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The Urgency Of Providing Comprehensive And Integrated Treatment For Substance Abusers With HIV

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Abstract

Substance abuse is linked to many new cases of HIV infection. Barriers such as the myth that drug users cannot adhere to HIV/AIDS treatment block progress in curbing the spread of HIV in that population. In this article we explain the need to aggressively seek out high-risk, hard-to-reach substance abusers and to offer them HIV testing, access to treatment, and the necessary support to remain in treatment—both for HIV and for substance abuse. We summarize evidence showing that injection drug users can successfully undergo HIV treatment; that many substance abusers adhere to antiretroviral therapy as well as do people who don't inject drugs; and that injection drug users who undergo substance abuse treatment are more likely to obtain and stay in treatment for their HIV infection. This evidence makes a strong case for integrating substance abuse treatment with HIV treatment programs and providing substance abusers with universal access to HIV treatment. But an integrated strategy will require changes in the health care system to overcome lingering obstacles that inhibit the merging of substance abuse treatment with HIV programs.

Strategies to prevent HIV infection have curtailed, but not eliminated, the epidemic's spread in the developed world. Interventions have included the treatment of both HIV infection and substance abuse—efforts that can stem transmission to uninfected people. Yet in spite of substantial increases in effective HIV management over the past fifteen years, new HIV cases have appeared in the United States at a steady rate of about 56,300 annually during the past decade.[1]

Typically 12 percent (6,676) of the estimated 56,300 new HIV infections each year have occurred in users of injection drugs, who presumably have become infected through the shared use of needles and syringes. Another 4 percent (2,252) occur among men who have sex with men and also inject drugs. Moreover, many infections have occurred among men who have sex with men and use noninjection drugs, such as methamphetamine—activity that is frequently associated with high-risk sexual behavior.[2]

These unacceptably high infection rates—which imply high rates of HIV transmission—can be partly attributed to the fact that many people are unaware that they are infected and thus unknowingly spread the virus. For example, an estimated 21 percent of HIV-infected people in the United States are unaware of their status.[3] Additionally, substance abusers, who have high prevalence rates of HIV, remain an active source of new cases through high-risk behavior.[2,4,5]

In this article we argue for a focused "seek, test, treat, and retain" effort to aggressively seek out high-risk, hard-to-reach substance abusers; offer them HIV testing and access to HIV treatment when medically appropriate; and provide the necessary support to help them stay

in treatment—both for HIV and for substance abuse. We also spell out the changes in the health care system that will be needed to overcome lingering obstacles to merging substance abuse prevention and treatment with HIV programs.

At each step of "seek, test, treat, and retain," there are barriers. Seeking out high-risk people requires active outreach and overcoming the stigma that surrounds substance abuse and HIV. Testing requires outreach beyond medical settings to persuade people to be tested. Linking people to HIV and substance abuse treatment, and helping them stay in treatment, may require intensive case management or use of a patient navigator, or both. The challenges posed to the implementation of "seek, test, treat, and retain" have been well described.[6] The National Institute on Drug Abuse has committed substantial resources to discovering how best to implement this strategy in populations vulnerable to drug abuse, including people involved in the criminal justice system.[7]

The public health field has engaged in the problem by expanding efforts to test and identify cases. The Centers for Disease Control and Prevention's recent Expanded Testing Initiative resulted in 2.8 million tests and 18,000 people in the United States newly diagnosed with HIV over a three-year period. The current goal is to reach populations most heavily affected by HIV: African Americans, Latinos, gay and bisexual men, and injection drug users.[8]

Recent studies have demonstrated the value of expanding antiretroviral therapy coverage in reducing HIV transmission rates,[9] leading to widespread, international calls for global efforts to increase antiretroviral therapy coverage. We argue that the unacceptable lack of integrated treatment for HIV and substance abuse also demands more attention. Evidence shows that integrating substance abuse treatment with early HIV diagnosis and antiretroviral therapy can greatly reduce viral load and the incidence of HIV infection, thus improving HIV outcomes at the population level. The effectiveness of this "seek, test, treat, and retain" approach has been substantiated recently in longitudinal cohorts of intravenous drug abusers.[10,11]

The combined research findings from the past two decades affirm that drug abuse treatment is also HIV prevention. Substance abusers in treatment cease or curtail their drug abuse and attendant risky behaviors, including injection drug use and unsafe sex practices.[12] Drug treatment programs can also disseminate knowledge about HIV/AIDS and comorbid diseases, counsel people on risk reduction, test them for HIV, and refer them to appropriate medical and social services. Despite evidence on the benefits of both HIV and substance abuse treatment—and on the value of combining the two—obstacles to their integration remain.[13,14]

