo A, McNulty A, Charpignon ML, Desai AN, Majumder MS. Understanding criminal justice reform during COVID-19: The need for a novel sentiment analysis package. *Pre-print available.*

Conference/ Seminar Presentations & Workshops

Multiple-bias sensitivity analysis using bounds. Joint Statistical Meetings (JSM). August 9, 2021 (planned). *Invited Paper.*

COVID-19 and preterm birth: Understanding the relationship. Society for Pediatric and Perinatal Epidemiologic Research (SPER). June 16, 2021. *Speed Talk Session.*

Challenges in estimating effects of COVID-19 on preterm birth. Society for Epidemiologic Research (SER). June 23, 2021. *Oral Abstract Session.*

E-values, unmeasured confounding, measurement error, and selection bias. Society for Epidemiologic Research (SER). June 18, 2019; December 11, 2020; May 21, 2021. *Online Pre-Conference Workshop, with Tyler VanderWeele / Maya Mathur.*

Simple sensitivity analysis for selection bias using bounds. 13th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics). December 19, 2020. *Invited Talk for an Organized Session.*

Discussion of "Selection Bias in 2020". Online Causal Inference Seminar. December 8, 2020. *Invited Discussant.*

Simple sensitivity analysis for selection bias. Society for Epidemiologic Research (SER). Minneapolis, MN, June 20, 2019. *Concurrent Contributed Session Oral Presentation.*

Invited Talks & Guest Lectures

SBS 245: Social and Behavioral Research Methods, Harvard T.H. Chan School of Public Health. December 4, 2020.

"The Magic of R." Master of Food and Resource Economics Program, University of British Columbia. August 20, 2020.

"Data Manipulation in R"; "Data Gets Personal." Maine Medical Center R User Group. July 14, 2020.

MPH 677: Regression Models in the Health Sciences, University of Southern Maine. April 14, 2020.

"Data Gets Personal." RLadies Boston, January 29, 2020.

"Simple Sensitivity Analysis for Selection Bias." Koenen trauma epidemiology research group, Harvard T.H. Chan School of Public Health. December 4, 2019.

"Simple Sensitivity Analysis for Selection Bias." Department of Medical Epidemiology and Biostatistics student seminar, Karolinksa Institute. November 12, 2019.

"Simple Sensitivity Analysis for Selection Bias." Monthly methods call, Vaccine Safety Datalink. September 12, 2019.

PHTH 5202: Epidemiology, Northeastern University. September 26 & October 10, 2017.

Posters

[1] **Smith LH**, Zaidi J. Identifying direct effects of in vitro fertilization on placental disease. Harvard T.H. Chan School of Public Health Poster Day. Boston, MA, April 25, 2019. *Runner-up: Best graduate student poster.*

[2] **Smith LH**, Deardorff J, Petito L, Kim H, & Abrams BF. Maternal prepregnancy weight and children's behavioral and emotional outcomes. Society For Research in Child Development (SCRD). Austin, TX, April 8, 2017.

[3] **Smith LH**, Petito L, Cohen A, Deardorff J, & Abrams B. Gestational weight gain and math and reading achievement among U.S. children. Society for Pediatric and Perinatal Epidemiologic Research (SPER). Miami, FL, June 20, 2016.

Software & Online Tools

[1] **Smith LH**. Simple sensitivity analysis for selection bias. *Online tool available at http://selection-bias.louisahsmith.com.*

[2] Mathur MB, **Smith LH**, Ding P, VanderWeele TJ. EValue: Sensitivity Analyses for Unmeasured Confounding or Selection Bias in Observational Studies and Meta-Analyses. *R Package.*

[3] **Smith LH**. PHS Summer Prep. *Online introduction to R, probability, and statistics for incoming PhD students available at bit.ly/phs-prep.*

Teaching Experience

Harvard T. H. Chan School of Public Health, Boston, MA

EPI 207: Advanced Epidemiologic Methods (head teaching fellow) Fall 2018–2020

- Required course for epidemiology PhD students
- Causal inference for time-varying exposures: g-formula, inverse-probability weighting, marginal structural models, static and dynamic treatment regimes

BST 256: Theory and Methods for Causality I (teaching fellow) Fall 2020

- Advanced course in causal inference for biostatistics and epidemiology PhD students
- Graphical models and algorithms for causal identification

Introduction to R (instructor) Fall 2019, Summer 2020

- Quarter-long course to help epidemiology graduate students develop data management and analysis skills in R
- Developed course materials to scaffold new R concepts (intro-to-R-2020.louisahsmith.com)
- Graphics, manipulating data, writing functions

Introduction to Epidemiology (co-instructor) Summer 2019–2020

- Short course for undergraduate students in the Summer Program in Biostatistics & Computational Biology
- Epidemiologic thinking and causal inference, study design, biases

PHS 2000: Quantitative Research Methods (teaching fellow) Fall 2017, 2019; Spring 2018

- Year-long required course for first-year PhD students
- Created supplementary materials for summer preparation (bit.ly/phs-prep) and learning R programming (bit.ly/R-OH)
- Regression models, sampling, longitudinal and multilevel analysis, time-varying confounding, mediation and interaction, econometric methods, missing data

University of California, Berkeley, Berkeley, CA

Graduate Student Instructor

PH 150A: Introduction to Epidemiology and Human Disease Spring 2016

- Advanced undergraduate course
- Basic epidemiologic methods, overview of epidemiology of diseases/conditions of public health importance

PH 250A: Epidemiologic Methods Fall 2015

- Introductory graduate-level course
- Study design, sampling, data collection, analysis, inference

Other

Ad-hoc reviewer: *American Journal of Epidemiology*, *Biometrika*, *Epidemiologic Reviews*, *Epidemiology*, *International Journal of Epidemiology*, *Journal of Causal Inference*, *Journal of Epidemiology*, *Paediatric and Perinatal Epidemiology*
Member, Society for Epidemiologic Research (SER), SER Education Committee
Member, Society for Perinatal Epidemiologic Research (SPER)
Member, American Statistical Society (ASA)
Tutor, Departments of Epidemiology, Biostatistics, Population Health Sciences
Co-chair, Harvard T.H. Chan Student Epidemiologic Methods Forum
Co-chair, John Graunt Society (Harvard epidemiology doctoral student group)

Other Professional Experience

Little Wound School, Kyle, SD
Elementary school teacher 2011 – 2014

- 3rd grade teacher of 10-20 students
- Taught reading, writing, math, science, social studies
- Lesson planning, curriculum mapping, analysis of student progress