Sexual Networks, Social Forces, and the HIV Epidemic: Written Testimony for September 16, 2008 Hearing

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Chairman Henry A. Waxman
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Submitted by:

Adaora A. Adimora, MD, MPH, FACP
Associate Professor of Medicine
Adjunct Associate Professor of Epidemiology
University of North Carolina at Chapel Hill
Chapel Hill, North Carolina 27599-7030
919-966-2536
adimora@med.unc.edu

Introduction

Chairman Waxman and members of the Committee on Oversight and Government Reform, thank you for this opportunity to speak with you today. I have been asked to provide testimony concerning the epidemiology of HIV infection in the US, particularly with respect to African Americans, as well as research concerning structural and societal factors that affect individual and community vulnerability to HIV. The attached article, "Social Context, Sexual Networks, and Racial Disparities in Rates of Sexually Transmitted Infections",[1] addresses these issues; my remarks today summarize the findings of that paper.

Individual-level sexual behaviors do not explain racial disparities in US HIV rates

Although sexual behaviors contribute to sexual transmission of HIV, differences between blacks and whites in individual-level sexual behaviors, such as numbers of partners, do not adequately explain the marked racial disparities in HIV rates in the US. In a study of risk factors for heterosexual HIV transmission among African Americans in North Carolina, more than a quarter of people with HIV infection did not have high-risk behaviors. Among these low risk people with heterosexually transmitted HIV infection, poverty and less than high-school education were significant risk factors for infection.[2] A national study of youth and adolescents demonstrated that among low risk individuals the odds of HIV or other sexually transmitted infections (STI) were 25 times greater among blacks than whites.[3]

Sexual network patterns are critical in population spread of HIV

The term *sexual network* refers to a set of people who are linked directly or indirectly through sexual contact. Sexual network patterns are critically important in spread of STIs, including HIV, throughout a population.

Concurrent sexual partnerships, for example, are a key network building block that promotes population HIV spread. Concurrent partnerships are sexual partnerships that overlap in time and permit even more rapid spread of infection through a network than would the same rate of acquisition of new, sequential partnerships. (figure) The extent of concurrent partnerships influences both the speed of the epidemic's spread during its initial phase and the number of people who are infected at a later time period. [4], [5] In a study of heterosexual HIV transmission among North Carolina African Americans, having a partner who had concurrent partnerships was another significant risk factor for HIV.[3]

Another important network characteristic is the extent of mixing between people at high-risk for infection and those at low-risk. (Laumann)

Sexual network patterns appear to differ between blacks and whites in ways that foster more rapid HIV dissemination in blacks. Analyses of the NSFG, a large, population-based national survey, suggest that blacks are more likely than whites in the US to have concurrent partnerships.[6] Men are more likely to have concurrent partnerships than women. Moreover, men with concurrent partnerships are more likely to have nonmonogamous female partners, sex with another man, or sex while intoxicated on drugs or alcohol. The higher concurrency prevalence, evidence of dense sexual networks, and mixing between high-risk subpopulations and the general population may

be important factors in the US epidemic of heterosexual HIV transmission – especially among African Americans.[7]

Social context contributes to sexual network patterns that spread HIV infection

The term *social context* refers to demographic, socioeconomic, macroeconomic, sociopolitical, and related features of the individual's environment. These and other structural aspects of society outside the individual's control play an important role in epidemiologic factors and individual behaviors, including sexual behaviors, and transmission of HIV.

On a macro level, major events such as war, famine, and migration result in increased sexual mixing of different groups of people and in social upheaval that increases exchange of sex for goods, services, and personal security. Such events have altered social and sexual networks in Africa, Eastern Europe, and Asia, with resultant widespread transmission of HIV and other STIs in these regions.

Although the U.S. has enjoyed a relatively high degree of political and economic stability, enduring divisions and disparities along racial, ethnic, and economic lines, along with high mobility, commercially-driven media and entertainment industries, and considerable freedom from family, religious, and community constraints on personal behavior promote rapid but uneven evolution of sexual mores and lifestyles without corresponding evolution of social institutions. The resulting incongruities, such as widespread adolescent sexual involvement with severely constrained sexual education and reproductive health services, foster sexual behavior patterns that promote STI transmission.

Probably the major fault line in American society is the centuries-old racial divide. Residential segregation by race has been one of the most prominent features of racial discrimination in the U.S. and is maintained not only by individual actions but also by longstanding structural mechanisms, such as mortgage and realtor discrimination. Segregation concentrates poverty and other deleterious social and economic influences within racially isolated groups and thus increases risk of socioeconomic failure of the segregated group. Exposure to neighborhood violence, drugs, poverty, and teenage pregnancy is more common for middle-income black children than middle-income white children. Residential segregation is important to the structure of sexual networks because many people tend to choose sex partners from the neighborhoods where they live and may be especially critical to the networks of young people, since in many areas of the US, residence dictates the school district students attend, which in turn influences the social (and sexual) networks of adolescents.

