Disparities in HIV by race and age among men who have sex with men, 20 U.S. cities

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Introduction

- Men who have sex with men (MSM), especially young, black MSM, are at increased risk of HIV infection.
- In 2010 black MSM accounted for 36% of all estimated incident HIV infections attributed to male-to-male sexual contact.
- Young, black MSM aged 13-24 accounted for 45% of the estimated incident HIV infections among black MSM and 16% of all estimated incident HIV infections among MSM.
- Young, white MSM, on the other hand, accounted for 16% of the estimated incident HIV infections among white MSM and 6% of all estimated incident HIV infections among MSM in 2010.
- Data from CDC's National HIV Behavioral Surveillance (NHBS) show 30% of black MSM were infected with HIV in 2011 and 54% of those were aware of their infection, compared to 14% and 86% among white MSM respectively.

Objectives

- Assess age specific racial disparities among MSM in HIV prevalence, awareness of infection, and risk behavior.
- Document changes in disparities among MSM from 2008 to 2011.

Methods

- MSM were interviewed in 20 U.S. cities during 2008 (n=7,847) and 2011 (n=8,423) as part of NHBS.
- **Outcomes**: HIV prevalence, awareness of HIV infection, condomless anal sex (CAS) in the past 12 months and CAS with a partner of discordant or unknown HIV status at last sex. Participants were offered HIV testing and asked about their sexual behaviors and HIV testing history. Those with a confirmed positive HIV test result who reported having previously tested positive for HIV were considered to be aware of their infection.
- **Models (2011 disparities)**: The results of generalized estimating equation (GEE) models are presented for each outcome by race/ethnicity within age groups, which include a race*age interaction term, (Figures 1-4) for a total of 4 separate models. All models included income, education, and city. Figure 3 & 4 models included self-report HIV status. The reference category for each model is black MSM.
- **Models (2008-2011 comparison)**: A GEE model with continuous age and a three-way interaction (race/ethnicity*age*year) was used to examine changes in disparities in HIV prevalence between black and white MSM by age from 2008 to 2011 (Figure 5).

Figure 1: HIV prevalence among MSM by race and age, 2011

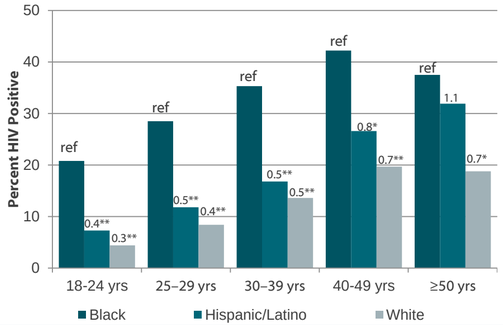
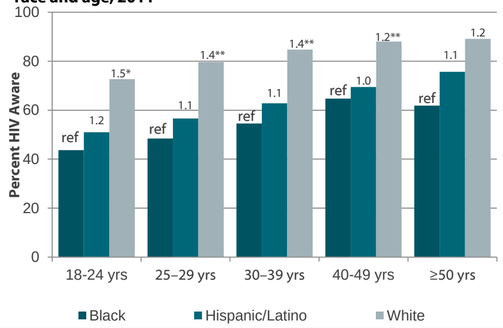


Figure 2: Awareness of infection among HIV-infected MSM by race and age, 2011



Black MSM were most likely to be infected with HIV and least likely to be aware of their infection. Racial disparities were greatest among young MSM: 1 in 5 black MSM aged 18-24 years was infected with HIV, compared to less than 1 in 20 white and less than 1 in 13 Hispanic/Latino MSM aged 18-24 years.

Figure 3: Condomless anal sex (CAS) in the past 12 months among MSM by race and age, 2011

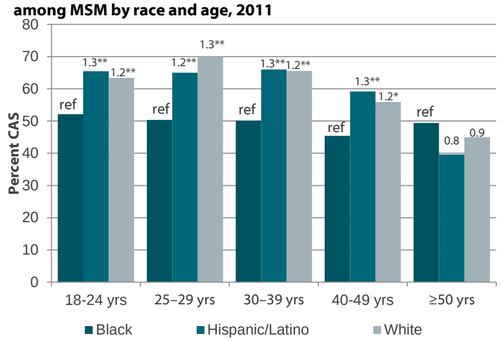
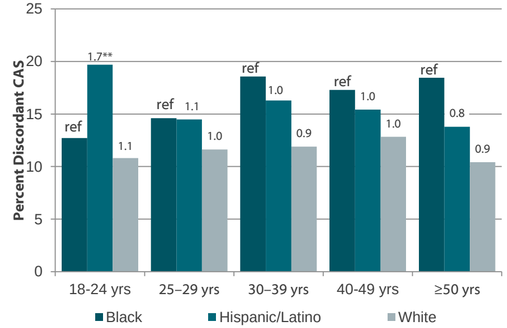


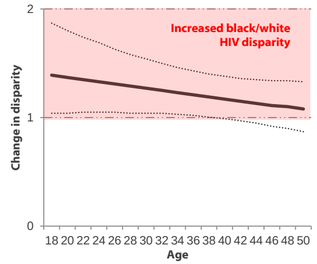
Figure 4: Discordant CAS at last sex among MSM by race and age, 2011



Black MSM did not report higher rates of risky sexual behaviors than other race/ethnicity groups by age. Black MSM reported lower rates of condomless anal sex in the past 12 months than white and Hispanic/Latino MSM overall and in all age categories younger than 50. Black MSM aged 18-24 reported less discordant sex than Hispanic/Latino MSM aged 18-24.

Notes: Adjusted prevalence ratios (aPRs) shown as data labels. Significance testing based on multivariable models of outcome by age*race interaction terms for aPRs. CAS, condomless anal sex; Discordant CAS, condomless anal sex with a partner of discordant or unknown HIV status; Ref, Reference category; *p-value <0.05; **p-value <0.01

Figure 5: Increase in disparity in HIV prevalence between black and white MSM from 2008 to 2011 by age



- Estimates above 1 signify increased disparity in HIV prevalence from 2008 to 2011 between black and white MSM.
- Estimates and 95% confidence interval bands based on a age*race*year interaction with continuous age.
- Change is disparity estimated as ratio of 2008 to 2011 aPRs: $\frac{\text{2008 aPR}}{\text{2011 aPR}}$

The disparity in HIV prevalence between black and white MSM increased from 2008 to 2011. The increase in disparity was greatest for young MSM and decreased with increasing age.

Conclusions

- Black MSM are disproportionately infected with HIV, but do not report higher rates of sexual risk behaviors than other racial/ethnic groups.
- Black MSM are being infected with HIV at younger ages than other MSM.
- HIV prevention efforts focused on black MSM should particularly address the needs of those under the age of 25.

Limitations

- MSM were recruited at MSM venues from cities with high AIDS burden using venue-based sampling (VBS) and may not be representative of all MSM residing in the U.S..
- Measures of awareness of infection and sexual behavior are self-reported and may be subject to social desirability bias.
- Data are not weighted to account for VBS methods.

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