Projected impact of improving HIV care on life expectancy among non-Hispanic Black and white MSM

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BACKGROUND

- Inequities across the HIV care continuum persist between non-Hispanic Black and white men who have sex with men (MSM).
- Reducing HIV-related health disparities is one of the four goals of the US HIV/AIDS Strategy (NHAS).
- We used the CEPAC model, a microsimulation model that simulates HIV disease throughout the lifetime (Figure 1).

OBJECTIVE

- To project the potential years of life gained with improving the HIV care continuum and to examine goals that promote **health equity** (e.g., the attainment of the highest level of health for all people) and goals that aim for the same absolute improvement for all subpopulations.

METHODS

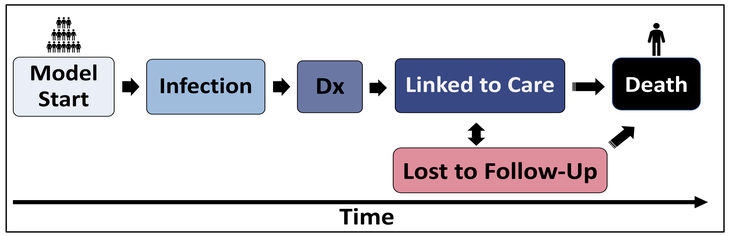


Figure 1. Schematic of the CEPAC model

- We used CEPAC to project age at death among Black and white MSM with HIV under *Status Quo* HIV care: current national levels of HIV testing, engagement in care, and viral suppression (VS), using 2019 data from the CDC and peer-reviewed literature (Table 1).
- We then simulated care under conditions created by achieving one of three equity-centered goals, which attain equitable outcomes at an individual step of the HIV care continuum:
  1. Annual Testing
  2. 95% Engagement in Care
  3. 95% VS
- Last, we simulated an *Equitable Care Continuum:* annual HIV testing, 95% engagement in care, 95% VS.
- We adjusted non-HIV mortality for excess mortality due to higher smoking prevalence among MSM.
- We conducted scenario analyses by varying *Status Quo* HIV testing frequencies, engagement in care (75%-95%), and VS (75%-95%).

Table 1. Selected model input parameters to simulate *Status Quo* care

Parameter	Black MSM	White MSM
Mean age at HIV infection, years (SD)[1]	26.8 (10.7)	35.0 (13.4)
Mean time from HIV infection to dx, years[1]	3.4	3.0
Mean age at HIV dx, years[1,2]	30.2 (10.7)	38.0 (13.4)
% Engaged in care of MSM with HIV dx[1]	75.2	80.6
% Viral suppression of MSM in care[1]	82.0	91.2
Mean testing frequency[1,2]	4.9y	4.1y

Dx=diagnosis; 1. CDC HIV Surveillance Reports, 2019.; 2. Song et al., JAIDS.2017

Projected **age at death** for Black MSM with HIV is substantially lower than for white MSM with HIV in the US with current *Status Quo* care.

A combination of **equity-centered** solutions across the HIV care continuum would result in 3.5 YLG among Black MSM and 1.7 YLG among white MSM, reducing current inequities.

RESULTS

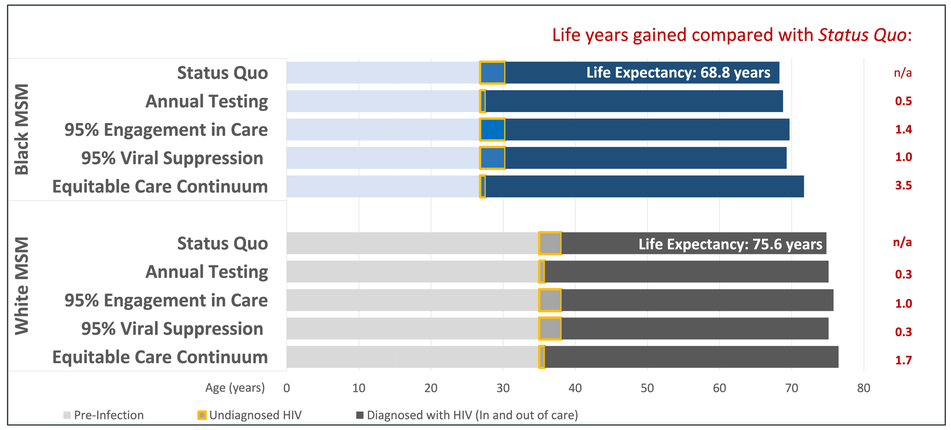


Figure 2. Life expectancy with *Status Quo* and life years gained with equity-centered goals

