

## Understanding and responding to disparities in HIV and other sexually transmitted infections in African Americans

Sevgi O Aral, Adaora A Adimora, Kevin A Fenton

Rates of infection with HIV and some other sexually transmitted infections (STIs) are higher among African Americans than among European Americans.<sup>1,2</sup> Although these health disparities are not unique to STIs; their nature, pattern, and distribution are complex. This complexity is not solely a result of individual risk behaviours. Increasing evidence indicates that disease epidemics, and, consequently, disparities in morbidity rates, are outcomes of the functioning of systems.<sup>3</sup> Populations function as complex systems, and disease rates might result from the characteristics of individuals in the population, the interactions and interdependencies between individuals, the effects of population-level factors on individual-level health outcomes, and the interplay between individual-level and population-level factors.<sup>3</sup> This view of population health provides a best fit to understanding the importance of social determinants of disease and health within populations.<sup>4</sup>

Recent analyses in the USA demonstrate that reported sexual behaviour in terms of number of partners, practices, condom use, and other individual-level factors does not solely account for the observed racial and ethnic disparities in rates of HIV or other STIs.<sup>5</sup> In most analyses, African American women have among the highest HIV and STI prevalence but do not have the highest levels of risk behaviours. Data from the 2002 national survey of family growth indicates that fewer black women than white women reported having had four or more partners in the past year and 15 or more in their lifetime.<sup>6</sup> However, for each unit increase in risk behaviour, the adverse health outcomes for black women are many times those for white women. Whereas white Americans acquire STIs predominantly when they engage in high-risk behaviours, African Americans acquire them through low-risk behaviours because prevalence of infection in the population is high.<sup>5</sup> Thus, at the individual level, the most important risk factor for STIs is sex with an infected partner, the probability of which is partly determined by the prevalence of infection in the population from which one chooses partners.

At the population level, multiple concurrent partnerships and high levels of sexual mixing between high-risk and low-risk groups facilitate more efficient spread of STIs among African Americans. There is emerging evidence that black Americans and white Americans participate in largely separate sexual networks and have different numbers of concurrent sexual partnerships. Assortative sexual mixing is the formation of partnerships between people with similar characteristics (eg, racial background or risk for infection). Black men and women in the USA are more likely to mix

assortatively by race than are white Americans, but more likely to mix disassortatively by risk, a sexual mixing pattern that disseminates and maintains infection within the community.<sup>7</sup>

Multiple concurrent sexual partnerships spread STIs more rapidly than the same number of relationships held sequentially.<sup>8</sup> In empirical studies, people who had concurrent partnerships were more likely to transmit *Chlamydia*<sup>9</sup> and syphilis<sup>10</sup> than were those who did not. In one study, having a partner who had concurrent partnerships was a risk factor for heterosexual HIV transmission among African Americans who were otherwise at low risk.<sup>11</sup> Black Americans are more likely to report concurrent partnerships than are white Americans. In the 1995 national survey of family growth, 21% of black women reported concurrent partnerships in the previous 5 years compared with 12% in the general population.<sup>12</sup> However, adjusting for age at time of interview, age at first sexual intercourse, and marital status attenuated the partner-concurrency disparity.<sup>12</sup> A similar analysis of the 2002 national survey of family growth showed that black men in the USA were more than twice as likely as white men to have concurrent partnerships.<sup>13</sup> There are also geographic variations: the 5 year prevalence of concurrent partnerships was higher among heterosexual black men (53%) and women (31%) from counties in North Carolina with high STI rates than among black women in the national survey of family growth (21%),<sup>14</sup> and higher still among HIV-positive men (63%) and HIV-positive women (58%) in North Carolina.<sup>15</sup>

Social forces affect the distribution of STIs through their effects on behaviour, networks, and risk of exposure to infection. A few studies have documented the effects of these forces on the spread of HIV infection in Africa and Asia, but the effect of social forces on the HIV and STI epidemics among African Americans has received little attention from researchers. Disproportionate poverty among African Americans' is well documented. Furthermore, the sex ratio of men to women is much lower among African Americans than all other ethnic groups as a result of high mortality rates among black men from disease and violence, and high rates of incarceration.<sup>16,17</sup> These two social forces, poverty and the low sex ratio, are probably among the biggest determinants of sexual network patterns among black people in the USA.<sup>18</sup> Poverty and low sex ratios are associated with low marriage rates, and married people have lower rates of concurrent partnerships than unmarried people.<sup>18</sup> Moreover, the shortage of black men promotes partner concurrency as well as partnering between women with