Fueling The HIV Epidemic

It is hard to overemphasize the impact of drug abuse on HIV prevalence. Even as HIV infection rates decline in much of the world, infection continues to spread among certain subpopulations, including drug abusers in various countries. [15] Regional epidemics of HIV that are driven by injection drug abuse have been increasing rapidly in Central Asia and in the former Soviet republics.[15] Many countries in East and Southeast Asia have a high prevalence of HIV infection among injection drug abusers: More than 40 percent of the abusers in Burma, Indonesia, and Thailand are infected, as are 20–40 percent in Cambodia and Vietnam.[16] China, the United States, and Russia have the greatest numbers of HIV-infected injection drug abusers, with prevalence rates of 12, 16, and 37 percent, respectively. [16]

On a promising note, data on HIV epidemics among injection drug abusers in the United States, Australia, Hong Kong, Brazil, and most of Western Europe indicate that these

epidemics have been contained through combined implementation of HIV preventive interventions, drug treatment programs, and access to antiretroviral therapy.[15]

Beyond injection drug abuse, other risky behaviors associated with drug abuse can be similarly devastating.[17] Methamphetamine and amphetamine abuse are widespread throughout the world, and their use is associated with high-risk sexual behaviors.[18,19] Cocaine abuse is also associated with higher HIV prevalence.[20] In sub-Saharan Africa, where HIV prevalence is already high in such countries as Nigeria, Kenya, Tanzania, and South Africa, data suggest that there is considerable transmission through unprotected sex between injection drug abusers and people who are not abusers,[16,21] underscoring the indirect role that drug abuse plays in heterosexual HIV transmission.

Beyond furthering HIV transmission, substance abuse in people who are HIV-positive adversely affects their health and speeds up the progression of disease,[22,23] worsening its consequences— especially neurological ones. In HIV-positive people who abuse methamphetamine, the virus causes greater neuronal injury and cognitive impairment than in infected people who do not abuse drugs.[23,24]

Injection drug abusers typically initiate antiretroviral therapy long after they have been infected with HIV, often after they have AIDS-defining illnesses,[25] a delay that further speeds up disease progression and limits treatment effectiveness. In addition, comorbid hepatitis C, which is much more common among HIV-infected substance abusers than among non-abusers, can increase the side effects of antiretroviral therapy and limit its tolerability. The combined infections also increase the risk of severe liver disease, especially among drug-addicted people.[26]

Benefits Of Integrated Treatment

These observations alone make a strong case for integrating substance abuse treatment with HIV treatment programs. But the collected evidence in support of this approach is even stronger. Combined pharmacological and behavioral drug abuse treatments, for instance, have been proven to diminish behaviors that increase both HIV risk and incidence of the disease.[27]

Opioid substitution therapy—for example, the use of methadone or buprenorphine—is strongly associated with improved adherence to antiretroviral therapy and better health outcomes among HIV-positive injection drug abusers.[28] When behavioral therapies were combined with methadone treatment in one study, approximately half of the participants reporting injection drug use at intake stated at the end of the study that they had stopped using the drugs.[29] Meanwhile, more than 90 percent of the participants reported no needle sharing.

In a study of a community-recruited sample of HIV-infected injection drug abusers who were not taking HIV medications at the outset of the study, those who went on methadone maintenance began and adhered to antiretroviral therapy at a higher rate than those not on methadone maintenance.[30] Drug treatment has also been shown to lower cocaine use and lead to a 40 percent reduction in the risk of HIV transmission, as a result of fewer sexual partners and less unprotected sex.[31]

Among people who inject drugs, antiretroviral therapy has also been associated with dramatic reductions in HIV-related mortality.[32] Moreover, substance abusers' greater likelihood of comorbid conditions—such as chronic hepatitis, HIV nephropathy, or cardiovascular problems—often warrant initiating antiretroviral therapy even sooner than is generally the case.

Major Obstacles To Integrating Treatment

MISCONCEPTIONS

Several misconceptions stand in the way of progress. A major impediment has been a long-standing reluctance to treat HIV-infected people who are substance abusers out of fear that they will not adhere to their HIV medication regimens and will therefore derive no benefit. An additional concern is that treating such nonadherent patients would drive the emergence of drug-resistant HIV strains.[33] Both notions require closer scrutiny.

