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A Guide to AIDS Research and Counseling

HIV Epidemic Types and Customized Prevention Responses

Quarraisha Abdool Karim, PhD, and Leya Hassanally

Since the first reported case of AIDS 27 years ago, more than 70 million people have been infected with HIV worldwide, and 25 million have died of AIDS. The Joint United Nations Programme on HIV/AIDS (UNAIDS) estimates that 33 million people are currently living with HIV. The global prevalence of HIV has leveled off, but the total number of people living with HIV continues to grow.¹

This article briefly discusses the roles that different HIV transmission modes play in the worldwide pandemic, and explains how the global pandemic is actually a complex mosaic of dynamic epidemics within and between countries.² Further, it discusses matching appropriate prevention responses to two different types of epidemics: generalized and concentrated.

Modes of Transmission

HIV continues to spread relentlessly. Sexual transmission, both among heterosexuals and men who have sex with men, accounts for about 84 percent of all infections globally. In settings where heterosexual transmission is dominant, there is also an HIV epidemic in infants born to HIV-positive mothers. About 6 percent of all infections globally are associated with this “vertical” transmission. HIV antiviral treatments, together with formula feeding, have virtually eliminated vertical transmission in industrialized countries, but in some areas where HIV antiviral treatments are not available, or pregnancy and birth are largely unsupervised, or where water supplies are not safe to use for formula feeding, vertical transmission continues.

Approximately 5 percent to 7 percent of infections worldwide are associated with injection drug use, but in some areas of Central Asia and Eastern Europe, it accounts for at least two-thirds of new infections. Conversely, extensive screening of blood and blood products, which occurs routinely in resource-rich areas, has eliminated transmission via blood transfusion and hemophilia treatment in most, but not all, settings.

A Complex Mosaic

The HIV pandemic (that is, the global distribution of HIV infection) is actually composed of a network of local and regional epidemics. An *epidemic* is the emergence and rapid spread of a disease in a certain area or among a certain population group that were previously free of infection. In contrast, a disease is *endemic* if it is constantly present in a certain geographic area.

Local and regional HIV epidemics are diverse. One way to understand the differences among these epidemics is to consider what “stage” of the epidemic a region is experiencing. UNAIDS offers one classification system that describes *generalized epidemics* as ones in which HIV is widely established throughout the population, and the virus is spread primarily through heterosexual sex. *Concentrated epidemics* are those in which HIV is primarily restricted to defined populations, such as men who have sex with men, commercial sex workers, or injection drug users. As will be discussed below, the implications for prevention responses are different for these two types of epidemics.

A Generalized Epidemic

Although only about one-tenth of the world’s population resides in sub-Saharan Africa, two-thirds of all the HIV-positive people in the world—22 million people—live here. In 2007, there were 1.9 million new

Editorial: Target Audience

Michelle Cataldo, LCSW, Clinical Editor

The Centers for Disease Control and Prevention (CDC) released its new HIV incidence estimates in August 2008 to a mix of interest, controversy, and criticism. Much of the harsher commentary stemmed from delays in releasing the information—the CDC elected to go through a peer review process to ensure the accuracy of the numbers—and the fact that the number of new infections annually was 40 percent higher than had been previously believed. Some critics even charged that these new, much higher estimates meant that “prevention had failed.”

It is demoralizing to realize that the U.S. epidemic is even larger than we thought. Yet the articles in this issue of *FOCUS* suggest that it is not that HIV prevention has failed, but that prevention resources need to be more appropriately targeted in order to reduce HIV infection rates.

In their article, Quarraisha Abdool Karim and Leya Hassanally explain how “generalized” and “concentrated” HIV epidemics differ, and why considering these differences is important for successful prevention efforts. They note that in generalized epidemics, such as South Africa’s, HIV prevalence is devastatingly high, and heterosexual and mother-to-child transmission are common. In contrast, in countries with concentrated HIV epidemics, such as the United States, stigma often stands in the way of appropriate prevention responses. Since those most at risk in a concentrated HIV epidemic tend to be from marginalized populations, their identities and behaviors may be hidden, thwarting the possibility of prevention.

