

# Samantha Dean, PhD

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## EDUCATION

**Yale University**, New Haven, CT, 2020-2024

**Degree:** PhD, Biostatistics; MPhil, Biostatistics

**Dissertation:** Causal Inference for Effects of Interventions in Groups

**Honors and Awards:** National Science Foundation Graduate Research Fellow

**The University of Chicago**, Chicago, IL, 2014-2018

**Degree:** BA, Statistics with Honors

**Honors and Awards:** Dean's List, UCISTEM Summer Research Grant, College Research Scholar Grant

## SKILLS

**Software:** Experienced with R, Python for data science and machine learning/AI, SQL, Tableau, command line tools for HPC and Git

**Communication:** Writing, developing deliverables, and presenting for technical and non-technical audiences, data visualization

**Collaboration:** Project management, mentorship, statistical consulting

## WORK EXPERIENCE

**Prevention Effectiveness Fellow, CDC Influenza Division, August 2024 - present**

- Federal postdoc fellowship with Analytics and Modeling Track, Mathematical Statistician series
- Led projects on household transmission, vaccine effectiveness, and antiviral effectiveness
- Provided internal statistical consultations on machine learning and causal inference methods

**Statistical Consultant, Yale University StatLab, Aug 2022 - May 2024**

- Provided statistical expertise, guidance, and troubleshooting to students, researchers, and faculty for projects covering study design, implementing machine learning algorithms, data visualization, complex survey analysis, and more

**Graduate Researcher, Yale University, Sep 2020 - June 2024**

- Developed advanced statistical methods to estimate causal effects in certain settings of heterogeneous treatment spillover, with Prof. Laura Forastiere
- Applied causal inference methods to estimate COVID-19 vaccine effectiveness under time-varying confounding, with Prof. Forrest Crawford and the CT Department of Public Health
- Developed weekly deliverables for the CT Department of Public Health to monitor the initial COVID-19 vaccine rollout in the state
- Contributed to work assessing the relationship between human mobility and COVID-19 using cell phone-derived mobility metrics, published in *Science Advances*

**Postbac, Intramural Research Training Award, National Institutes of Health, June 2019 - July 2020**

- Used large electronic health record relational database to study trends in testing for nontuberculous mycobacterial disease, published in *Emerging Infectious Diseases*
- Implemented stochastic and deterministic methodologies for modeling infectious disease outbreaks

**Analyst, IPG Mediabrands, August 2018 - April 2019**

- Employed supervised learning methodologies for high dimension datasets in Python and R
- Forecasted demand metrics using time series and machine learning regression in R
- Improved team workflow by automating key quality control processes
- Created client-ready data visualizations in Tableau and presented quantitative findings to technical and non-technical audiences

## PUBLICATIONS and PRESENTATIONS

### Publications

- **Dean S**, Blakney R, Ricotta EE, Chalmers J, Kadri S, Olivier KN. Bronchiectasis-associated infections and outcomes in a large, geographically diverse electronic health record cohort in the United States. *BMC Pulmonary Medicine*, 2024. <https://doi.org/10.1186/s12890-024-02973-3>
- Blakney RA, Ricotta EE, Daida YG, Frankland TB, Honda S, Zelazny A, **Dean SG**, Follmann D, Olivier KN, Prevots DR. Incidence of Nontuberculous Mycobacterial Pulmonary Infection, by Ethnic Group, Hawaii, USA, 2005–2019. *Emerging Infectious Diseases*, 2022. <https://doi.org/10.1126/sciadv.abi5499>
- Crawford FW, Jones SA, Cartter M, **Dean SG**, Warren JL, Li ZR, et al. Impact of close interpersonal contact on COVID-19 incidence: evidence from one year of mobile device data. *Science Advances*, 2022. <https://doi.org/10.1101/2021.03.10.21253282>
- **Dean SG**, Ricotta EE, Fintzi J, Lai YL, Kadri SS, Olivier KN, Zelazny A, Prevots DR. Mycobacterial Testing Trends in the United States, 2009-2015. *Emerging Infectious Diseases*, 2020. <https://dx.doi.org/10.3201/eid2609.200749>
- Pierce BL, Tong L, **Dean S**, Argos M, Jasmine F, Rakibuz-Zaman M, Sarwar G, Islam MT, Shahriar H et al. A missense variant in FTCD affects arsenic metabolism and toxicity among arsenic-exposed individuals in Bangladesh. *PLOS Genetics*, 2019. <https://doi.org/10.1371/journal.pgen.1007984>
- **Dean SG**, Zhang C, Gao J, Roy S, Shinkle J, Sabarinathan M, Argos M, Tong L, Ahmed A, Islam MT, Islam T, Rakibuz-Zaman M, Sarwar G, et al. The association between telomere length and mortality in Bangladesh. *Aging (Albany NY)*, 2017. <https://doi.org/10.18632/aging.101246>

### Presentations

- Effective treatment allocation strategies conditional on individuals' characteristics under partial interference in randomized experiments. *Contributed talk at American Causal Inference Conference 2024*.
- Effective treatment allocation strategies conditional on individuals' characteristics under partial interference in randomized experiments. *Contributed talk at International Conference on Statistics and Data Science 2022*.
  - ↳ Awarded Student Paper Award and Travel Grant
- Effective treatment allocation strategies conditional on individuals' characteristics under partial interference in randomized experiments. *Poster presented at American Causal Inference Conference 2022*.
- Estimating the association between COVID-19 vaccine coverage and deaths in Connecticut. *Speed talk at JSM Conference 2021*.
- Prevalence of Acute and Chronic Infections in a Large, Geographically Diverse, Bronchiectasis Cohort. *Abstract shared for online ATS Conference 2020*.
  - ↳ Awarded Abstract Scholarship from the ATS Assembly on Pulmonary Infections and TB
- Acid Fast Bacilli Testing Trends at 43 In- and Outpatient Facilities, United States, 2009-2015. *Poster presented at IDWeek Conference 2019*.

### TEACHING

- **Public Health Modeling Teaching Fellow**, Yale University, *Summer 2022, Summer 2023*. Cost-effectiveness analysis, queuing models, Markov models, and simple epidemic models
- **Frontiers of Public Health Teaching Fellow**, Yale University, *Fall 2021*. Public health topics ranging from tobacco use to global vaccine access
- **Regression Course Grader**, The University of Chicago, *Fall 2017*. Introductory statistical methods for linear modeling
- **UChicago Academic Achievement Program, Statistics TA**, The University of Chicago, *Summer 2016*. Introductory statistical methods