
ACADEMIC APPOINTMENTS

Massachusetts General Hospital, Boston, MA

Associate Investigator, Medical Practice Evaluation Center

July 2023 – Present

EDUCATION

Harvard University, Cambridge, MA

PhD, Health Policy (Decision Science Concentration)

May 2023

Dissertation Title: Accounting for Heterogeneity in Health Decision Analysis

Dissertation Committee: Ankur Pandya (Chair), Michael Chernew,
Nicolas Menzies, Karen Sepucha

University of Connecticut, Storrs, CT

MA, Economics

May 2016

BA, Economics; BS, Biological Sciences

May 2016

Honors: University Scholar and Magna Cum Laude

JOURNAL ARTICLES

Dong S, Jutkowitz E, **Giardina J**, Bilinski A. Screening Strategies to Reduce COVID-19 Mortality in Nursing Homes. *JAMA Health Forum*. 2024;5(4):e240688.

Glynn D, **Giardina J**, Hatamyar J, Pandya A, Soares M, Kreif N. Integrating decision modeling and machine learning to inform treatment stratification. *Health Economics*. 2024.

Bilinski A, Ciaranello A, Fitzpatrick MC, **Giardina J**, Shah M, Salomon JA, Kendall EA. Estimated Transmission Outcomes and Costs of SARS-CoV-2 Diagnostic Testing, Screening, and Surveillance Strategies Among a Simulated Population of Primary School Students. *JAMA Pediatrics*. 2022;176(7):679-689.

Giardina J, Bilinski A, Fitzpatrick MC, Kendall EA, Linas BP, Salomon J, Ciaranello AL. Model-estimated association between simulated US elementary school-related SARS-CoV2 transmission, mitigation intervention, and vaccine coverage across local incidence levels. *JAMA Network Open*. 2022;5(2): e2147827.

Valentine KD, Cha T, **Giardina J**, Marques F, Atlas SJ, Bedair H, Chen AF, Doorly T, Kang J, Leavitt L, Licurse A, O'Brien T, Sequist T, Sepucha K. Assessing the quality of shared decision making for elective orthopedic surgery across a large healthcare system: cross-sectional survey study. *BMC Musculoskeletal Disorders*. 2021;22(1):1-10.

Aladelokun O, Hanley M, Mu J, **Giardina J**, Rosenberg DW, Giardina C. Fatty acid metabolism and colon cancer protection by dietary methyl donor restriction. *Metabolomics*. 2021;17(9):1-11.

JOURNAL ARTICLES

(Continued)

Bilinski A, Salomon JA, **Giardina J**, Ciaranello A, Fitzpatrick MC. Passing the test: a model-based analysis of safe school-reopening strategies. *Annals of Internal Medicine*. 2021;174(8):1090-1100.

Giardina J, Cha T, Atlas SJ, Barry MJ, Freiberg AA, Leavitt L, Marques F, Sepucha K. Validation of an electronic coding algorithm to identify the primary indication of orthopedic surgeries from administrative data. *BMC Medical Informatics and Decision Making*. 2020;20(1):1-10.

PRE-PRINTS/WORKING PAPERS

COVID-19 Statistics, Policy modeling and Epidemiology Collective (C-SPEC). Defining high-value information for COVID-19 decision-making. *medRxiv* 2020.04.06.20052506 (2020).

CONFERENCE PRESENTATIONS

Giardina J, Pandya A. Evaluating the use of Heterogeneous Treatment Effects to Personalize Blood Pressure Treatment Decisions. Oral presentation at: INFORMS Healthcare Conference 2023; July, 2023; Toronto, ON.

Giardina J, Pandya A. Impact of Variation in Health Objectives on the Potential for Personalized Blood Pressure Control. Oral presentation at: 44th Annual North American Meeting of the Society for Medical Decision Making; October, 2022; Seattle, WA.

**Lusted Award Winner, Health Services, Outcomes and Policy Research*

Giardina J, Alemayehu N, Haneuse S, Pandya A. Bayesian Joint Prediction of Risk Factor Trajectories and Disease Incidence in Microsimulation Models: An Application to Ischemic Stroke. Oral presentation at: 44th Annual North American Meeting for the Society for Medical Decision Making; October, 2022; Seattle, WA.

**Lusted Award Winner, Quantitative Methods and Theoretical Developments*

Glynn D, **Giardina J**, Hatamyar J, Pandya A, Kreif N. Integrating Machine Learning Estimates of Heterogeneous Treatment Effects and Decision Modelling. Oral presentation at: 44th Annual North American Meeting of the Society for Medical Decision Making; October, 2022; Seattle, WA.

