

## **Causal Inference Methods for Studies Among Networks of People Who Use Drugs**

Ashley Buchanan, University of Rhode Island

Public health studies aimed at behavior modification and earlier HIV treatment have made progress towards reducing HIV incidence not only for those directly-treated drug users but also their social networks; however, research-to-date has been impeded due to a lack of methods to estimate how interventions permeate a risk network and evaluation of interventions has been based mostly on overall effects. Our motivating study was the Social Factors and HIV Risk Study, a sociometric network-based study conducted between 1991 and 1993 in Bushwick, Brooklyn, New York, that investigated how HIV/AIDS infection spread among people who injected drugs (PWIDs). We employed statistical inference methods combined in novel ways with network science applicable in settings with social influence and when statistical dependence may be present. We evaluated the effects of attitudes on their own health seeking behavior and that of other members in their subnetwork. These methodologies will improve the quality of information from network-based studies of people who use drugs, expanding the knowledge base of best practices among this vulnerable subpopulation, and leveraging network-based interventions to reduce risk and improve HIV treatment and prevention.