Patrick Sullivan, Amy Zapata, and Nanette Benbow, in the second

article, go behind the CDC incidence estimates. They point out that while these new numbers give a more accurate account of the scope of the epidemic, they do not fundamentally contradict what we already know about who is becoming infected in the United States: men of all races who have sex with men, and African Americans and Latinos of both sexes.

The take-home message I got from this article is that these more precise numbers give us another chance to recommit ourselves to targeting prevention resources appropriately, an especially important insight during a time of fresh starts and tight budgets. While anyone can get HIV, the truth is that some of us are much more likely to be at risk than others. Of course, it is harder to maintain public interest in HIV prevention as a national priority if large segments of our population feel immune. That may be the ultimate prevention challenge: generalizing public concern about HIV while concentrating efforts in the communities that need them most. ■

References

1. Joint United Nations Programme on HIV/AIDS. 2008 AIDS Report on the Global AIDS Epidemic. Geneva, Switzerland: Joint United Nations Programme on HIV/AIDS, 2008. http://www.unaids.org/en/KnowledgeCentre/HIVData/GlobalReport/2008/2008_Global_report.asp.
2. Abdool Karim SS, Abdool Karim Q, Gouws E, et al. Global epidemiology of HIV. *Infectious Disease Clinics of North America*. 2007; 21: 1–18.
3. Wilson D, Halperin DT. “Know your epidemic, know your response”: A useful approach, if we get it right. *Lancet*. 2008; 372(9637): 423–436.

infections.¹ Because of the high prevalence (greater than 5 percent of the adult population) and because heterosexual transmission is dominant, sub-Saharan Africa is a classic example of a generalized epidemic. Even more stark, HIV prevalence in seven Southern African countries—Botswana, Lesotho, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe—is considered *hyperendemic*. That is, prevalence rates exceed 15 percent, with new infection rates higher than 5 percent per year and rapidly increasing illness and death rates. South Africa, with an estimated 5.7 million residents living with HIV, has the largest HIV epidemic in the world.¹

There has been a slow recognition of the importance of customizing prevention responses to local epidemic characteristics. Effective interventions with vulnerable populations can contain the spread of disease in a concentrated epidemic. In contrast, a generalized epidemic requires multiple, widespread interventions. In certain generalized epidemics, some researchers have identified two key drivers of infection: concurrent sexual

partnerships and lack of circumcision among men.³ Thus, promoting the social norm of monogamous partnerships and making circumcision more safe and affordable may be key steps to confronting this epidemic.³

One catalyst for partner concurrency (in which an individual goes back and forth between sexual partners, greatly increasing the risk of acquiring and transmitting HIV) in this region has been the migrant labor system, which has removed young men from rural settings for as long as 11 months each year. As a consequence, marriage has become rare, and sexual partnerships are more transient and more concurrent. But the migrant labor system also drives risk in another way. Marriage typically confers economic protection on women, and many women who remain unmarried are ultimately drawn into sex work to survive. Thus, understanding how to intervene in this economic context is one of the many challenges facing prevention professionals in this generalized epidemic.

The only biomedical advance to prevent

sexual HIV transmission in three decades is circumcision. Recent randomized controlled trials demonstrate a 50 percent to 60 percent protective effect for the circumcised man who has sex with women.⁴ In a generalized HIV epidemic where pre-existing circumcision rates are low and HIV prevalence and incidence rates are high, promoting and providing safe and affordable circumcision services to men is critical to reducing transmission.³

“Generalized” prevention strategies that more directly benefit women are urgently needed. Women account for 57 percent of HIV cases in sub-Saharan Africa, and three-quarters of the young people living with HIV on the continent of Africa are women aged 15 to 24 years old.⁵ Despite the dramatic impact of HIV disease on women in the region, most prevention and treatment efforts related to women have been directed at preventing maternal-child transmission, an effort that has been quite successful but has not addressed the pressing need for HIV prevention and treatment in women.