Bilinski AM, Ciaranello AL, Fitzpatrick MC, **Giardina J**, Shah M, Salomon J, Kendall EA. Asymptomatic COVID-19 screening tests to facilitate full-time school attendance: model-based analysis of cost and impact. Oral presentation at: 43rd Annual North American Meeting of the Society for Medical Decision Making; October 2021; Virtual Conference.

Giardina J, Pandya A, Bedair H, Sepucha K. Estimation of the Effect of Decision Aids on Health Outcomes for Orthopedic Surgery in the Presence of Patient-level Heterogeneity. Poster presentation at: 42nd Annual North American Meeting of the Society for Medical Decision Making; October 2020; Virtual Conference.

Sepucha K, Cha T, Marques F, Valentine KD, Leavitt L, Licurse A, **Giardina J**, Atlas S, Partners Healthcare System Orthopedics and Neurosurgery Collaborative. Measuring the quality of decisions for elective orthopedic procedures across a large healthcare system. Oral presentation at: 41st Annual North American Meeting of the Society for Medical Decision Making; October, 2019; Portland, OR.

Giardina J, Cha T, Atlas S, Barry M, Freiberg A, Leavitt L, Marques F, Sepucha S. Development and Validation of an Electronic Coding Algorithm to Identify Elective Orthopedic Surgeries from Administrative Claims Data and Electronic Medical Records. Poster presentation at: 41st Annual North American Meeting of the Society for Medical Decision Making; October, 2019; Portland, OR.

INVITED LECTURES AND SEMINARS

“Approaches to Adaptable and Robust Simulation Modeling”

Guest Lecture for *Methods and Applied Research in Decision Analysis* (instructor, Jinyi Zhu), Vanderbilt University; Nashville, TN; March, 2024 [Virtual]

Guest Lecture for *Advanced Topics in Decision-Analytic Modeling for Health* (instructor, W. Alton Russell), McGill University; Montreal, QC; November, 2023 [Virtual]

“Can We Personalize Blood Pressure Treatment Decisions Using Heterogeneous Treatment Effects?”

Center for Value-Based Care Research & Center for Population Health Research, Cleveland Clinic; Cleveland, OH; June, 2023 [Virtual]

“Building Personalized Policies: Leveraging Individual-Level Data to Improve Health Decision Analysis”

Department of Health Policy and Management, University of Pittsburgh School of Public Health; Pittsburgh, PA; February, 2023

Center for the Evaluation of Value and Risk in Health, Tufts Medical Center; Boston, MA; February, 2023

Medical Practice Evaluation Center, Massachusetts General Hospital; Boston, MA; January, 2023

SCHOLARSHIPS, GRANTS, AND AWARDS

Lee B. Lusted Student Prize: Stephen Pauker Award for Outstanding Presentation in Quantitative Methods and Theoretical Developments, Society for Medical Decision Making October 2022

Lee B. Lusted Student Prize: Bruce Schackman Award for Outstanding Presentation in Health Services, Outcomes, and Policy Research, Society for Medical Decision Making October 2022

Dissertation Completion Fellowship, Harvard University Fall 2022-Spring 2023

Machine Learning in Economics Summer Institute, Funded Participant, Center for Applied Artificial Intelligence, University of Chicago August 2022

Howard Raiffa Teaching Grant, Harvard University Summer 2020-Winter 2021

Predocorial Fellowship, T32 AHRQ Training Grant Fall 2019-Summer 2020

Graduate Society Summer Predissertation Fellowship, Harvard University Summer 2019

General Qualifying Examination, High Pass, Harvard Health Policy PhD Program June 2019

TEACHING EXPERIENCE

All Teaching Experience is at Harvard University

Decision Science for Public Health (RDS 202) Spring 2019-2021

Professors: Sue Goldie and Eve Wittenberg

Head Teaching Fellow (2020), Teaching Fellow (2021, 2019)

TEACHING EXPERIENCE

(Continued)

Decision Analysis for Health and Medical Practices (RDS 280)

Fall 2019-2020

Professor: Ankur Pandya

Head Teaching Fellow (2020), Teaching Fellow (2019)

Decision Analysis Methods in Public Health and Medicine (RDS 285)

Spring 2019

Professor: Nicolas Menzies

Teaching Fellow

Why is There No Cure for Health? (GENED 1079)

Fall 2019

Professor: David Cutler

Teaching Fellow

RESEARCH-IN-PROGRESS

***Lead Researcher**

“Can using heterogeneous treatment effects improve blood pressure treatment decisions?” with Ankur Pandya*

Intensive blood pressure control reduces the risk of cardiovascular events but can have serious adverse events, requires more frequent physician visits, and increases costs. Recent research has estimated heterogeneous treatment effects (HTEs) from intensive treatment with the goal of identifying which patients will benefit the most from intensive care, but this work has not evaluated whether using HTEs to make decisions would lead to improved outcomes. In this study, we assess the use of HTEs within a decision analytic framework, and estimate the value gained from individualizing care using HTEs across a range of decision objectives. We find that HTEs estimated with machine learning-based methods would only improve outcomes in a particular set of circumstances, and in most cases are not precise enough to successfully personalize blood pressure treatment decisions.

