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Prevention and Treatment of HIV/AIDS among Drug Using Populations: A Global Perspective

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As the HIV/AIDS epidemic nears its fourth decade, there are signs that explosive spread of the virus may be subsiding, only to be replaced by outbreaks of HIV among vulnerable populations and in diverse locations that have, until now, been largely free of the disease. Yet today, just as in the earliest years, we have understood that containing the spread of HIV requires an ongoing commitment by scientists, clinicians, public health officials, and affected communities to HIV prevention and treatment among drug users. To this end, the National Institute on Drug Abuse (NIDA) and the International AIDS Society (IAS) convened a consultation meeting in January 2010 with leading national and international experts in the fields of HIV and substance abuse to renew our collective focus on the role of drug abuse in fuelling HIV transmission. Meeting participants reviewed the most current scientific evidence on HIV and substance abuse and worked to incorporate that evidence into new clinical recommendations for the prevention and treatment of HIV/AIDS among drug users. When the evidence was viewed as incomplete, new priorities were identified for future behavioral, clinical, and biomedical research.

A central theme of the meeting was the “Seek, Test, and Treat” paradigm, which involves reaching out to drug users (“seek”), engaging them in HIV testing so they will know their HIV status (“test”), and if they are infected, facilitating their access to care so they can initiate antiretroviral therapy (“treat”) and care, as well as substance abuse treatment. Research is underway to inform the development of best practices and approaches for implementing this paradigm in different settings, such as criminal justice. These efforts build on a growing body of knowledge about the effects of Highly Active Antiretroviral Therapy (HAART) which, while suppressing an individual’s viral load and improving that individual’s health, can decrease HIV transmission risks from that infected individual to his/her partners and, over time, help to reduce HIV incidence and prevalence in the larger population¹.

This supplement of the *Journal* is titled after the name of the consultation meeting, “Prevention and Treatment of HIV/AIDS among Drug Using Populations: A Global Perspective.” Its articles, by the scientists and experts who participated in the meeting, represent the depth and diversity of global challenges we face from the intertwined epidemics of drug addiction and HIV. Scanning the table of contents provides a glimpse of these complexities, including such issues as epidemiology, treatment, prevention, implementation science, criminal justice, and human rights. Each paper provides a unique perspective from the authors’ respective disciplines, yet they reach the same conclusion,

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namely that stopping the spread of HIV/AIDS requires a global commitment to comprehensive prevention and treatment of HIV and drug addiction, beyond focusing on only injection drug use to include all drug use in general. Indeed, epidemiological research in the U.S. indicates a convergence in HIV prevalence and incidence rates among injection and non-injection drug users, suggesting a decline in HIV transmission associated with unsafe use of syringes and other injection equipment and a corresponding increase in HIV transmission associated with risky sexual practices among drug users.^{2, 3, 4}

The first article, by Dr Montaner and colleagues,⁵ provides compelling evidence in support of expanding the use of HAART to all in need, including drug users, if we are to contain this pandemic. There are no legitimate reasons to deny the use of HAART to HIV-infected drug users.⁶ Moreover, the widely held fear that treating substance abusers with HAART will lead to antiretroviral resistance due to poor compliance has not materialized, as evidenced by a recent review and meta-analysis that found no differences in the risk of development of antiretroviral resistance between HIV-positive injecting drug users (IDUs) compared with HIV-positive non-IDUs.⁷ Indeed, expansion of HAART to include high risk populations such as drug users was associated with a decrease in the incidence of HIV-1 drug resistance at an exponential rate.⁸ Over time, HAART regimens have become more effective, better tolerated, and easier to take, with once daily dosing regimen now available as the standard of care for most people, although adherence is still a challenge for HIV-positive individuals, whether they abuse drugs or not.⁵

