

Integration of Testing for, Prevention of, and Access to Treatment for HIV Infection: State and Local Perspectives

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Individuals vary by socioeconomic status, race, geographic location, access to health care, risk for exposure to human immunodeficiency virus (HIV), and other co-occurring conditions, making it difficult to reach those who are at high risk for HIV infection. At the state and local levels, health departments often struggle to provide HIV prevention and care services, because of inadequate funding, fragmented systems, and a host of federal and state regulations. State and local health departments, however, have become adept at providing a patchwork of services despite these challenges. This report discusses public health efforts to improve testing for, prevention of, and access to treatment of HIV infection and the various challenges to their success at the state and local levels.

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STATE PERSPECTIVE

A major undertaking of state health departments is to identify hard-to-reach, at-risk populations and provide disease prevention services and medical care. To prevent, control, and provide treatment for HIV infection, states receive funds from an array of sources and funnel these resources into various HIV/AIDS testing, surveillance, prevention, and treatment initiatives, including AIDS Drug Assistance Programs (ADAPs).

A number of programs and facilities have traditionally been built into the HIV/AIDS networks of state health departments, including those addressing sexually transmitted diseases (STDs), substance abuse, mental health, reproductive health, maternal and child health, adolescent and school health, correctional health, and rural and migrant health; Medicaid and Medicare; housing; and state laboratories. In addition, state health departments often partner with city and county health departments, community-based organizations, academic and research institutions, hospitals, public clinics, health centers, and federal agencies. Although state health departments must deal with a number of important health care issues, not the least of which is the complex coordination of HIV/AIDS-related activities, there is no uniformity in the structure and scope of

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health departments, which is a testament to the flexibility of public health programs designed to fit local community needs. Therefore, individual approaches to HIV/AIDS-related activities vary from state to state.

Prevention of HIV infection. States are focusing on expanded HIV testing (including traditional and rapid testing methods), prevention case management, counseling HIV-positive persons on prevention, partner counseling and referral services (PCRS), disease surveillance, screening for and treating STDs and viral hepatitis, and linkage to treatment for HIV/AIDS. Prevention counseling remains an important tool for high-risk, HIV-negative individuals whose contact with the health care system occurs via HIV testing programs. Individual states must have the flexibility to perform functions suited to the needs of their populations, because all programs may not be necessary or effective in all states. The complexity of new cases of HIV infection, as well as the mental health and substance abuse issues often associated with these cases, requires improved communication and coordination of HIV medical programs between state and local agencies.

Testing for HIV. For state HIV testing programs to be successful at reaching high-risk communities, there must be effective infrastructure in place to support them. This requires coordination with community-based organizations and partners, as well as adequate funding to support testing efforts. Rapid HIV testing is an important element in testing high-risk populations, because of the immediate knowledge of HIV serostatus that can be gained. Although the use of rapid testing has increased, a recent survey of state health departments found that there is a 2:1 ratio in favor of traditional testing methods. The lack of available resources was cited as the main reason for preferring traditional testing methods [1].

The benefits of rapid, point-of-care testing must be balanced against at least 2 factors: the increased cost of rapid tests relative to the cost of traditional ELISAs and the efficiency of rapid tests in high-volume settings, such as emergency departments and STD clinics, where the volume of clients sometimes renders traditional testing more efficient. A significant increase in the use of rapid testing cannot occur, however, without adequate funding and infrastructure. States appear to be evaluating the benefits of rapid testing in medical settings on a case-by-case basis, as it is clear that there is no one-size-fits-all solution.

Treatment of HIV infection. Integrating testing and prevention with treatment is an essential factor and perhaps the biggest challenge in comprehensive HIV/AIDS management. Treatment programs must be available immediately to individuals with newly diagnosed HIV infection, yet the obstacles to rapid implementation of care and prevention programs seem to be mounting. In the public sector, there have been funding challenges for health care programs, and our fragmented health care system and the silo approach to funding (which emphasizes

separate funding streams for prevention and care) have not encouraged—and may have hindered—the development of linkages needed to facilitate the diagnosis of HIV infection and the rapid entry of HIV-infected individuals into medical care. In the public sector, cuts in Medicaid programs and changes to Medicare Part D are also affecting patient access to medical care.