For example, we now know that injection drug abusers can successfully undergo HIV treatment and that many substance abusers adhere to antiretroviral therapy as well as do people who don't inject drugs.[34] Although there is an association between active drug use and decreased adherence to antiretroviral therapy, programs can encourage greater adherence if they provide comprehensive services that include substance abuse treatment.[35,36] Moreover, the data on drug resistance do not support withholding antiretroviral therapy from HIV-positive injection drug users.[37,38] In fact, scaling up antiretroviral therapy in British Columbia has been associated with a decrease in drug resistance.[39,40]

Unfortunately, erroneous beliefs have fostered the misguided practice of delaying treatment for many substance abusers, particularly in minority populations. Late diagnosis and delayed care are significantly higher among African American substance abusers. Compounding these problems is the greater tendency of African Americans and people with a history of injection drug use to discontinue antiretroviral therapy.[41] The large disparity in the prevalence and management of HIV among African Americans exacerbates the severity of their condition—particularly among those with substance use disorders—and further increases HIV transmission.

OBSOLETE POLICIES

Arguably, the major obstacles to the implementation of much-needed evidence-based strategies can be traced back to narrow-minded practices and obsolete policies. For example, more than 60 percent of substance abuse treatment programs do not offer HIV testing and counseling.[42] Ona more promising note, routine rapid testing was successfully implemented at a trial site following a clinical trial—sponsored by the National Institute on Drug Abuse—of HIV testing in drug abuse treatment centers.[43]

Evidence shows that interventions to reduce behavioral risks among substance abusers are most successful if they focus equally on drug-and sex-related risk behaviors. Because risky sex often occurs together with injection-related risks,[44] needle and syringe exchanges and other prevention programs are more successful at preventing HIV transmission when they also incorporate safer-sex counseling and condom distribution. [45] The corollary is that drug abuse treatment ought to be part of a comprehensive HIV prevention strategy that includes needle and syringe exchange and other strategies for harm-reduction strategies.

Harm reduction for drug abusers refers to policies, practices, and programs—such as needle exchanges—aimed at reducing adverse consequences of drug use in people who may be unable or unwilling to stop. Evidence shows that participants in concurrent needle and syringe exchange programs and substance abuse treatment had greater reductions in drug use and fewer injections compared to those who were in exchange programs but not enrolled in substance abuse treatment. There is also evidence of less incarceration and involvement in illegal activities among people reached by the concurrent strategies.[46] This approach reduces the risk of HIV/AIDS, other bloodborne infections such as hepatitis B and C, and various other sexually transmitted diseases. In combination with HIV testing and counseling, harm

reduction and other prevention strategies have demonstrated their individual and collective ability to reduce behaviors that increase HIV risk.[47,48]

INADEQUATE ACCESS TO TREATMENT

Poor access to effective substance abuse treatment, especially opioid substitution therapy (using methadone or buprenorphine), is a major factor fueling HIV transmission and undermining the success of antiretroviral therapy among drug users. For example, in Eastern Europe and Central Asia, where drug use is the main driver of HIV transmission, fewer than 1 percent of injecting drug abusers have access to methadone or buprenorphine maintenance therapy. These treatments are illegal in Russia, home to 69 percent of the people in the region who are living with HIV.[49] And in the United States, access to treatment is so poor that only 1.5 million of the estimated 22.3 million substance abusers needing treatment actually get it.[50] Unfortunately, drug abuse treatment coverage—that is, available treatment divided by the number of users—for injection drug users has remained unacceptably low in many areas in the United States. Nationally, coverage in 2002 was 8.3 percent, compared to 6.7 percent in 1993.[51]

The lack of integrated services is even more critical in criminal justice populations. Standardized practices for HIV testing and treatment are seldom used among incarcerated populations, a shocking 50 percent of whom are substance abusers.[52] In addition, approximately 14 percent of all HIV-infected people pass through the criminal justice system annually.[53] This presents a unique opportunity for effective interventions.

Internationally, a number of effective programs have been implemented in prisons to prevent HIV transmission.[54,55] Equally important is the need to recognize that prisoners need treatment for substance abuse and HIV while incarcerated, and many recently released inmates require primary care for a host of interrelated problems.[56,57] Thus, it is important to plan timely discharges coordinated with linkages to community-based organizations and agencies that can provide medical care, health education, and supportive services.

As already stated, evidence-based substance abuse treatment prevents HIV infection and transmission in several ways.[58] Clearly, the substance abuse and HIV epidemics are intertwined, yet the health care system generally segregates treatments for these conditions. Only 30 percent of community treatment programs for substance abuse offer HIV treatment and counseling.[42] In addition, treatment programs for substance abuse do not typically offer follow-up treatment for HIV.

