

SEMINARS

Causal inference methods meets personalised medicine

Friday 31 May 2024 at 13.00 – 14.30

Steno Diabetes Center Aarhus, AUH, Verdensrummet, Palle Juul-Jensens Boulevard 11, Entrance A, 8200 Aarhus N

Personalised medicine is all about finding the best treatment for the individual patient. To achieve this goal, it is crucial to comprehend and identify the underlying causes and mechanisms of diseases. With more and more complex and high-dimensional biological data available, there are ample opportunities for new discoveries. However, these opportunities are not being seized, in part, because of suboptimal methodological approaches. In this seminar, you get the opportunity to learn from three leading methodological innovators on how we can better understand mechanisms from our data using causal inference methods.

Ivan Diaz, New York University Grossman School of Medicine

Title: Causal survival analysis under competing risks using longitudinal modified treatment policies

Description: Longitudinal modified treatment policies (LMTP) are a novel method to define and estimate causal parameters for a general class of exposures, including the joint effect of multiple categorical, numerical, or continuous exposures measured at several time points. We extend the LMTP methodology to problems to estimate total and mediated effects when the outcome is a time-to-event variable subject to right-censoring and competing risks. We present an application to the estimation of the effect of the time-to-intubation on acute kidney injury amongst COVID-19 hospitalized patients, where death by other causes is taken to be the competing event.

Clemens Wittenbecher, Chalmers University of Technology

Title: Integrating Study Designs with Omics Data: Enhancing the Robustness and Precision of Nutritional Evidence

Description: Nutrition evidence for chronic disease prevention relates complex dietary exposures to long-term health and disease trajectories. Conclusive primary dietary chronic disease prevention trials are scarce. We will discuss triangulation strategies that combine different study designs to generate robust and precise evidence for the impact of specific dietary changes on disease risk. The focus will be on the application of -omics profiling to integrate study designs, refine dietary risk prevention strategies, and elucidate potential causal paths that connect diet to disease risk.

Nima Hejazi, Harvard T.H. Chan School of Public Health

Title: Using causal inference and machine learning tools for biomarker discovery in high-dimensional biology settings

Description: This talk focuses on using/applying causal inference-type thinking to extract evidence about differentially up/down-regulated candidate biomarkers (CpG sites, microarrays, RNA-seq), where the candidate biomarkers are the outcome measures and are thought to be potentially altered by some phenotypic-level treatment/exposure (e.g., smoking, pollution, diet).

Coffee and cake will be served after the seminar

Sign up here: <https://events.au.dk/personalisedmedicineseminar12>