Compartmentalizing AIDS

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In addressing a press conference this summer at the United Nations High-Level Meeting on AIDS, Dr Anthony Fauci of the NIH commented on the "40,000 to 52,000 new infections each year" occurring in the United States.¹ This higher figure—specifically 55,400 infections per year—which has remained stable since 1999,² is part of a revised estimate by the CDC of the true incidence of HIV infection in America. Although this number reflects the use of more accurate methodology rather than an actual increase in cases (similar to the downward revision in HIV prevalence worldwide issued by the World Health Organization 2 years ago³), in the words of The Lancet editors, "the figure shows that US efforts to prevent HIV have failed dismally."¹

We did not need the newest numbers to reach that conclusion. HIV prevention programs continue to fail to reach many people at risk for acquiring HIV worldwide, including the majority of men who have sex with men (MSM) and injection drug users.⁴ Apart from sub-Saharan Africa—a region with a self-sustaining epidemic and a high prevalence of HIV infection in the general populations of most of its countries—HIV infection occurs in concentrated epidemics affecting persons of specific vulnerable groups and their sexual partners.⁴ Albeit important exceptions exist—generalized HIV epidemics have occurred in Haiti and Papua New Guinea,⁴ for example—compartmentalization of the world into concentrated and generalized HIV epidemics defines important trends, highlighting the need for divergent, targeted prevention messages.

The mandate to "know one's epidemic" could never be more important. In sub-Saharan Africa, HIV infection is predominantly spread among men and women via heterosexual intercourse, and the majority of this transmission takes place within marriage or cohabitation. For example, using data from the Demographic and Health Surveys in Zambia from 2001 to 2002 and Rwanda from 2005 to 2007 as well as HIV serostatus data from voluntary counseling and testing programs among urban couples, it appears that 60% to 94% of new, heterosexually acquired infections occur within marriage or cohabitation.⁵ It was estimated that a focused intervention that reduced HIV spread in serodiscordant urban couples from 20% to 7% annually would avert up to 60% of heterosexually transmitted infections.⁵

Expanded access to effective antiretroviral therapy is another potential tool for reducing new HIV infections that has been much discussed and modeled. In the newest simulation from Vancouver, a comparison was made between an HIV population initiating treatment at a CD4⁺ cell count of 350/µL, with a stable coverage rate of 50% and an average adherence rate of 79%, with a population in which antiretroviral therapy coverage was extended from 50% to 75%.⁶ This model predicted that over the next 25 years, the number of newly HIV-positive persons would be expected to decline by 40%. This change was associated with a per capita direct treatment cost savings of more than $368,000. Which is great, save for the fact that instituting a large-scale treatment program in resource-poor regions is immediately costly and already stretching the tolerance of some governments. AIDS economics expert Mead Over discussed this problem in a report presented at the XVII International AIDS Conference held last month in Mexico City.⁷ He stated: "... the United States has unwittingly created a new global 'entitlement' to US-funded AIDS treatment that currently costs about $2 billion per year and could grow to as much as $12 billion a year by 2016—more than half of what the United States spent on total overseas development assistance in 2006. And the AIDS treatment entitlement would continue to grow, squeezing out spending on HIV prevention measures or on other critical development needs, all of which would be considered 'discretionary' by comparison."

In the United States, where spending on antiretroviral therapy is much less of an issue, the HIV epidemic is concentrated in MSM, a small percentage of the total US population; MSM alone accounted for 50% of attributable risk in 2006.⁸ This is particularly striking because this information
is based on surveillance data from only 33 states and excludes several states that have large gay and minority populations, such as California, Illinois, and Georgia. For the MSM population overall, HIV diagnoses increased 1.5% annually; for those 13 to 24 years of age, the annual rise was 12%.\(^8\)

To put this in perspective, unless prevention efforts improve dramatically, a gay man in his 20s in San Francisco has a 60% chance of becoming HIV-positive in his lifetime.\(^4\)

Among African American MSM, these numbers were even higher, with a nearly 15% annual increase among young MSM.\(^9\) “When you see a 15% yearly increase, that is an epidemic that is out of control,” said Phil Wilson, executive director of the Black AIDS Institute in Los Angeles.\(^10\) “And yet we don’t see a response that recognizes it is an epidemic out of control.” In addition, 3-year survival rates after an AIDS diagnosis were lower for African American MSM than for white or Hispanic MSM.\(^11\)

Among resource-rich nations, this shift in new infections to MSM is not limited to the United States. Thirteen western European countries reported a 55% increase in HIV cases among MSM from 1998 to 2005.\(^12\) MSM vulnerability is also likely to be a significant factor in some Latin American and Asian countries, although social and political obstacles to the collection of appropriate data in these regions make such assessments difficult.\(^13\)

Calls for targeted testing and prevention messages, including increased emphasis on personal responsibility (the “HIV Stops With Me” social marketing campaign is a good example\(^12\)), are fine but will not be easy given the extent of change required and the difficulty with any type of behavior modification program. A computer simulation comparing MSM with heterosexuals in the United States cautioned that “in order for MSM to eliminate the HIV epidemic, they would need to develop rates of unprotected sex lower than those currently exhibited by heterosexual individuals,” a several-fold change.\(^14\)

In terms of minority groups, compared with whites vulnerable to infection by virtue of sexual behavior or injection drug use, vulnerable African Americans are 37% less likely to be tested for HIV.\(^15\) African Americans and Hispanics were also less likely to be tested if they were ill.\(^15\)

Young minority women are another group for concern. The first national study of 4 common sexually transmitted diseases (STDs) among girls aged 14 to 19 years, part of the National Health and Nutrition Examination Survey, found that 1 in 4 young women were infected with at least one of the diseases and nearly half of the African American girls were infected.\(^16\)

In this study, 838 participants were chosen at random and 96% agreed to submit vaginal swabs for testing. Among the infected women, 15% had more than one disease: human papillomavirus infection, Chlamydia infection, genital herpes, or trichomoniasis.\(^16\) Although most HIV infections are not associated with STDs (they are due to the high risk of HIV exposure itself\(^17\)), these stark statistics also illuminate the failure in existing sex education and prevention messages.

References:

12. Jaffe HW, Valdiserri RO, De Cock KM. The reemerging HIV/AIDS epidemic in men who have sex...


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