

# Yale SCHOOL OF PUBLIC HEALTH

## *Biostatistics*

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### Presentation

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## "Some Challenges and Results for Causal and Statistical Inference with Social Network Data"

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### ABSTRACT

Interest in and availability of network data has sparked new work in causal and statistical inference for observations linked by network ties. My talk is motivated by the Health Outcomes, Progressive Entrepreneurship, and Networks (HopeNet) Study, which will collect three waves of complete social network data and implement clean water and microenterprise interventions in a small community in southwestern Uganda. Causal effects of interest include the effects of an individual's exposure to each intervention on his own outcome and several different types of effects of an individual's exposure on the outcomes of his social contacts. In order to clearly articulate these latter "interference" effects, I differentiate three different causal mechanisms that give rise to interference, defined as an effect of one individual's exposure on another's outcome. The interference effects that are of interest and that are identifiable are different for the three kinds of interference, all of which are operational in the HopeNet study. I also consider estimation of several types of causal effects in the HopeNet study, which is complicated by the fact that the interventions are not randomized, that only a single network of non-independent observations is observed, and that the types of assumptions used to gain traction on correlated data in other settings may not be realistic here.

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Location 60 College Street LEPH 101

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