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## **EDUCATION**

### **University of Pittsburgh | Pittsburgh, PA | Expected Graduation August 2025**

- Doctor of Philosophy in Health Services Research and Policy
- Dissertation: Evaluating Provider-Level Interventions to Increase Willingness to Prescribe Buprenorphine as Medication for Opioid Use Disorder
- Supervisor: Dr. Mark S. Roberts

### **University of Exeter | Exeter, England | September 2022**

- Master of Science in Applied Data Science and Statistics (with Distinction)
- Master's thesis: Comparing Biologic Treatment Options for Severe Asthma Using Discrete Event Simulation
- Supervisors: Drs. GJ Melendez-Torres and Mark Kelson

### **Boston University | Boston, MA | May 2020**

- Bachelor of Arts in Pure and Applied Mathematics

## **RESEARCH AND WORK EXPERIENCE**

### **Summer Associate | RAND Corporation | Pittsburgh, PA | Summer May 2025 – August 2025**

- Incoming summer 2025 associate working with Drs. Bradley Stein and Beth Ann Griffin.

### **Graduate Student Researcher | Public Health Dynamics Laboratory | Pittsburgh, PA | August 2022 – Present** *Lab focused on improving public health by developing computational methods and using the Framework for Reconstructing Epidemiological Dynamics (FRED) platform to build agent-based simulation models.*

- Utilizing mixed methods to conduct research on improving treatment initiation for opioid use disorder and decreasing opioid-related mortality by increasing education and support for providers.
- Contributing to the CDC-funded project *Advancing Analytics to Improve Actionable Changes in the Opioid Overdose Epidemic – Phase II*.
  - Collected data and on risk factors around developing opioid use disorder to inform simulation model construction.
  - Collaborating with the industrial engineering department to optimize and calibrate the model.

### **Master's Student Researcher | Peninsula Technology Assessment Group | Exeter, England | March 2022 – July 2022** *A group of researchers who conduct health technology assessments to help shape health policy in England and Wales.*

- Contributed to the Tezepelumab health technology assessment by verifying costing data used in the company's model with appraisals from the National Institute for Health and Care Excellence.

### **Clinical Research Assistant | Division of Digital Psychiatry at Beth Israel Deaconess Medical Center | Boston, MA | September 2020 – August 2021**

*Research group improving the treatment of mental illness using LAMP, a digital psychiatry software.*

- Directed a consortium of over 50 different sites around the world using LAMP by providing technical support helping sites to deploy and use LAMP to its full capacity.
- Supported LAMP users by creating both clinical and technical documentation, individual training sessions, hosting bimonthly webinars and newsletters, and managing an online forum.
- Performed data analysis in Python and R to identify trends in functionality of 278 mental health apps.
- Designed a new bug tracking system to increase efficiency with which issues in LAMP were assigned and resolved.

### **Business Intelligence Analyst | Brio Systems | Boston, MA | August 2020 - March 2021** *COVID-19 testing platform providing fast access to lab-backed PCR and antibody testing.*

- Produced visualizations and dashboards from multiple data streams using Amazon QuickSight to provide key metrics to the sales, product, and operations teams.
- Worked with the company's executives to identify pressing errors in their COVID-19 testing process by creating an analysis tool to identify and categorize errors in the collection of samples and distribution of over 100,000 test results.

### **Mathematical Modeling Intern | June 2020 – August 2020**

- Built a variant of the basic SEIR epidemiological model to increase the accuracy of a COVID-19 surveillance program and predict the market for Brio's COVID-19 tests.

## **PUBLICATIONS**

Bilden, R.C., Roberts, M.S., Stein, B.D., & Jones, D.B. (2024). Examining Impact of Eliminating the X Waiver on Buprenorphine Dispensation in 63 Counties in Pennsylvania. *Substance Use and Addiction Journal*.

Bilden, R.C., Kumar, P., & Roberts, M.S. Evaluation and Replication of a Social Contagion Component of Opioid Use Disorder using Agent-Based Simulation Modeling. *Under Review*.

Singh, Y., Cantor, J., Whaley, C., Shuey, B., Bilden, R.C., & Donahoe, T. Private Equity Acquisitions of Opioid Treatment Programs and Methadone Access. Health Affairs Invited Manuscript. *In Preparation*.