States are responsible for administering treatment funding from Part B of the Ryan White Program, which focuses on ADAPs as well as primary medical care and other supportive services. The Ryan White Program was recently reauthorized by Congress, and states have an increased role in coordinating programs within it, including Part A, which provides treatment services in the hardest-hit metropolitan areas of the country; Part C, which provides direct medical care through community health centers and other clinics; and Part D, which provides services to families, women, children, and infants.

Funding for the Ryan White Program has been generally flat [2]. ADAPs have received small increases in funding in the past few years; other programs funded by the program—Parts A, C, and D—have not received increased funding and have actually experienced cuts because of federal budget rescissions. Although ADAPs have experienced minor funding increases, the growth in funding is not significant, especially with the expected increase in the number of individuals with confirmed HIV infection that may occur as the new Centers for Disease Control and Prevention (CDC) testing recommendations and programs are put into practice. The states' mandate is to coordinate programs across all programs supported by the Ryan White Program, which is a critical task that is often difficult to achieve because of the legal complexity of the Ryan White Program and the often fragmented care structures at many levels.

Funding and resources. A key obstacle to the states' function in providing HIV prevention activities is a lack of funding. Over the past 3 years, there have been \$21 million in cuts to state HIV prevention cooperative agreements, which threaten existing infrastructure and programs [3]. With additional reporting and programmatic mandates from the CDC through health department cooperative agreements, it is becoming increasingly difficult to identify and bring more people into the HIV/AIDS care system. Another often-cited barrier to effective treatment is the critical shortage of health care professionals trained to treat individuals with HIV/AIDS. As a result, the increasing effectiveness of new treatments is, in some settings, being thwarted by greater costs and a shrinking availability of trained staff to implement them [4].

Improving the HIV/AIDS public health infrastructure. A number of steps can be taken to foster the successful integration of testing for, preventing, and treating HIV infection. Primary among them is to address the barriers to HIV testing,

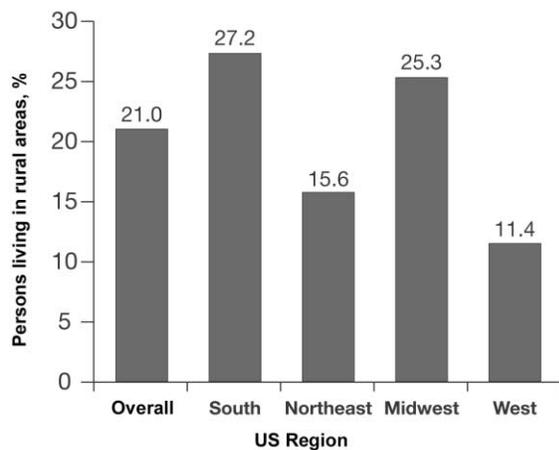


Figure 1. Percentage of persons living in rural areas in 2000, by US region. Data are from [5].

particularly reimbursement issues and the extension of testing beyond traditional medical settings. Particular attention must be given to the cultural appropriateness of testing, access to medical care, and care messages. Treatment services must be available immediately upon diagnosis—“one-stop shopping” models are often suggested to minimize the potential for excessively long waiting times that may result in people being lost to the system. Collaboration must increase among health departments, medical providers (i.e., health care professionals and health care clinics or centers), and other organizations to improve linkages to treatment services. Greater efficiencies will be achieved through the integration of often-fragmented programs that deal with such issues as viral hepatitis, substance abuse, mental health, and correctional health. Finally, we must balance expanded testing with expanded funding for care, treatment, and related prevention and support services. This might require adjusting the current funding model, which addresses the continuum of health problems faced by HIV-infected individuals, in favor of integrating, or blending, the funding sources that support the diagnosis and treatment of individual conditions (e.g., hepatitis, HIV infection, and STDs).

