Institution: University of Pennsylvania, Perelman School of Medicine, Department of Biostatistics, Epidemiology, and Informatics

Faculty PIs: Dr. Sean Hennessy and Dr. Dylan Small

Description: About the position: A postdoctoral research fellowship (up to 5 years) is available under the direction of Sean Hennessy, PharmD, PhD (Professor of Epidemiology in the Perelman School of Medicine) and Dylan Small, PhD (Professor of Statistics in The Wharton School) at the University of Pennsylvania. The research fellow will contribute to development of the novel trend-in-trend research design for causal inference (see PubMed IDs: 27775954, 29337845, 30028344) and work on other projects within the broad purview of causal inference methods for pharmacoepidemiology.

A major focus of the postdoctoral research fellow will be on a National Institute on Aging-funded study entitled “Enhancing the Utility of the Trend-in-Trend Research Design”. This project aims to extend the utility of the trend-in-trend design by developing approaches for prospective sequential analysis of accruing data for the evaluation of newly approved medical products, evaluating machine learning to improve the separation in exposure trends produced by the cumulative probability of exposure model, evaluating dose-response relationships, and evaluating treatment effect heterogeneity. For each of these methodologic needs, we will: 1) develop an extension of the trend-in-trend design; 2) assess its theoretical validity in large populations (i.e., its asymptotic unbiasedness); 3) evaluate its performance in thorough simulation studies; and 4) proof-test the extension in healthcare data using a known exposure-outcome association.

About the University of Pennsylvania: The University of Pennsylvania’s Perelman School of Medicine is the oldest medical school in the US. We are rich in tradition and heritage and at the same time consistently at the forefront of new developments and innovations in medical education and research. Since the medical school’s founding in 1765, we have been a strong presence in the community and prided ourselves on educating the leaders of tomorrow in patient care, biomedical research, and medical education. The Perelman School of Medicine consistently ranks among the top five in US News and World Report’s rankings of research-oriented medical schools. Our mission is to advance knowledge and improve health through research, patient care, and the education of trainees in an inclusive culture that embraces diversity, fosters innovation, stimulates critical thinking, supports lifelong learning, and sustains our legacy of excellence. The Department of Biostatistics, Epidemiology and Informatics is home to more than 100 faculty and the graduate education programs in these three core disciplines. Most faculty are also a member of the Center for Clinical Epidemiology and Biostatistics, an interdisciplinary and interdepartmental program that links clinical epidemiology and biostatistics within the Perelman School of Medicine, the University of Pennsylvania Health System, and the Penn community.

Qualifications: A PhD or related doctoral degree in biostatistics or statistics is required. A competitive candidate will have an interest in applications of statistics to medicine, causal inference methodology, the design of observational studies for comparing pharmacologic treatments, longitudinal data, and machine learning.

Contact: Dr. Charles Leonard; email: celeonar@pennmedicine.upenn.edu

Start Date: 11/01/2019 (anticipated, but negotiable)

End Date: As late as 10/31/2024, although appointed in sequential single-year terms at the discretion of the PIs

Salary: Approximately $60,000 for the first year. Annual increases will adhere to policies set by the University of Pennsylvania’s Office of the Vice Provost for Research. See https://almanac.upenn.edu/articles/of-record-fy2020-postdoc-stipends.