Some biomedical interventions that could help stem the tide of HIV infection in both women and men, including diaphragms, acyclovir treatment of herpes simplex virus 2, and several microbicide products and vaccines, have been tested but have not yet proven effective. Researchers are currently testing the HIV antiviral drug tenofovir to determine its HIV prevention effectiveness in both sexes.

Access to HIV antiviral drugs in resource-constrained settings has dramatically increased, especially in these sub-Saharan regions of Africa. This increased access may also reduce transmission by reducing viral load levels in HIV-positive people, yet many who need them still lack these drugs. Failing health care delivery systems, stigma, discrimination, and limited human resource capacity are among the systemic and social obstacles that must be confronted for a truly effective response to this generalized epidemic.

A further challenge in this region is the

concurrent, large tuberculosis epidemic among HIV-positive people. Until recently, it was unclear whether or not an HIV-positive person should initiate HIV antiviral treatment prior to the completion of anti-tuberculosis treatment, so HIV antiviral treatment was often delayed. A new clinical trial suggests that giving HIV antiviral treatment during anti-tuberculosis treatment could reduce mortality rates in this population by 55 percent.⁶

Concentrated Epidemics

The prevention challenge in a concentrated epidemic stems from the fact that those infected are usually from groups whose behaviors are stigmatized, and sometimes outlawed: injection drug use, sex between men, and commercial sex work. While effective prevention with these vulnerable populations would be enough to reverse the growth of the epidemic, stigma often causes these populations to remain hidden and underserved. This makes even estimating the size of the vulnerable populations, not to mention HIV preven-

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tion, difficult. “Concentrated epidemic” techniques include saturating vulnerable populations with high-quality, targeted interventions, while engaging in stigma reduction campaigns for the general population.³ The United States and China offer two examples of areas with concentrated epidemics.

The United States. The HIV epidemic in the United States, like the epidemic in Canada, Central and South America, Europe, and Australasia, is a concentrated one. There are approximately 1.2 million people living with HIV in the United States, and there is an HIV prevalence rate of 0.6 percent, with an estimated 56,300 new infections occurring annually.^{7,8}

In the United States, the key vulnerable populations are men who have sex with men (48 percent of those living with HIV), injection drug users (19 percent), men who both have sex with men and inject drugs (5 percent), and those engaged in “high-risk” heterosexual intercourse (28 percent). “High-risk” heterosexual inter-

4. Gray RH, Kigozi G, Serwadda D, et al. Male circumcision for HIV prevention in men in Rakai, Uganda: A randomised trial. *Lancet*. 2007; 369(9562): 657–666.

5. Joint United Nations Programme on HIV/AIDS. Women, girls, gender, GCWA. Geneva, Switzerland: Joint United Nations Programme on HIV/AIDS, 2008. <http://search.unaids.org/Results.aspx?q=women&x=0&y=0&o=html&d=en&l=en&s=false>.

6. Centre for the AIDS Programme of Research in South Africa. Press Release—Important New Research Findings on Treatment of TB-HIV Co-infection. Durban, South Africa: CAPRISA—Centre for the AIDS Programme of Research in South Africa, 2008. <http://www.caprisa.org/joomla/index.php/memberaccess/95-pressrelease17092008>.

7. Centers for Disease Control and Prevention. CDC HIV/AIDS Facts: New Estimates of U.S. HIV Prevalence, 2006. Atlanta: Centers for Disease Control and Prevention, 2008. <http://www.cdc.gov/hiv/topics/surveillance/resources/factsheets/pdf/prevalence.pdf>.

8. Centers for Disease Control and Prevention. CDC HIV/AIDS Facts: Estimates of New HIV Infections in the United States. Atlanta: Centers for Disease Control and Prevention, 2008. <http://www.cdc.gov/hiv/topics/surveillance/resources/factsheets/pdf/incidence.pdf>.

9. El-Sadr W, Hodder S, Justman J, et al. Responding to an Evolving U.S. Epidemic: An HIV Prevention Research Agenda. Nashville, Tenn.: Domestic Prevention Working Group of the HIV Prevention Trials Network, 2008. <http://www.hptn.org/web%20documents/DPWG/HPTNDomesticResearchAgenda03-29-08.pdf>.