The Benefits Of Changing Practices

Current evidence suggests that a shift in practices would produce robust benefits. First, substance abuse treatment helps guide people into the pipeline of HIV testing and antiretroviral drug programs. Second, evidence-based prevention and harm reduction interventions facilitate access into the health care system and access to HIV testing and treatment.[59] For example, the Centers for Disease Control and Prevention has recommended expanding HIV testing practices, including “opt-out testing” in health care settings to optimize case discovery.[60] “Opting out” in this case means routinely testing for HIV unless patients refuse.

Third, there is evidence that an integrated treatment approach may actually improve adherence and outcomes. The fundamental tenet of structural integration is to modify the social, structural, and physical environment in which drug use and HIV risk behavior both occur.[61] For example, providing stable housing is increasingly recognized as a highly effective structural intervention to reduce risky behavior and HIV transmission among drug

users.[62,63] Although empirical studies evaluating the effectiveness of structural interventions are clearly required, their nature and scope present a number of research challenges.[64] Chief among them is the large number of variables present in naturalistic settings that are particularly difficult to control in a randomized research trial. Such challenges notwithstanding, the evaluation of natural experiments can be an important means of identifying population-level impacts of structural interventions.

Recommendations

In 2010 a meeting organized by the National Institute on Drug Abuse and the International AIDS Society addressed how to improve outcomes of HIV-positive substance abusers. A major focus was an extension of the "seek, test, and treat" paradigm of antiretroviral therapy to drug-using populations. The resulting recommendations stressed the urgent need to seek out and identify substance abusers at risk for HIV; test them for HIV, following the recommendations of the Centers for Disease Control and Prevention; treat them with antiretroviral therapy based on current guidelines; and retain HIV-infected substance abusers in substance abuse treatment.

Appropriate treatment of substance abuse and HIV requires a comprehensive assessment of the disorder, identification of psychiatric and medical comorbidities, and engagement of relevant medical and social services. Effective treatments combine counseling, pharmacological therapy, and wraparound services.

For all substance abusers, including those with HIV, drug abuse treatment should be evidence based; follow a chronic disease model; and address the complex challenges experienced by drug abusers, including psychiatric and medical comorbidities, social and economic adversity, and debilitating stigma. HIV prevention measures should be integrated into substance abuse treatment, but they generally are not because of the way the health care system is set up. Therefore, "virtual integration"—in which services do not need to be physically located in one program—is likely to be the most practical approach at this juncture. In this model, the various components of treatment are widely available and delivered in an integrated fashion.

Seeking, testing, and offering medical services to substance abusers should occur not just in the wider health care system but specifically in drug treatment programs, which are underused because of a lack of insurance coverage, staff training, and patient acceptance.[33,65] Prison settings represent another good testing opportunity and could also provide a controlled community in which to study comorbid conditions and integration of care. Integrated treatment in the criminal justice system should include postrelease care and referral and should ensure a sufficient supply of HIV medication until the next scheduled medical visit. Similarly, inmates receiving HIV treatment should be screened for drug use and provided with services and treatment.

The individual, social, and infrastructural forces that promote the HIV epidemic among drug abusers must also be examined. These include factors that prevent substance abusers from initiating antiretroviral drug therapy. Research is needed on legal and health care practices that affect drug abusers' use of health services; practices associated with housing, social assistance, education, and employment that affect drug abusers' use of health services; social factors and processes that produce and perpetuate policies that lead to human rights violations; and other systemic issues such as insurance, cross-training of staff, and licensing.

General health care providers need training to recognize substance abuse in their patients and need to intervene briefly before referring them to treatment. Providers should also be trained on how to follow these procedures with patients receiving antiretroviral therapy.

Additional education for providers about all aspects of HIV and substance abuse treatment, especially evidence-based delivery, could improve care.

Implementation research must also be a top priority of any new HIV research agenda. More information is needed to identify the strengths and limitations of existing strategies and programs.[66]

The use of punitive drug policies and harsh criminal penalties can undermine access to and coverage of HIV prevention programs, interfere with retention in treatment, and impede access to harm reduction measures. The massive arrest and incarceration of drug abusers has generally failed to deter people from injecting drugs or engaging in other risky behaviors.[61,67] Evidence supports treatment and prevention in criminal justice settings and underscores the failure of detention and incarceration as alternatives to drug treatment.

