

## **Preserving privacy in estimating individualized treatment rules from distributed data collection sites**

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**12:00 Noon Eastern Time, Tuesday, April 13, 2021**

**Virtual seminar via Zoom**

### **ABSTRACT**

Precision medicine is a rapidly expanding area of health research wherein patient level information is used to inform care via individualized treatment rules (ITR). Identifying the ITR which optimizes expected patient outcome is of obvious interest and has to date been done exclusively using individual-level data. However, estimating ITRs require large amounts of data and may necessitate multi-centre collaborations. This may raise concerns about data privacy. In this talk, I will introduce ITRs and a straightforward, doubly-robust estimation method and discuss approaches to preserving privacy while producing unbiased estimates of rules that tailor treatment to individual characteristics. The preferred approach is illustrated via an analysis of optimal warfarin dosing. This is joint work with Coraline Danieli.