10. Joint United Nations Programme on HIV/AIDS. UNGASS Country Progress Report: P.R. China. Geneva, Switzerland: Joint United Nations Programme on HIV/AIDS, 2008. http://data.unaids.org/pub/Report/2008/china_2008_country_progress_report_en.pdf.

11. Avert.org. HIV and AIDS in China. West Sussex, United Kingdom, 2008. <http://www.avert.org/aidschina.htm>.

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course is defined as “sex with a partner “known to have, or be at high risk for, HIV infection,” including sex with injection drug users.⁷ Prevention strategies suitable for concentrated epidemics—needle exchange, drug substitution programs (such as methadone maintenance), and other harm reduction measures—have led to a decline in the U.S. epidemic among injection drug users.⁹ This is true despite the fact that it is illegal for federally funded programs to offer needle exchange services.

Likewise, the emphasis on maternal HIV testing and prophylactic HIV antiviral treatment has nearly eradicated vertical transmission in the United States. While this is a great success story, it has not had a tremendous impact on the number of total infections in the United States, because mother-to-child transmission is not a critical driver of new infections in the U.S. epidemic as it is in areas of generalized HIV rates.

The U.S. epidemic continues to grow among key subpopulations, particularly young Black men who have sex with men and Black heterosexual women. In fact, the epidemic is concentrated in the United States not only by transmission category, but also by race. Black people make up only 12 percent of the U.S. population, yet they accounted for 46 percent of HIV cases in 2006. HIV also disproportionately affects Latinos—the HIV prevalence rate among Latinos is 2.6 times that of Whites.⁷ Following a “concentrated” epidemic prevention strategy means directing additional behavioral intervention resources to these hardest hit groups: men who have sex with men, and the Black and Latino communities, with special emphasis on Black and Latino men who have sex with men and Black and Latina women.

China. The overall HIV prevalence in Asia remains low. Yet, because of the continent’s enormous population, the absolute numbers of people living with HIV are high, especially in India and China. In China, prevalence across the entire population is estimated at .05 percent, but, as home to one-fifth of the world’s population, this means that 700,000 people were living with HIV there in 2007.¹⁰ UNAIDS estimates that, among people living with HIV in China in 2007, 40.6 percent were infected through heterosexual transmission, 11 percent through sex between men, 38.1 percent through shared injection equipment, and 9.3 percent through contaminated blood

products. Maternal-child transmission was responsible for just 1 percent of cases.¹⁰

Commercial sex work plays an important role in bridging between communities in which the epidemic is more concentrated and less concentrated. Women who inject drugs often sell sex to survive and to pay for drugs. Men who inject drugs are more likely to purchase sex than are men who do not inject drugs.¹¹

In response to the epidemic among injection drug users, the Chinese government initially focused on educating substance users on the harms of drug use, but in the late 1990s, its attitude changed and a pilot needle exchange program began in 2000. Today, both needle exchange and drug substitution programs (such as methadone maintenance) exist: there are 729 needle exchange stations in China, and two-thirds of provinces have methadone maintenance clinics.^{10,11} Similarly, the Chinese government was initially reluctant to take prevention measures with sex workers, fearing such measures would encourage prostitution. Prevention now varies by province, with some regions introducing the “100 percent condom use” policy, similar to Thailand’s successful campaign to reduce new infections by mandating condom use in brothels.¹¹

Homosexuality in China is stigmatized, the consequences being that most men who have sex with men are married and it is difficult to openly discuss HIV risk reduction measures. Earlier this year, however, the Ministry of Health announced that it would target resources toward this vulnerable population with specific HIV prevention programs.¹¹

Conclusion

Sub-Saharan Africa, the United States, and China offer three examples of the worldwide diversity of the HIV pandemic. Epidemic typology—the classification of these epidemics—offers one way to think about the nature and challenges of generalized and concentrated epidemics, to plan prevention responses, and to allocate resources.