Evidence also supports the benefits of integrating substance use and HIV treatments. A research agenda should address evidence gaps in the rationales for regulatory restrictions. Such restrictions could consist of payment barriers—including payment mechanisms and limitations on the scope and duration of coverage—as well as financial barriers to the integration of behavioral health and medical care services. It should also include cost-effectiveness studies that quantify the “value for money” of investments in integrated care to improve health outcomes for HIV-infected patients with opioid dependence.[68]

Given the ability of antiretroviral therapy to reduce morbidity and mortality and prevent HIV transmission, universal access to HIV treatment for injection drug abusers should be an international public health priority. Toward that end, the Joint United Nations Program on HIV/AIDS, the United Nations Office on Drugs and Crime, and the World Health Organization recently published a technical guide to help countries set goals for universal access to HIV prevention, treatment, and care for injection drug abusers.[69] The guide stresses comprehensiveness— the use of needle and syringe exchange programs, drug treatment, HIV counseling and testing, and antiretroviral medications—and integration of services to catalyze greater and more sustained reductions in behaviors that increase the risk of HIV infection. However, a coordinated effort among nations is needed to adopt evidence-based approaches along these lines.

Removing structural barriers such as stigmatization and social exclusion, unstable housing environments, and the organization of health care systems is an essential part of scaling up universally accessible HIV prevention programs in places where the HIV epidemic is driven by large numbers of injection drug abusers.[70,71] This requires a comprehensive, multidisciplinary approach to addressing outmoded policies and criminal sanctions that compromise these efforts. It also calls for the application of scientific research and data in criminal justice, laws, and policy.

Conclusions

Substance abuse is a proven risk factor for HIV/AIDS. Providing substance abusers with universal access to HIV treatment is an essential weapon in battling the HIV epidemic. Contrary to previous, erroneous assumptions, integrating HIV treatment with substance abuse treatment has been shown to be effective in reducing HIV morbidity and mortality as well as the risk of transmission. Therefore, health care systems in the United States and other nations need to lift barriers that prevent substance abuse treatments from further reducing HIV risk. They must also support initiatives that integrate substance abuse treatment with HIV prevention and treatment. The ultimate justification for these changes is that the HIV/AIDS epidemic cannot be conquered without addressing, both domestically and internationally, the needs of the HIV-positive substance abuser.

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Biographies

Nora D. Volkow is director of the National Institute on Drug Abuse.

In this issue of *Health Affairs*, Nora Volkow and Julio Montaner argue for a shift in approach toward substance abusers with HIV. They recommend that hard-to-reach substance abusers who are at high risk for HIV be sought out aggressively for HIV testing—and, if they test positive, that they be offered access to both HIV and substance abuse treatment, as well as the necessary support to help them stay in treatment.

Volkow and Montaner assert that conventional wisdom that drug abusers are poor candidates for HIV treatment is wrong. On the contrary, they say, integrating HIV treatment with substance abuse treatment has been shown to be effective in reducing HIV morbidity and mortality as well as risk of HIV transmission. “We need policy decision makers to know that it can be done and it would be costeffective,” Volkow says.

Volkow’s work has been instrumental in demonstrating that drug addiction is a disease of the human brain. As a research psychiatrist and scientist, she pioneered the use of brain imaging to investigate the toxic effects of drugs and their addictive properties. Her studies have documented changes in the dopamine system affecting the actions of frontal brain regions involved with motivation, drive, and pleasure, and the decline of the system’s function with age.

Volkow was named director of the National Institute on Drug Abuse at the National Institutes of Health in 2003. She has spent most of her professional career at the Department of Energy’s Brookhaven National Laboratory, where she continues to conduct research and where she previously held several leadership positions—including director of nuclear medicine, chair of the medical department, and associate director for life sciences. She has also been a professor in the Department of Psychiatry and associate dean of the medical school at the State University of New York, Stony Brook.

Volkow is the recipient of multiple awards and a member of the Institute of Medicine. She earned her medical degree from the National University of Mexico and completed her psychiatric residency at New York University, where she earned the Laughlin Fellowship Award as one of the ten outstanding psychiatric residents in the United States.

Julio Montaner is clinical director of the British Columbia Centre for Excellence in HIV/AIDS.

Montaner is a professor of medicine at the University of British Columbia, where he is also chair of AIDS research and head of the Division of AIDS in the Faculty of Medicine. He is

also clinical director of the British Columbia Centre for Excellence in HIV/AIDS and past president of the International AIDS Society. His recent clinical research has focused on the implementation of the Seek and Treat for Optimal Prevention of HIV/AIDS (STOP HIV/AIDS) initiative, which will use HIV treatment as an HIV prevention strategy in British Columbia. Montaner received his medical degree from the University of Buenos Aires, in Argentina.