LOCAL PERSPECTIVE

The US HIV epidemic can be characterized as more problematic in the South. There are many reasons for this. First, a larger proportion of individuals in this region reside in rural areas, where access to care may be more difficult (figure 1). In addition, the large African American population has much higher rates of STDs and HIV infection than those recorded for white and Hispanic populations [6]. The striking contrasts in rates of new infections and AIDS cases between African Americans and white individuals must be viewed in the context of historical racism, classism, and a general mistrust of the health

care establishment among minorities. Poverty also stands in the way of access to medical care (figure 2). Too often, persons presenting with HIV infection are poor, live in a rural region, have a minority ethnic or racial background, and first learn of their infection late during the course of disease—almost 40% of individuals with newly diagnosed HIV infection receive a diagnosis of AIDS <12 months after infection was diagnosed, an indication of late presentation [8].

The HIV epidemic in the South is heterogeneous. Risk groups for acquiring HIV in the South vary more widely than in other regions, which makes it more difficult to target specific populations. These risk groups include white men who have sex with men (MSM), African American MSM, African American men who identify themselves as heterosexual or bisexual, and African American women who acquire HIV through injection drug use or heterosexual intercourse with African American men who have not disclosed their risk behaviors or positive HIV serostatus.

In rural areas, there is often limited infrastructure for transportation and housing, which means that patients travel further for medical care, resulting in a cost for delivery of services that is greater than that found in urban areas. The key issue here, therefore, is how we successfully integrate programs for HIV testing, prevention, and access to treatment in this milieu.

CASE STUDY: THE NORTH CAROLINA EXPERIENCE

The southeastern region of the United States has the greatest proportion of AIDS cases and deaths in the country [9]. North Carolina is among the southern states with a significant HIV epidemic, and in this section we consider how the state has handled the responsibilities of HIV/AIDS testing, prevention, and access to medical care.

In North Carolina, women represent 32% of all cases of HIV

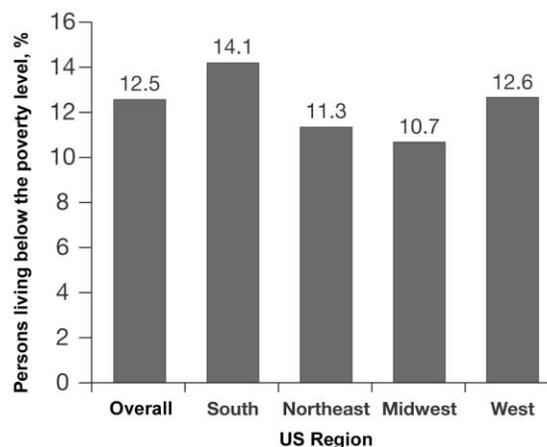


Figure 2. Percentage of persons living below the poverty level in 2003, by US region. Data are from [7].

infection: 76% of infected women are African American, 7% are Hispanic, and 83% are heterosexual. Most HIV-positive women in the state are infected through heterosexual contact. Among men infected with HIV, 62% are African American, 5% are Hispanic, and 23% are heterosexual [10]. The University of North Carolina HIV/STD Prevention and Care clinics are still seeing late diagnoses of HIV, with rates as high as 13% in some clinics [10]. Generally, a late diagnosis is one in which an HIV diagnosis progresses to an AIDS diagnosis <12 months after the diagnosis. A retrospective review of data on men aged 18–30 years in whom HIV infection was diagnosed during 2000–2004 showed that Hispanic men were more likely than non-Hispanic men to receive a late diagnosis and that, during the study period, the rate of late diagnosis among Hispanic men increased while the rate for the total population decreased [11].

The Hispanic population with HIV/AIDS is increasing in North Carolina but is being completely missed by the system, because many Hispanic individuals do not seek medical care until they are symptomatic. This reluctance to seek care is the result of language barriers, lack of transportation, and the assumption by this population that they will be deported if they receive a diagnosis of HIV infection. To address this problem, North Carolina is convening a task force that will focus on the cultural barriers confronted by Hispanic individuals in their attempt to accessing care.