While these typologies suggest divergent interventions, it is important to remember that even within generalized epidemics, there are vulnerable populations whose specific needs must be considered. Likewise, in concentrated epidemics, large-scale social change may be necessary to reduce the marginalization associated with stigmatized identities. ■

New U.S. HIV Incidence Numbers: Heeding Their Message

Patrick S. Sullivan, DVM, PhD, Amy Zapata, MPH, and Nanette Benbow, MPH

References

1. Green TA, Karon JM, Nwanyanwu OC. Changes in AIDS incidence trends in the United States. *Journal of Acquired Immune Deficiency Syndromes*. 1992; 5(6): 547-555.
2. Sullivan PS, McKenna MT, Janssen RS. Progress toward implementation of integrated systems for surveillance of HIV infection and morbidity in the United States. *Public Health Report*. 2007; 122(Suppl 1): 1-3.
3. Hall HI, Song R, Rhodes P, et al. Estimation of HIV incidence in the United States. *Journal of the American Medical Association*. 2008; 300(5): 520-529.
4. Centers for Disease Control and Prevention. Trends in HIV/AIDS diagnoses among men who have sex with men—33 states, 2001-2006. *Morbidity and Mortality Weekly Report*. 2008; 57(25): 681-686.
5. Centers for Disease Control and Prevention. Subpopulation estimates from the HIV incidence surveillance system—United States, 2006. *Morbidity and Mortality Weekly Report*. 2008; 57(36): 985-989.
6. Centers for Disease Control and Prevention. Estimates of New HIV Infections in the United States. Atlanta: Centers for Disease Control and Prevention, 2008. <http://www.cdc.gov/HIV/topics/surveillance/resources/factsheets/incidence.htm>.

In August 2008, the Centers for Disease Control and Prevention (CDC) significantly revised its estimates of the annual number of new HIV infections in the United States. While the previous incidence estimate had been about 40,000 new infections annually, the August 2008 report suggests that the true number is closer to 56,300 new infections per year.

This article reviews the new HIV incidence estimates and offers some context as to how the CDC derived them. It also explores how the new incidence data compare to previously available data from HIV/AIDS case surveillance systems, and where the incidence data suggest prevention efforts be focused.

A New Way of Counting

To understand the significance of the new incidence numbers, it is important to understand how they and previous estimates of incidence were derived. Historically, HIV incidence in the United States has been estimated using informal approaches based on incidence in specific risk subpopulations, and through back-calculation approaches. In back-calculation studies, epidemiologists noted the number of AIDS cases that were reported in a given period of time. They then estimated when each of these people with AIDS was likely to have been infected with HIV. These estimates of when infection occurred were based on assumptions of a predictable period of time between infection and AIDS diagnosis. With the advent of effective HIV antiviral treatments, the length of time between HIV infection and diagnosis with AIDS became both longer and more variable, so this method became unreliable.^{1,2} Also, after HIV infection became a reportable condition, there was more information about the number of people with HIV who had not progressed to AIDS.

More recently, the CDC began using a newly developed blood testing method: the BED HIV-1 capture enzyme immunoassay (or “BED”).³ This test can distinguish people whose HIV infections were likely acquired within the prior six months from those whose infections are of longer dura-

tion. This technology has allowed the CDC to expand its routine *HIV/AIDS case surveillance system* (which includes all reported HIV and AIDS diagnoses for a year) to create a new *incidence surveillance system* that can estimate specifically the number of newly acquired HIV infections. This much more accurate incidence estimate will give epidemiologists a true snapshot of how and where the epidemic is growing.

To estimate these HIV incidence rates, serum remaining from HIV antibody tests is sent to a reference laboratory for testing with the BED immunoassay. The results from the BED testing are used in conjunction with information collected as part of case reporting to determine how many of these newly diagnosed individuals are also newly infected. For the 2006 national estimate, samples analyzed came from 22 states. Because these 22 states represent more than 70 percent of the total number of U.S. AIDS cases, these data are considered to reflect HIV incidence in the nation as a whole. For this incidence estimate, however, serum samples from only a small percentage (17 percent of newly diagnosed people) were tested using BED.³

Researchers determined that approximately 31 percent (2,133 people) of the cases tested using the BED assay represented recent infections.³ They then used their understanding of the demographics and testing history of this group of newly infected people, as well as information from those whose specimens were not tested, to “multiply up” to their estimates of HIV incidence in the entire U.S. population. This new method of estimating HIV incidence is known as a “stratified extrapolation approach.”