The articles by Beyrer et⁹ and by Stockman and Strathdee¹⁰ point to the rapidly changing epidemiology of HIV and drug abuse around the world. In Afghanistan, as in countries in Central Asia, the Commonwealth of Independent States, and in Africa, opium supplies are plentiful, leading to increases in heroin use, addiction, and the unsafe use of syringes and other equipment for drug injection. Such circumstances set the stage for blood-borne pathogens, including HIV and hepatitis C, to spread among IDU and from IDU to their sex partners, children, and the wider community. IDU is estimated to account for 30 percent of people living with HIV outside sub-Saharan Africa. Many African countries beset by HIV and AIDS for years now have to contend with complications from heroin abuse and addiction. Historically, as today, the diseases of drug addiction and HIV evoke social stigmatization, discrimination, and in some countries, including the United States, punitive measures. As a result, individuals afflicted by these conditions may try to conceal them, only to worsen their marginalization and risks for transmitting new infections or experiencing rapid disease progression and mortality. Stockman and Strathdee⁹ discuss the great diversity of individuals at risk for drug addiction and HIV, including young men who have sex with men, male and female sex workers, people who are homeless and transient or in and out of prisons and jails, transgendered persons, and runaway youth, most of whom are affected by the same risk environments that lead to isolation, poverty, drug abuse and addiction, survival sex, violence and abuse, and the spread of HIV and other sexually transmitted infections.

Antiretroviral therapy has changed HIV from a fatal disease to a manageable, chronic condition. The Joint United Nations Program on HIV/AIDS (UNAIDS)¹¹ estimates that 33.4 million people were living with HIV in 2008, more than 20 percent higher than the number in 2000, and that the prevalence of HIV was three-fold higher in 2008 than in 1990. These numbers testify to the effectiveness of HAART in suppressing the virus and giving new hope to those infected that they may experience healthier, longer lives. However, there is much more that needs to be done to prevent new HIV infections. As noted by Dr Montaner et al,⁵ expanding the availability and use of HAART is necessary but not sufficient to contain the epidemic; rather, it must be balanced by intensified efforts in prevention, including HIV testing and counseling, behavioral risk reduction interventions,

HIV prevention outreach prevention programs, and case finding, all within an overall combination prevention framework.

The article by Marshall and Wood¹² advances this discussion by providing an in-depth review of individual programs to reduce the incidence of HIV among IDU and showing how their combined effects, as complements, often exceed those of the individual programs alone. The authors refer to these “highly active HIV prevention” combinations, including a mix of behavioral, structural, and biomedical prevention strategies adapted for specific contexts and needs, as the best hope for eliminating HIV transmission worldwide. Their discussion is enhanced by Dr Schackman’s article¹³ on implementation science and its capacity to strengthen the effectiveness and sustainability of comprehensive HIV prevention and treatment interventions for drug users. Implementation science is linked to operations research, a body of disciplines and methods to promote the translation of research findings into policy and practice. While not yet an established field in HIV/AIDS research, it has been used to identify and overcome social, structural, and individual-level barriers to HIV prevention and treatment services, opioid substitution therapy, and sterile syringe distribution programs for IDU. These applications suggest that implementation science may lead to new opportunities to improve the quality, sustainability, and outcomes of “highly active HIV prevention,” i.e., of comprehensive HIV prevention and treatment interventions for drug users.

Evidence that drug treatment is HIV prevention has been accumulating for well over 25 years. In their article, Dr Metzger and colleagues¹⁴ review this body of evidence, including historical and current findings, to show that drug treatment, whether methadone maintenance, buprenorphine/naloxone, or even naloxone alone, or whether adapted and replicated in different populations, countries, and periods of time, consistently and effectively reduces drug abuse, drug-related risk behaviors, the acquisition and transmission of HIV, and the spread of other blood-borne pathogens. The evidence that drug treatment is effective HIV prevention becomes even more convincing when rates of HIV among IDU are compared in countries that provide opioid substitution therapy for opiate addiction, such as the United States, Australia, and in the European Union, to countries that do not, such as Russia, home to an estimated 69 percent of persons living with HIV in the region and where opioid substitution treatment has long been illegal. Countries that provide drug treatment consistently experience stable, reduced, or negligible incidence in HIV among their IDU populations. Conversely, Russia provides no treatment while witnessing rapid and even explosive increases in HIV among its IDU population, with signs that HIV is now spreading by sexual transmission from infected IDU to their non-IDU partners.

