

# **Joint Math Colloquium**

**Millersville University and Franklin & Marshall College**

**Speaker: Jeffrey Lienert -- Doctoral Fellow / NIH Oxford Cambridge Scholars Program**

**Title: The health effects of patient-patient co-presence in a chemotherapy ward using hospital administrative data and electronic medical records**

**Date: October 25, 2018 (Thursday)**

**Time: 4:00 pm – 5:00 pm**

**Place: Room 219, Stager Hall, Franklin & Marshall College**

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## **Abstract:**

Co-presence, defined as two people being physically proximate to one another, is a ubiquitous and important phenomenon that remains understudied. There is strong reason to believe that co-presence may affect health, but it is likely that these effects are relatively small. Because of this, relatively large sample sizes are needed to reliably detect these effects, and the data to test such hypotheses has only recently become widely-available. In this talk, I will show how I use electronic medical records and hospital administrative data to assess how patient-patient co-presence in a health care system may affect patient health outcomes.

I do so by examining chemotherapy patients in a chemotherapy ward, where patients can observe and interact with one another. This setting opens patients up to the possibility of social influence on their health. Although previous research has found evidence for social influence and communal coping of chemotherapy patients at home and in cancer support groups, social influence has not been examined in patients while in the chemotherapy ward. Using data on 4,691 chemotherapy patients in Oxfordshire, UK, I construct a network of patients who are co-present more than expected by chance ( $p < 0.01$ ) in the ward based on the empirical distribution of patient overlap times.

Here, I include a brief introduction to social network analysis, the analytical approach underpinning the subsequent analysis. This includes the definition and construction of networks, as well as commonly-used descriptive statistics.

Using the constructed network and statistical models, I show that there is a significant effect of consistent co-presence on patient health outcomes. I therefore conclude that there is evidence that social influence occurs in chemotherapy wards, and that this influence takes both positive and negative effects, which may need to be taken into account when scheduling chemotherapy.