Although the new data show that the epidemic is worse than was previously known, the main difference between the previous CDC estimate of 40,000 new infections per year and the new HIV incidence estimate is that the new estimate is a much more accurate reflection of what the true incidence of HIV has been in the United States for some time. While the new numbers do mean that more people per year were becoming infected than was previously believed, they do not mean that there has been a recent “jump” in new infections—only an improvement in our ability to recognize new infections.

The primary value of the new incidence estimate method is that it will now be easier to identify shifts in the course of the

epidemic and trends over time sooner. For example, increases in new HIV diagnoses among men who have sex with men began as early as 1999, but it was not until 2008 that epidemiologists made a definitive statement noting increasing HIV incidence trends in this population.⁴ Examining year-to-year estimates of HIV transmission will allow public health scientists to recognize these new trends earlier, and make changes in funding and programmatic priorities more quickly.

What the New Numbers Mean

The new incidence numbers generally confirm what existing case surveillance data had previously shown about the impact of the U.S. epidemic on men who have sex with men and Black Americans. Although the news of the revised estimate has generated much excitement, the new estimates offer few surprises: the new data do not suggest that the current state of the epidemic or recent trends in the epidemic in the United States are substantially different from what was previously believed. Rather, they remind us of the important roles of race, age, gender, and routes of transmission in understanding the current epidemic.

Incidence data suggest that, in 2006, more than half of new HIV infections occurred among men who have sex with men.³ Further, men who have sex with men were the only transmission category for which HIV incidence increased since the year 2000. But these findings are not new: they echo previous findings from case surveillance data. Case surveillance data indicate that, in 2006, 50 percent of new HIV case reports were from men who have sex with men, and trend analysis of HIV case report data indicated increasing trends in HIV infection among men who have sex with men from 2001 to 2006.⁴

Among men who have sex with men, the patterns of new HIV infections varied among racial and ethnic groups: more newly infected men of color were in younger age groups, compared with newly infected White men. The largest group of new HIV infections among Black and Hispanic men who have sex with men were among men aged 13 to 29, whereas the largest group of new infections in White men who have sex with men were among men aged 30 to 39.⁵

Forty-five percent of new infections in 2006 occurred among Blacks.⁵ Heterosexual transmission accounted for 83 percent of new infections among Black women, but only 20 percent of new infections among Black

men.⁵ Black women accounted for 61 percent of new infections in women, and incidence rates in Black women were 14.7 times as high as those of White women. Black men accounted for 40 percent of new infections among men, and had incidence rates 5.9 times as high as those of White men.

In contrast, only approximately 12 percent of new infections in 2006 occurred among injection drug users. From a high in 1998–2000, new HIV infections among injection drug users declined 80 percent through 2003–2006.⁶

Thus, the new 2006 incidence estimates and trends largely reinforce the relevance of the CDC's recently established HIV prevention priorities. For example, in 2007 the CDC announced a Heightened National Response to the African American HIV epidemic in the United States, and has since taken important steps to engage community, religious, and scientific leaders in this response.⁷ According to the CDC's Compendium of Effective HIV Prevention Interventions, 20 of the 31 (65 percent) "best evidence" interventions have been tested with a majority Black study population.

Conversely, while public health scientists and local community planning groups have long recognized that men who have sex with men represent the largest (and, according to new data, still growing) HIV subepidemic in the United States,⁴ prevention interventions for use with this group remain inadequate. Although men who have sex with men bore the burden of more than half of the new HIV infections in 2006, only four (13 percent) of the 31 "best evidence" HIV prevention interventions have been tested among men who have sex with men, and none of those four interventions has been tested in a study population with a majority of Black men who have sex with men.⁸

Comments and Submissions

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7. Centers for Disease Control and Prevention. A Heightened National Response to the HIV/AIDS Crisis Among African Americans. Atlanta: Centers for Disease Control and Prevention, 2008. <http://www.cdc.gov/hiv/topics/aa/resources/reports/heightendresponse.htm>.