HIV treatment for drug users is implicitly complex because it requires the parallel treatment of substance use disorder. Failure to provide treatment for both conditions will only extend the higher rates of morbidity and mortality that HIV-positive drug users experience compared with HIV-positive non-drug users. Drug use disorders increase the risks for adverse outcomes from HIV-associated neurologic and psychiatric disorders, pulmonary diseases, and hepatic, renal, and opportunistic infections. The article by Dr Friedland¹⁵ discusses the epidemiology, natural history, diagnosis, treatment, and prevention of HIV and common co-infections of HIV among IDU, particularly hepatitis C and tuberculosis. When HIV-infected patients are co-infected with these diseases and actively using and injecting drugs, the clinical challenges to detect, diagnose, treat, and manage their illnesses become increasingly complex. Such challenges can be overcome through comprehensive prevention and treatment interventions, including substance abuse treatment, outreach programs to engage drug users for HIV testing, treatment, and care, and the dedicated efforts of communities and local and regional health departments to disease surveillance and infection control.

Dr Gulick discusses progress in HIV treatment and current controversies in the use of HAART,¹⁶ including a review of frequently asked questions over when to initiate HAART, what regimens to use, when to change regimens, and what regimens to change them to. There are 25 antiretroviral drugs now approved and available for treating HIV, with more drugs in the development pipeline. Most patients taking HAART achieve viral suppression and improvements in their CD4 levels and immune functions and reports of treatment failure with all 25 antiretroviral drugs are rare. In general, HIV-infected substance users should be treated based on the same criteria that are used for other patients, including the use of medications indicated for co-morbid diseases such as hepatitis C. While treatments for drug users may be more complex, therapeutic advances have helped to simplify the selection of initial therapeutic regimens and to minimize toxic side effects. Yet, as first, second, and third line therapies have become easier, the clinical demands on physicians and providers have only grown. These competing circumstances underscore the importance of comprehensive HIV prevention and treatment interventions for substance abusers which, by integrating expertise across HIV treatment, drug treatment, and primary care, offers the best chance of achieving optimal health outcomes for the patient. Unfortunately, the costs of HAART have limited its availability to all in need, particularly persons living in resource constrained and developing countries. Such circumstances affect the feasibility of achieving “seek, test, and treat” worldwide and underscore the urgency of developing effective and competitively priced generic drugs to treat HIV.

The criminal justice system offers a unique environment for implementing the “seek, test, and treat” paradigm. According to Beckwith et al,¹⁷ HIV prevalence is five times higher among incarcerated individuals in the U.S. than in the general population. Such data underscore the importance of HIV testing and counseling services, HIV prevention and treatment interventions, drug treatment, and HIV care within U.S. correctional institutions. However, to be effective, these efforts must be linked to programs within the community that can ensure continuity of treatment and care for individuals upon their release. Indeed, the absence of such linkages is associated with decreases in HAART adherence rates and increases in rates of relapse to drug use and high risk sex. This highlights why a fourth component has now been added to the “seek, test, and treat” paradigm, i.e., “retain” as in “retain in care,” which refers to the use of case-management and other approaches to improve access and availability of community services for persons receiving HAART, such as newly released prisoners, to HIV care programs, drug treatment, and related health and social services in their communities.

An implicit issue throughout this supplement concerns human rights, which is explicitly addressed in the article by Wolfe and Cohen.¹⁸ They describe the tensions between viewing drug users as criminals to be punished versus individuals suffering from a disease that should be treated. HIV has complicated this simple dichotomy in innumerable ways. For example, while HIV is transmitted by sharing syringes and injection equipment, it is also spread by having unsafe sex, which may be with partners who do not use drugs, or by the female partner of an IDU who unwittingly exposes her infant to the virus. Just as these individuals deserve access to health services and treatment and to be treated with human dignity, so also do IDU, whether they have HIV or not. However, as the authors make clear, it is one thing to declare that all people should be accorded the same health and human rights and another to turn such declarations into realities around the world. Many countries have treated drug users as criminals, and many drug users have HIV. As the world enters the fourth decade of HIV/AIDS, it is time to recognize that protecting the basic human rights of drug users means making local and national commitments to comprehensive HIV prevention and treatment services.

NIDA is extremely proud of this supplement of the *Journal*. The articles included herein represent the range and complexity of challenges we face from the changing epidemic of HIV/AIDS. Yet, they give us hope by showing how far we have come since 1981 when the epidemic first began. Perhaps a vaccine will be developed to prevent HIV one day, but until then, we can meet the challenges from this epidemic by using the evidence-based approaches that have been proven to work, namely comprehensive HIV prevention and treatment, including HIV prevention and treatment among drug users.

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