Scenario analyses among non-Hispanic Black MSM (Figure 3, left panels)

- In regions with HIV testing every 6y, outcomes ranged from **0.7 to 4.2 years of life gained (YLG)** if baseline engagement and VS were 95% or 75%.
- In regions with HIV testing frequency every 4.9 years (national *Status Quo*), YLG ranged from **0.6 to 4.1**.
- Up to **3.4 YLG** and **3.1 YLG** with attainment of an *Equitable Care Continuum* if HIV testing was every year or every 6 months at *Status Quo.*

Scenario analyses among non-Hispanic white MSM (Figure 3, right panels)

- In regions with HIV testing every 6y, outcomes ranged from **0.5 to 4.0 YLG**, if baseline engagement and VS were 95% and 75%.
- In regions with a HIV testing frequency every 4.1 years (national *Status Quo*), YLG ranged from **0.4 to 3.6.**
- Up to **3.2 YLG** and **2.9 YLG** with attainment of an *Equitable Care Continuum* if HIV testing was every year or every 6 months at *Status Quo*.

RESULTS

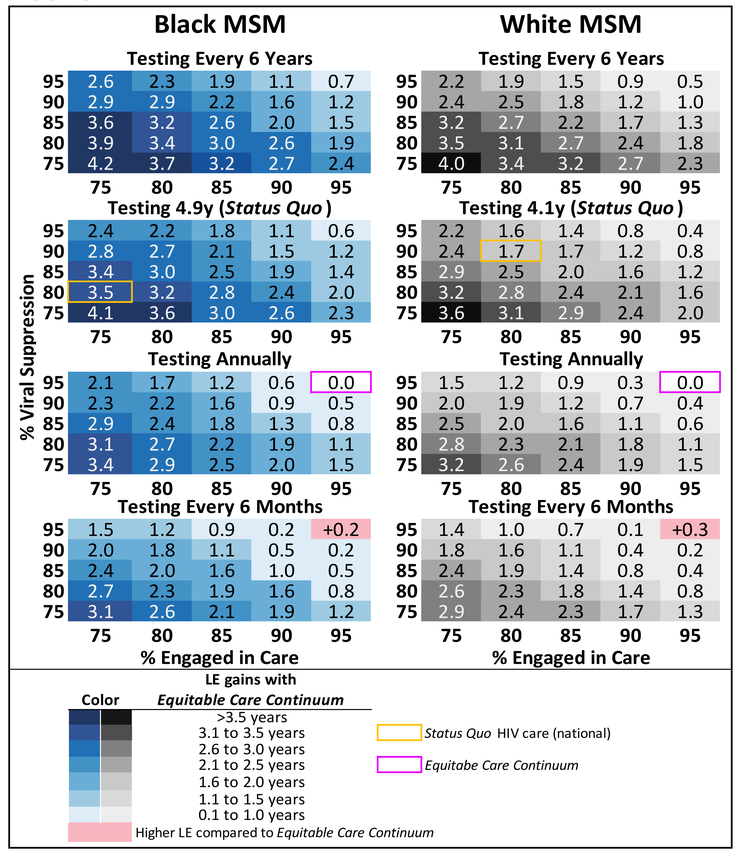


Figure 3. Projected gains in life expectancy with an *Equitable Care Continuum* when compared to a range of *Status Quo* care scenarios

LIMITATIONS

- We did not include projections of HIV transmissions or costs.
- We populated the model with national data which may not reflect local epidemics.

CONCLUSIONS

- Projected LE for Black MSM with HIV is substantially lower than for white MSM with HIV, but disparities can be reduced by achieving equity-centered care goals in testing, engagement in care, and VS.

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