Abstract for 16th International Workshop on Aging & HIV

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Title: Modeling State-Level Aging Patterns Among PLWH in the United States

Background: As people living with HIV continue to age in the United States (US), local healthcare systems should prepare to manage the increasing burden of age-related comorbidities. It remains unclear how these demographic trends - and their corresponding impacts on healthcare systems - will continue into the future and how they differ across US states.

Material and Methods: The Johns Hopkins Epidemiologic and Economic Model (JHEEM) is a dynamic transmission model of HIV in the US. The model is calibrated to population demographics (by age, race/ethnicity, sex) and key HIV epidemiological targets - including new diagnoses and diagnosed prevalence by age group - in 11 states comprising 63% of diagnosed prevalence in the US. We project HIV epidemics from 2025 to 2040, estimating the proportion of people living with diagnosed HIV (PLWDH) over the ages of 55 and 65 years as well as the median age of PLWDH. 95% credible ranges (CR) are reported across 1,000 independent simulations per state.

Results: The model projects an increase in proportion of PLWH aged 55+ from 46% (CR: 45 to 47%) in 2025 to 57% (CR: 54 to 60%) in 2040 across the 11-states. This is accompanied by an increase in number of persons living with diagnosed HIV over the age of 55 years from 308,000 (CR: 302,000 to 315,000) cases in 2025 to 402,000 (CR: 379,000 to 426,000) cases by 2040. During this period, the projected median age of PLWH rose from 51 years (CR: 51 to 52) to 61 years (CI: 58 to 63). State-level analysis suggest substantial variations in local outcomes. For example, the proportion of PLWH age 55+ in California was projected to rise from 50% (CRUR: 47 to 53%) to 67% CR: 59 to 75%), with the median age rising from 54 years CR: 52 to 56) to 67 years CR: 63 to 70). By contrast, simulations in Wisconsin projected a stable proportion of PLWH age 55+ [44% CR: 41 to 47%) versus 43% CR: 37 to 53%)], accompanied by reductions in projected median age from 49 years CR: 47 to 51) to 41 years CR: 38 to 60) from 2025 to 2040. Projected state-level changes in the proportion of PLWH aged 55+ were most strongly correlated with urbanicity (Pearson correlation coefficient = +0.72; p=0.01).

Conclusions: The population of persons living with HIV in the US is projected to age significantly by 2040, and the aging patterns will vary across states. This aging is projected to occur more rapidly in urban states, where rates of new diagnoses remain higher than in rural states. It will be important to allocate resources to help healthcare systems adapt to changing demographic patterns of PLWDH in a manner that reflects state-level needs.