8. Centers for Disease Control and Prevention. Updated Compendium of Evidence-Based Interventions. Atlanta: Centers for Disease Control and Prevention, 2008. <http://www.cdc.gov/hiv/topics/research/prs/evidence-based-interventions.htm>.

9. Gerberding J. HIV/AIDS in the United States: A Look Back and a Look Forward: Testimony Before the Oversight and Government Reform Committee, United States House of Representatives. Atlanta: Department of Health and Human Services, Centers for Disease Control and Prevention, 2008. <http://oversight.house.gov/documents/20080916101852.pdf>.

10. Holtgrave D. Written Testimony on HIV/AIDS Incidence and Prevention for Congressional Hearing to be held September 16, 2008. <http://oversight.house.gov/documents/20080916115223.pdf>.

11. United States Office of Management and Budget. Guidance on Agency Survey and Statistical Information Collections. Washington, D.C.: United States Office of Management and Budget, 2006. http://www.whitehouse.gov/omb/inforeg/pmc_survey_guidance_2006.pdf.

Looking to the Future

The new incidence numbers underscore the need for the strategic allocation of research and prevention resources. In particular, additional resources must be devoted to the development and dissemination of new HIV prevention interventions for men who have sex with men, especially men of color who have sex with men. The drivers of risk may be different for these men than they are for either Black and Hispanic men who have sex only with women or White men who have sex with men. With the high annual number of new HIV infections among young men who have sex with men, there is a need to ensure that prevention efforts reach each new generation. In addition, there are still major gaps in our understanding of the role of stigma, poverty, and incarceration as drivers of the HIV epidemic among Black Americans.⁷

As CDC Director Julie Gerberding recently noted, dramatically increased resources are needed at all levels of the U.S. HIV prevention system.⁹ An analysis of funds available to support HIV prevention efforts shows a 19 percent reduction in CDC's inflation-adjusted prevention budget since fiscal year 2002.¹⁰ The new incidence numbers confirm the existence of a reemerging epidemic among men who have sex with men and ongoing, stark disparities by race and ethnicity. With the excitement of this new, clearer view of the U.S. HIV epidemic comes the responsibility to respond by committing new resources to these high-priority populations, and to use existing resources to prevent new infections among those suffering the greatest impact of HIV infection in the United States.

Translating the benefit of this new information to affected communities is more than a federal effort. The community planning process makes local prevention efforts more responsive to local epidemics. If local incidence and case surveillance data sug-

gest increasing trends in men who have sex with men or in communities of color similar to national trends, the new data should prompt reevaluation of local prevention portfolios to ensure alignment of allocation of prevention with current trends. Tracking new infections over time will complement data from HIV case surveillance to help evaluate and inform local prevention efforts and ensure responsible prioritization of limited prevention funds.

Another key to deriving the greatest benefit from this new system is more comprehensive testing of serum specimens. 2006 is the first year for which epidemiologists have based HIV incidence estimates on information from blood specimens together with case surveillance data. The CDC incidence surveillance system obtained blood specimens from only 17 percent of people newly diagnosed with HIV in 2006. To reduce the risk of bias in the surveillance system, a higher percentage of specimens should be tested; some federal agencies suggest minimum completion rates of 40 percent to 80 percent

for data systems that have a high impact on policy decisions.^{11,12} Although surveillance systems are different from other kinds of surveys, efforts are needed to improve the completeness of specimen acquisition and to discover whether the small percentage of specimens obtained by the system affects the conclusions about HIV incidence.