Although the US rate of AIDS among HIV-infected persons increased by 4% between 2000 and 2004, the incidence of AIDS among HIV-infected persons in North Carolina increased by an astounding 60% during the same period (figure 3) [10]. This disparity may be attributed to a number of contextual factors, including poverty, imprisonment, sexual concurrency (i.e., multiple sexual relationships during the same interval or sexual relationships that overlap in time), institutional racism,

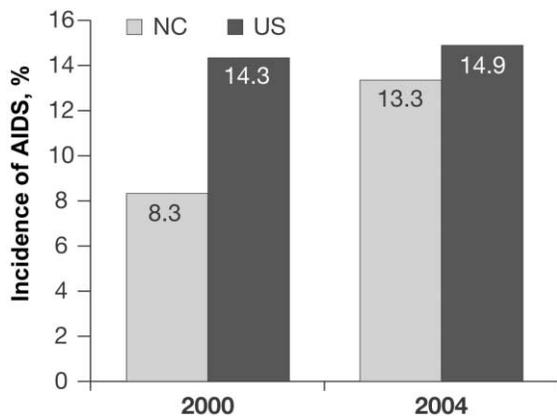


Figure 3. Comparison of the incidence of AIDS among HIV-infected persons in the United States and North Carolina in 2000 and 2004. Data are from [10].

STDs, and sexual bridging (sexual partnerships between people at higher and lower risk for STDs), as well as the continued stigmatization of HIV infection and homosexuality [12, 13].

RECOMMENDATIONS

The pathway to successful care of HIV infection has been limited by the failure of the HIV-infected individual and the health care provider to recognize risk at the individual level. Once an individual receives a diagnosis of HIV infection, many barriers continue to prevent linkage to medical care and, most importantly, maintenance of care. It is critical that we recognize the barriers that short-circuit this pathway and contribute to the health disparities we are witnessing. These barriers are societal, economic, psychological, structural, cultural, political, and personal. Identifying and removing these barriers will facilitate our efforts at integrating testing, prevention, and access to treatment.

North Carolina has adopted several strategies to identify HIV-infected individuals earlier during the course of infection. The strategies include universal implementation of opt-out HIV testing in all publicly funded STD clinics. Approximately 30% of individuals with newly diagnosed HIV infection are identified through our STD clinics. We have also included HIV testing in our outreach activities, which include screening programs as part of syphilis elimination activities in the community and jails. A third strategy is to identify acute HIV infection (AHI) by use of pooled nucleic acid amplification testing of all serum samples for which ELISA results were negative and Western blot results indeterminate for HIV RNA. Once identified, partner notification occurs 24–48 h later. Sex partners of individuals with newly diagnosed HIV infection are brought in by our disease intervention specialist for free HIV testing and counseling. All AHI cases identified through the state screening program or by community reporting are reviewed for risk factors and to determine sexual and social networks. We analyze the cases to determine whether HIV transmission in North Carolina is following discernible patterns, including spatiotemporal clustering or seasonality, that might be useful to specific communities in targeting HIV prevention interventions.

We also address 4 groups of questions. First, how closely related are the viral strains currently being transmitted in North Carolina? Does phylogenetic analysis of HIV RNA sequences indicate extensive case clustering that has not been detected by existing surveillance systems? Second, if there is evidence of clustering, were the apparent relationships already detected through the state’s existing contact tracing system, as already recorded in the AHI database? Third, what is the prevalence of resistance to antiretroviral drugs among newly infected patients in North Carolina? Fourth, are there discernible patterns to the transmission of HIV drug resistance in the state?

From January 2000 through June 2004, a total of 1163 males

in North Carolina were identified as infected with HIV, many (13%) of whom attended college [14]. The increase in the incidence of HIV infection among college graduates was first identified through our AHI screening program and led to an outbreak investigation. As a part of this outbreak investigation, a sexual network in the region was charted. Two worrisome trends were identified. First, ~33% of the seropositive MSM identified also reported that they had had sex with women. Second, many of the sex partners of infected individuals were students at other colleges, with connections via school-related activities, prearranged sex parties in other cities, the Internet, and a few clubs located in 4 metropolitan areas of North Carolina [15].