The sex ratio (ratio of men to women) is likely a key determinant of the structure of sexual networks, marital patterns, and family stability. There are significantly fewer black men than women. The sex ratio among African Americans is strikingly low due to higher mortality rates among black males because of disease and violence. The relative scarcity of men results in low marriage rates and higher divorce rates among those who do marry, and epidemiologic studies demonstrate a strong association between being unmarried and concurrency. The shortage of men places women at a disadvantage in negotiating and maintaining mutually monogamous relationships.

Poverty, another contextual feature, works in concert with the low sex ratio to destabilize long-term partnering patterns. Poverty is associated with marital instability and makes marriage less feasible in many black communities.

The rise of the drug culture in poor black communities has worsened the numerous problems caused by segregation and concentrated poverty. Crack cocaine, for example, spread widely throughout many poor urban and rural areas, in part because of its low price and prevailing socioeconomic conditions. Crack use has directly altered sexual networks through increased sexual exploitation of women and high-risk sexual behavior, including increased numbers of sex partners and the exchange of sex for drugs, and thus promotes heterosexual HIV transmission.

Largely as a consequence of the war on drugs, the US has one of the highest incarceration rates in the world, with markedly disproportionate incarceration of black men. One of 8 Black men between the ages of 25 and 29 are currently in jail or prison. Incarceration directly affects sexual networks by disrupting existing partnerships and making it more likely that each partner will have concurrent partnerships. The partner entering prison is now at risk of forming new (sometimes coercive) sexual connections with a pool of individuals whose prevalence of sexual risk behaviors, HIV, and other STIs is high. The partner who remains behind in the community forfeits the social and sexual companionship of the incarcerated partner and may pursue other partnerships.

While in prison, inmates may join gangs and develop new long-term links with antisocial networks.[8] Because social networks affect sexual partnering patterns, these new associations can adversely affect sexual networks by connecting previously low-risk persons with subgroups whose HIV prevalence is high. As inmates return to the community they may either establish new sexual partnerships or resume old ones, increasing likelihood of concurrency. A history of incarceration reduces individuals' employment prospects,[9] which increases likelihood of poverty which further destabilizes long-term partnerships.[10], [11]

Incarceration also has adverse effects on the community. High incarceration rates result in high unemployment rates in poor minority communities, shrinking not only the absolute number of men, but also the proportion of financially viable male partners. High incarceration rates can also influence community norms and create an environment where "jail culture is normative", as evidenced by recent trends in clothing and music.[8] Such norms likely spill over into sexual behavior and sexual networks.

In a revealing account of how macro level forces shaped the contextual factors and health outcomes in a specific situation, Rod Wallace vividly outlined the links between municipal planning policies, disruption of social networks, and death rates from AIDS in the Bronx, New York City in the latter portion of the 20th century.[12], [13] In the 1970s city agencies embarked on a deliberate policy of "planned shrinkage" of the populations in black and Hispanic neighborhoods. The plan involved withdrawal of critical municipal services, including fire fighting resources, from areas that already had high fire rates. As a result, these neighborhoods sustained extensive loss of housing, and large numbers of people migrated to other parts of the borough, with disruption of social networks and community structure. What was presumably not anticipated were changes in the geography of drug abuse that resulted from this migration, and a subsequent upsurge in HIV transmission.

Conclusion

The relationship between socioeconomic context and sexual networks suggests that continued emphasis solely on individual risk factors and individual determinants for prevention efforts is unlikely to significantly impact HIV rates among blacks in the US. The search for and implementation of effective behavioral and biological interventions

must continue. However, public health research must take into account contextual factors that underpin the extraordinary racial disparity in HIV rates in this country.

In addition to the recommendations made by Dr. Holtgrave and the other experts who are testifying this morning, I believe several steps should be taken immediately:

1. The HIV epidemic among African Americans should be **formally declared a national emergency with development and appropriate funding of an effective domestic HIV plan that addresses not only biological and behavioral interventions, but also the epidemic's social and economic roots.** Development of an effective plan will require involvement of clinicians and public health researchers - as well as people with expertise in anthropology, sociology, economics, urban planning, political science, criminal justice, and other disciplines.

2. Given the effects of incarceration on the health of black communities, **attention should be given to the markedly disproportionate incarceration of black men.** For example, alternatives to incarceration for non-violent offenders should be sought.

3. **Comprehensive sex education** can be effective in reducing risky sexual behavior and should be provided in schools.

Thank you very much for your consideration.

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