Conclusion

While the new U.S. HIV incidence numbers do not reveal an epidemic that is qualitatively different from what was previously understood, they do confirm stark disparities about who is becoming infected—and an understanding of these disparities must drive research and prevention efforts. The American public has made a substantial investment in a new data system that is a leap forward in the science of surveillance; we owe it to those at greatest risk for HIV to insist that research and prevention resources be prioritized according to its findings. ■

The new incidence numbers confirm the existence of a reemerging epidemic among men who have sex with men, and ongoing, stark disparities by race and ethnicity.

12. Public Works and Government Services Canada. *Standards and guidelines for: Response rate*. Advisory Panel on Telephone Public Opinion Survey Quality. 2008; <http://www.tpsgc-pwgsc.gc.ca/rop-por/rapports-reports/comite-telephone-panelphone/tam-toc-eng.html>.

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Journal Articles

Baral S, Sifakis F, Cleghorn F, et al. Elevated risk for HIV infection among men who have sex with men in low- and middle-income countries 2000–2006: A systematic review. *PLoS Medicine*. 2007; 4(12): e339. Reviews 83 HIV studies of men who have sex with men including 38 low- and middle-income countries in Asia, Africa, the Americas, and Eastern Europe. Meta-analysis revealed that men who have sex with men had 19.3 times the chance of being HIV-positive as did the general population of reproductive-age adults. The authors call for greater inclusion of men who have sex with men in prevention programs and expansion of surveillance efforts to include men who have sex with men in countries where they are currently ignored.

Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. *PLoS Medicine*. 2006; 3(11): e442. Charges that previous estimates of global mortality and disease burden substantially underestimated the spread of HIV and AIDS. Attempts to support international health policy priority setting by offering new global projections for a variety of diseases, including HIV disease. Offers a “baseline” scenario suggesting that annual worldwide AIDS deaths will rise from 2.8 million in 2002 to 6.5 million by 2030 even if HIV antiretroviral therapy treatment reaches an 80 percent coverage level across all regions by 2012. This scenario does not account for any reduction in HIV transmission as a result of treatment or enhanced prevention efforts. Much of the growth, both in HIV incidence and deaths in these projections, is due to the population growth that is projected in sub-Saharan Africa.

Schwarcz S, Weinstock H, Louie B, et al. Characteristics of persons with recently acquired HIV infection: Application of the Serologic Testing Algorithm for Recent HIV Seroconversion in 10 U.S. Cities. *Journal of Acquired Immune Deficiency Syndromes*. 2007; 44(1): 112–115. Explains how the Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS) method was used to test the specimens of

964 HIV-positive participants in 10 U.S. cities in order to determine the recency of their HIV infections. Reveals those who were more often infected within the last 170 days: men, men who have sex with men, people with a known HIV-positive partner, and people with a gonorrhea diagnosis in the past year—as well as those who had more often been infected more than 170 days: African Americans, Latinos, heterosexual men, and women.

Web Sites

Kaiser Family Foundation: HIV/AIDS. <http://www.kff.org/hiv/aids/>.

This organization publishes reports, fact sheets, and slide sets on both the global and domestic HIV situation. 2008 fact sheets include updates on the HIV epidemics in Asia, South Africa, and sub-Saharan Africa, and on the U.S. epidemic and Black Americans, Latinos, and women.

World Health Organization (WHO): Health Topics—HIV/AIDS. http://www.who.int/topics/hiv_aids/en/. This site offers a global online HIV database and epidemiological fact sheets on HIV and sexually transmitted infections for 170 countries. Single-page country profiles include multi-year information on HIV prevalence, number of people living with HIV, annual number of deaths, and degree of HIV antiviral therapy coverage by country. ■

Next Issue

In the Winter 2009 issue of *FOCUS*, **Christian Grov, PhD, MPH, MPhil**, Assistant Professor in the Department of Health and Nutrition Sciences at the City University of New York, explores the complicated intersections between sexually compulsive behavior, the Internet, and HIV risk and risk reduction.

Also in the Winter issue, **John Giugliano, PhD, LCSW**, Assistant Professor at the Center for Social Work Education at Widener University, delves into the clinical debate over the concept of sexual compulsivity itself, examining the features of out-of-control sexual behavior and explaining what HIV service providers need to know about its prevention and treatment.