Bilden, R.C., Mandell, A., Overbey, T., Douaihy, A.B., Roberts, M.S., & Kumar, P. A Synthesis of Risk Factors Associated with Opioid Use Disorder. *In Preparation*.

Bilden, R.C., & Torous, J. (2022). Global Collaboration Around Digital Mental Health: The LAMP Consortium. *Journal of Technology in Behavioral Science*, 1-7.

Lagan, S., D'Mello, R., Vaidyam, A., Bilden, R.C., & Torous, J. (2021). Assessing Mental Health Apps Marketplaces with Objective Metrics from 29,190 Data Points from 278 Apps. *Acta Psychiatrica Scandinavica*.

## **PRESENTATIONS**

Bilden, R.C., Roberts, M.S., Stein, B.D., & Jones, D.B. "Using Causal Inference and Agent-Based Simulation to Examine the Elimination of the X Waiver," Society for Medical Decision Making. Poster Presentation. Boston, MA. October 2024.

Bilden, R.C., Roberts, M.S., & Lamperski, J. "Applying Optimization-Based Calibration to Compare Provider Willingness to Prescribe Buprenorphine Across Pennsylvania," Society for Medical Decision Making. Poster Presentation. Boston, MA. October 2024.

Bilden, R.C., Roberts, Mark S., & Savitz, L. "Exploring Interventions to Increase Provider Willingness to Prescribe Medication for Opioid Use Disorder," Addiction Health Services Research. Poster Presentation. San Francisco, CA. October 2024.

Bilden, R.C., Roberts, M.S., & Jones, D.B. "Examining Impact of Eliminating the X Waiver on Buprenorphine Dispensation in 63 Counties in Pennsylvania," AcademyHealth Annual Research Meeting. Poster Presentation. Baltimore, MD. June 2024.

Bilden, R.C. "Examining Barriers to Buprenorphine Treatment for OUD: X Waiver Elimination and Increasing Support and Education for Providers," Pitt Public Health Dean's Day. Poster Presentation. Pittsburgh, PA. April 2024.

Bilden, R.C., Kumar, P., & Roberts, M.S. "Evaluating the Social Contagious Component of Opioid Use Disorder," Models of Infectious Disease Agent Study. Oral and Poster Presentation. Atlanta, GA. October 2023.

Bilden, R.C., Kumar, P., & Roberts, M.S. "Agent-Based Simulation Replication of Opioid Overdose Patterns Using a Contagion Factor of Opioid Use Disorder," Society for Medical Decision Making. Oral Presentation. Philadelphia, PA. October 2023.

Eskandari, H., Lamperski, J., Kumar, P., Bilden, R.C., Mandell, A., Overbey, T., Krauland, M.G., Nataraj, N., Rikard, M., Zhang, K., and Roberts, M.S. A new optimization-based method for calibrating complex disease models. Society for Medical Decision Making. Poster Presentation. Philadelphia, PA. October 2023.

Bilden, R.C., Kumar, P., & Roberts, M.S. "Examining Barriers to Buprenorphine Treatment for OUD: X Waiver Elimination and Increasing Support and Education for Providers," Addiction Health Services Research. Oral Presentation. New York City, NY. October 2023.

## **AWARDS & AFFILIATIONS**

Center for Public Health Practice Award for Translation and Application of Research to Public Health Policy and Practice Winner, Pitt Public Health Dean's Day, April 2024.

AcademyHealth | Member | Washington, D.C. | July 2023 – Present

- Mental Health and Substance Use Research Interest Group Advisory Committee | 2024-2025
- University of Pittsburgh Student Chapter | Cofounder o President | May 2024 – Present
  - o Vice President | December 2023 – May 2024

Society for Medical Decision Making | Albany, NY | September 2023 – Present

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- Member | September 2023 – Present
- Career Development Committee Member | August 2024 – Present

Frédéric Bastiat Fellow (\$5,000) | Mercatus Center | Arlington, VA | September 2023 – July 2024

International Network on Health and Hepatitis in Substance Users | Member | Barangaroo, Australia | October 2024 – Present

Lusted Award Finalist, Quantitative Methods and Theoretical Developments, 45<sup>th</sup> Annual Meeting of the Society of Medical Decision Making, October 2023.

Models of Infectious Disease Agent Study Network | Member | Pittsburgh, PA | July 2023 – Present

