

#248 Felix Rozenberg

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Use of Generalized Estimating Equations to model longitudinal accumulation of bacterial sexually transmitted infection (STIs) among sexually active men living with HIV

Background: Bacterial STIs are largely preventable; however, rates continue to rise across the U.S., especially among men who have sex with men (MSM). To assess STI risk over time, we used Poisson regression using Generalized Estimating Equations (GEE), a population-averaged modeling approach, to account for within-subject correlation to model STI count accumulation over a one-year period among a national online sample of HIV-positive MSM.

Methods: From 2015-16, 873 White (63.6%), Black (19.7%), and Hispanic (16.7%) men completed self-reported behavioral health history every 3 months via online surveys for 12 months. Bacterial STIs included chlamydia, gonorrhea, and syphilis. Final variable selection was performed using quasilielihood under independence model criterion (QIC).

Results: Median age was 39 (range:18-77). Average accumulated self-reported STIs over one year was 0.62. Of those with at least one bacterial STI, the average number of bacterial STIs was 1.86. The final GEE model showed associations between bacterial STI accumulation and older age, access to an HIV medical provider, past-year stimulant use, past-year number of anal sex partners, and exchange sex. Access to an HIV medical provider ($\text{Exp}\beta=0.66$, $p<0.05$) and older age ($\text{Exp}\beta=0.98$, $p<0.001$) were negatively associated with STI accumulation. Whereas stimulant use ($\text{Exp}\beta=1.10$, $p<0.01$), number of anal sex partners ($\text{Exp}\beta=1.15$, $p<0.001$), and exchange sex ($\text{Exp}\beta=1.15$, $p<0.01$) were positively associated with more STIs over time. Of note, race/ethnicity was not associated with STIs over time.

Conclusions: Interventions that increase access to primary HIV care and drug use treatment could potentially decrease transmission of bacterial STIs, which would reduce treatment burden on health systems. The lack of racial/ethnic differences in STIs over time may indicate that Black and Hispanic participants had less access to care and were less likely to be diagnosed with an STI, which warrants further investigation.

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