Title: Examining Structural Barriers to Optimal HIV Care Engagement: Is Neighborhood of Residence a Risk Factor for HIV Patient Attrition?

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Rationale:
Over half of persons living with HIV (PWH) are either undiagnosed, not in care or inconsistently engaged in HIV care. In the era of contemporary and highly effective antiretroviral therapy (ART), linkage and retention of PWH in care represents one of the last major barriers to getting to “zero new infections”. As a result, a complete understanding to structural barriers to HIV care is critical to addressing suboptimal care utilization among PWH. Our research group examined the association between patterns of healthcare engagement overall (HIV and non-HIV) and subsequent disengagement from HIV care. Our latent class model, derived from Duke HIV clinic data from 2009-2013, segregated three distinct patterns of healthcare utilization: (Class 1: low emergency department (ED) utilization, low hospital admit rates, high HIV clinic engagement; Class 2: high ED utilization, low hospital admit rate, low HIV clinic engagement; Class 3: high ED utilization, high hospital admit rate, high HIV clinic engagement). Further analysis shows that persons in Class 2 were 23 times more likely to disengage from care the following year than persons in the other two groups. Although obvious demographic trends were identified in our analysis (Class 2 members were more likely to be Black, male and < age 40 years), a focus on static, unmodifiable patient-level variables leave many questions about Class 2 membership unanswered. The proposed project seeks to build upon our previous analysis, examining the association between neighborhood of residence (at time of clinic encounter) and likelihood of Class 2 membership. We hypothesize that neighborhood of residence with low SES will be independently associated with Class 2 membership.

Aims:
- To validate HIV care utilization latent class model using contemporary HIV clinic population data (2014-2018)
- To characterize the geographic distribution of HIV clinic patients who are members of the high disengagement class
- To determine the association between neighborhood of residence characteristics and engagement Class 2 membership.

Objectives of Internship:
- To gain knowledge on HIV care engagement and retention as well as barriers to HIV care
- To gain experience working with publicly-available sources of population level data (American Community Survey etc.)
- To learn basics of geographic data analyses and associated software (ArcGIS)
- To develop competency in structural equation modeling (primarily latent class analysis)

Scope of Work:
Datasets will be provided to the intern. Interns will be responsible for assisting with data curation, learning latent class analysis and validating the aforementioned model on current clinical data. They will also work with the research group in obtaining source population data and conducting the geospatial analysis. The student will also have active input into manuscript generations and scientific presentations that may come forth from the proposed work.
REFERENCES