“Bayesian Joint Prediction of Risk Factor Trajectories and Disease Incidence in Microsimulation Models,” with Ankur Pandya, Nathaniel Alemayehu, and Sebastien Haneuse*

Microsimulation decision models often simulate disease incidence as a function of risk factors that evolve over time (e.g., blood pressure increasing with age). Existing models, however, typically rely on incidence rates estimated with standard survival analysis techniques, which make implausible assumptions about how risk factors change over time and could lead to biased results. To overcome these limitations, we apply a Bayesian approach that jointly estimates longitudinal risk factor trajectories and disease incidence, leading to more accurate and reliable risk prediction for microsimulation models, especially for models evaluating policies that depend on dynamic risk factors.

“Accounting for Self-Selection When Using Randomized Controlled Trials to Inform Policy Decisions and Clinical Practice Guidelines,” with Ankur Pandya*

Health policy decisions and clinical practice guidelines (CPGs) are often based on the average results of randomized controlled trials. This approach implicitly assumes that the self-selection into treatment encouraged by the policies or guidelines is either the same as the RCT or is not correlated with heterogeneous treatment effects. In many cases this is likely not true, especially when scaling interventions from a small trial, as individuals who self-select into treatment may be more or less likely to benefit from treatment than those who do not. We apply recent advances in instrumental variable analysis to estimate bounds on the variation in treatment effects as a function of the propensity to self-select into treatment and use decision modeling to assess the value of policies and CPGs that increase or decrease treatment uptake given the existence of these heterogeneous effects.

OTHER WORK EXPERIENCE

SHIELD Stroke Modeling Team, Harvard T.H. Chan School of Public Health August 2019-June 2023
Research Assistant

Health Decision Science Center, Massachusetts General Hospital May 2018-August 2019
Research Assistant

**Institute for Collaboration on Health, Intervention, and Policy (InCHIP),
University of Connecticut** May 2016-August 2017
Research Technician

PROFESSIONAL MEMBERSHIPS, AFFILIATIONS, AND SERVICE

**Affiliated Faculty, Center for Health Decision Science,
Harvard T.H. Chan School of Public Health** July 2023-Present

Statistical Reviewer, JAMA Network Open July 2023-Present

Member, Society for Medical Decision Making October 2021-Present

Ad-hoc peer reviewer: JAMA Network Open, Medical Decision Making, Journal of the International AIDS Society, American Journal of Clinical Nutrition, Open Forum Infectious Diseases, Healthcare: The Journal of Delivery Science and Innovation, Osteoarthritis and Cartilage Open, PLOS One, Journal of Public Health

MEDIA COVERAGE

Wu KJ. The Biden Administration Killed America's Collective Pandemic Approach. *The Atlantic*. March 2, 2022. <https://www.theatlantic.com/health/archive/2022/03/covid-cdc-guidelines-masks/623337/>

Hazlett A. Masking Rollbacks May Create More Disruptions For Our Kids, Experts Say. *Romper*. March 2, 2022. <https://www.romper.com/life/cdc-masking-mandate-rollbacks-schools-kids>

Radcliffe S. California, New York, and Other States to End School Mask Mandates After CDC Relaxes Guidance. *Healthline*. February 27, 2022. <https://www.healthline.com/health-news/cdc-relaxes-mask-guidance-as-covid-19-cases-wane>

Lehrer-Small A. As Two Big States Eye Unmasking in Schools, a Pair of Studies Lay Out the Number of Cases That Could Trigger. *The 74*. February 22, 2022. <https://www.the74million.org/article/as-two-big-states-eye-unmasking-in-schools-a-pair-of-studies-lay-out-the-number-of-cases-that-could-trigger/>

Melwert J. New report analyzes classroom masking models to help school boards make informed decisions. *KYW Newsradio*. February 21, 2022. <https://www.audacy.com/kywnewsradio/news/local/jama-report-school-models-masking-massachusetts-general-hospital>

Godoy M. The science on masking in schools. *National Public Radio*. February 18, 2022. <https://www.npr.org/2022/02/18/1081872139/the-science-on-masking-in-schools>

Lyn S. CBS News On the Hour. *CBS News Radio*. February 16, 2022.