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National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (S O Aral PhD, K A Fenton PhD), Centers for Disease Control and Prevention, Atlanta, GA, USA; and Division of Infectious Diseases (A A Adimora MD), The University of North Carolina at Chapel Hill, NC, USA

Correspondence to: Kevin A Fenton, Director, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Centers for Disease Control and Prevention, 1600 Clifton Road, NE, Mailstop E07, Atlanta, GA 30333, USA

kfenton@cdc.gov

low-risk behaviours and men with high-risk behaviours. Additionally, drug use, particularly intravenous drug use, has an important role in the spread of HIV and other STIs among African Americans.

Poverty, income, and socioeconomic status are important cofactors that affect HIV and STI rates. But public-health surveillance systems in the USA do not routinely collect data on socioeconomic status. As a result, our understanding of the contribution of these factors to racial or ethnic disparities in HIV and STIs in the USA is limited. In one study that focused on developing a method to monitor socioeconomic health disparities in the USA, risk for all adverse health outcomes, including STIs, increased with the proportion of people living in poverty in a census district.<sup>19</sup> Adjustment for census tract poverty substantially reduced racial and ethnic disparities.<sup>19</sup> In half of the study outcomes, census tract poverty accounted for over 50% of the cases.<sup>19</sup>

Recent research results suggest that socioeconomic status, poverty, and geography might be important correlates of racial disparities in health,<sup>20</sup> and the gap between the highest and lowest life expectancies for combinations of race and county in the USA exceeds 35 years. Murray and colleagues<sup>21</sup> found that combinations of race and county clustered into eight distinct groups and remained stable from 1982 to 2001, and neighbourhood levels of economic wellbeing were highly correlated with the cumulative incidence of HIV. Subsequent unpublished analyses by the Centers for Disease Control and Prevention with this approach suggest that, in general, disparities in gonorrhoea and syphilis rates mirror all other health disparities among race-county units in the USA.

Residential segregation by race, one of the most pervasive results of discrimination in the USA, concentrates poverty and other negative influences within the segregated group.<sup>22</sup> Moreover, housing markets influence not only where people live, but also anything that is correlated with where one lives—and thus drives the distribution of education, wealth, employment, safety, and peer groups.<sup>23</sup> Some people choose sex partners from their neighbourhoods, so even if they don't engage in high-risk behaviours themselves, segregation increases the likelihood of having a high-risk partner. Social, economic, and legal systems tend to reinforce existing hierarchies and protect the privileged.<sup>24</sup> Thus, pathways that remain largely beyond the control of individuals connect social forces and STIs.

The disproportionate incarceration of African Americans renders this social force a major part of the life experience of many families. More than 12% of black men age 25–29 years are in jail or prison;<sup>25</sup> and, for the same crime, the risk of incarceration is substantially greater for black men than for white men.<sup>26</sup> Incarceration directly affects sexual networks by physically removing people from partnerships.<sup>18</sup> The partner entering prison

may have sex with others there who have a high probability of HIV or STI infection. The partner who is left behind loses the financial, social, and other supports of the incarcerated partner and may seek other partners. As inmates return to the community, they may resume old partnerships or start new ones, increasing the likelihood of concurrency.<sup>14,15</sup> While in prison, some inmates join gangs and forge new long-term links with antisocial networks that can affect sexual networks by connecting previously low-risk people with new high-risk subgroups. Incarceration reduces employment prospects, which increases poverty risk and destabilises long-term partnerships. The overall effect of incarceration is not only a reduction in the absolute number of men, but also an increase in the proportion of financially insecure men in the community.<sup>18</sup>

Finally, differential access to high-quality health care contributes to racial and ethnic disparities in chronic medical disorders.<sup>27</sup> In infectious diseases in general, and STIs in particular, timeliness of diagnosis and treatment is both an important factor in restricting disease transmission, and an important determinant of the prevalence and incidence in the population. Population-level factors of accessibility, acceptability, and quality of health care consequently emerge as important social determinants of racial and ethnic disparities in rates of STIs. Chandra and co-workers<sup>20</sup> showed that within hospitals or provider groups black patients and white patients are treated differently, and that African Americans are likely to live in areas or seek care in regions in which health-care quality is low for all patients. Consequently, assuring equal access to health care at the local level, without simultaneous attention to improving the quality of health care, might not be enough to erase overall disparities.