In response to the college outbreak and the increase in newly diagnosed HIV infection among young men of color, we developed a social marketing campaign designed to increase identification, testing, and enrollment in enhanced HIV services for young MSM of color at risk for HIV infection who are attending any of 5 North Carolina colleges or universities in the Raleigh-Durham metropolitan area. We have conducted rapid HIV testing events on college campuses and have worked to expand the availability of HIV testing through student health centers on the 16 state university campuses and the North Carolina campuses of Historically Black Colleges and Universities (HBCUs). In 1 case, the university tested >300 individuals in 1 day and ran out of rapid HIV tests, and on World AIDS Day in 2005, more HIV tests were performed and more diagnoses made in 1 day at the University of North Carolina–Chapel Hill campus than for the entire year at that university's student health service. The cultural messages proved to be important, and there were provisions for immediate counseling for all who were tested. To increase retention of seropositive MSM of color aged 18–24 years in medical care, we developed programs to increase cultural and lesbian, gay, bisexual, and transgender sensitivity among clinic staff, physicians, and disease intervention specialists, to create a comfortable clinic environment for these youth. We conducted surveys of these youth and of health care professionals throughout the state to identify barriers to care and develop several specifically designed clinics for MSM of color by linking them with outreach workers and counselors from the community. In a 2-year period, we have been able to enroll ~50 young MSM of color into the clinic, the rate of retention in care has been maintained at >85%.

The new CDC recommendation for universal HIV testing of all sexually active adults will help facilitate identification of HIV-infected individuals whose infection was previously not known. This strategy will have an even higher yield of case identification if it is coupled with screening for AHI in high-incidence settings, such as STD clinics; with HIV sexual and social network evaluation, to direct interventions; and with named reporting linked to PCRS. The development of bridging

case managers who can plug the existing gaps between the point of diagnosis and entry into and maintenance of HIV care is critical. The success we have found with our model for young MSM of color warrants expansion to other high-risk groups.

Opt-out HIV testing has been the policy for HIV testing in all publicly funded North Carolina STD clinics since 2005. The CDC recommendations will extend opt-out testing to all prenatal clinics. We believe this will have a substantial impact on HIV testing in private prenatal clinics, where we estimate that HIV testing is currently only performed for 50% of pregnant women. The publicly funded prenatal clinic setting has had an HIV testing acceptance rate of ~99% for several years.

Some jurisdictions are changing HIV testing rules and regulations to expand testing beyond traditional settings and meet the needs of marginalized populations, many of which consist of people who are at greatest risk of HIV infection. Other jurisdictions are finding ways to meet these needs without changing their rules and regulations. Some individuals do not access health care via conventional facilities and are not likely to know their HIV serostatus. This has been demonstrated in a national survey on the health care-seeking behaviors of young adults with regard to chlamydial infection [16], which revealed that only 26% of African American men and 36% of Hispanic men received care at a primary care facility, compared with 47% of white men. In contrast, 27% of African American men sought care at an emergency department, compared with only 10% of white men. Testing must move beyond the primary care setting to capture this population.

Finally, testing and care messages must be culturally appropriate, and access to health care should be immediate and affordable. We can learn from the North Carolina experience. North Carolina has removed the requirement for HIV pretest counseling and has limited the requirement of HIV posttest counseling for individuals who test positive for HIV.

All of this is an indication of the potential alternative approaches that can be taken. Screening for AHI is now available in all publicly funded HIV counseling and testing sites and clinics in North Carolina, with immediate referrals into the state's care network for individuals who test positive for HIV. More widespread testing in emergency departments is being planned, with direct linkages to local health departments for persons with positive test results. Named reporting through PCRS by clients who tested positive for HIV has been in place in North Carolina since 1989. PCRS can effectively identify previously undiagnosed HIV infection [17]. Evaluation of this service in North Carolina found an HIV infection rate of 20.5% among sex partners of persons with newly diagnosed HIV infection. Social and sexual networks are, therefore, important in identifying previously unrecognized HIV-positive individuals.

In summary, HIV testing needs to be extended outside of

the primary care setting to reach the 50% of African American men who do not know their positive HIV serostatus. Furthermore, it is critically important that testing be linked to immediate and culturally appropriate care, as was done in the successful campaigns conducted on the campuses of North Carolina college and universities. In the meantime, modification of HIV testing rules and regulations, although necessary, may take several years to roll out, delaying the onset of comprehensive testing and access to care.

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