The multifaceted determinants of HIV and STI epidemics among African Americans require preventive responses with legal, human-rights, and health-equity dimensions. Essential steps include improved targeting and adequate implementation of behavioural and biomedical interventions, including fully funded prevention and treatment clinics to provide evidence based services in underserved neighbourhoods; education, screening and treatment in prisons; education about the risks of partner concurrency and high-risk partners; and expansion of health-care insurance coverage. In addition to these prevention efforts, accelerated progress is needed in four key domains: research and evaluation, community mobilisation, interagency collaboration, and leadership.

The African American HIV and STI prevention research agenda needs to be more deliberately placed within a social determinants and social justice framework. Empirical evidence on the association between social determinants and sexual-health outcomes for African Americans and the public-health benefits associated with a social-determinants approach can support integrated prevention approaches that focus on upstream

interventions such as education, housing, and health-care access. The academic and governmental sectors can help by increasing funding for research and supporting the translation of the resulting knowledge into prevention programmes. Efforts are needed to expand the cadre of African American researchers and prevention-programme leaders trained to do culturally relevant research within their communities and to understand, to value, and to prioritise, structural interventions.

Persistent stigma and silence surround HIV and STIs among African Americans, but community mobilisation efforts can help mitigate their effect. Priority should be given to identifying and enlisting African American health professionals to do culturally appropriate presentations, raise awareness, and mobilise local public-private community coalitions against HIV and STIs. Provision of adequate and appropriate information on the prevalence, incidence, and transmission dynamics of STIs to the communities is a necessary first step. Communities then need to be encouraged to set the priorities and make the relevant choices themselves. Other strategies might involve use of mobilisation to create community change by connecting HIV and STI prevention with efforts against racism, homophobia, joblessness, sexual violence, homelessness, substance use, mental illness, and poverty.

Partnerships must be built across all levels of government and between a range of public-sector and private-sector institutions and departments if resources for improving the health and wellbeing of African Americans are to be harnessed to improve health. The Centers for Disease Control and Prevention Heightened National Response to HIV/AIDS among African Americans and other recent HIV prevention strategies<sup>28,29</sup> call for greater collaboration with traditional and non-traditional partners and improved collaboration and coordination across federal agencies within the context of a national planning framework. Strategic partnerships such as these can be used to build a consensus around the social determinants of HIV and STI epidemics in African Americans and strategies to overcome them. The public-health system should strengthen collaboration with the Department of Justice to reduce the adverse health effects of incarceration and with the Department of Education to help increase high-school graduation rates among African Americans.

Finally, committed leadership at the highest levels in the African American community and in governments across the country is essential. Leadership committed to expanding prevention efforts to include reduction of income inequalities and high rates of incarceration, improvement of income security, improvements to access to quality health care, provision of effective education in schools, promotion of special efforts to retain youth in the school system, and public commitment to social housing for the most vulnerable could lessen the effect of STIs and HIV among African Americans. Although the

short-term focus needs to be on identification and treatment of infected individuals so as to reduce prevalence and infectiousness in the community, long-term prevention planning will have to include social determinants. Societal efforts to effectively address stigma and discrimination will be crucial, in particular among those who are socially isolated or marginalised due to illnesses, disability, sexuality, race, culture, or gender. Without efforts to fundamentally improve population health and wellbeing by addressing the root causes of these epidemics, African Americans will continue to be severely affected and disadvantaged.

#### Contributors

SOA, AAA, and KAF conceived the paper. All authors contributed to the paper design and acquisition of data for inclusion in this Viewpoint. All authors were involved in drafting various sections of the paper and critical revision of earlier and final drafts. The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention or the Agency for Toxic Substances and Disease Registry.

#### Conflict of interest statement

We declare that we have no conflict of interest.

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