Advances in Preventive Medicine

Evidence-Based Prevention Interventions for People Who Use Illicit Drugs

Guest Editors: Thomas F. Kresina, R. Douglas Bruce, and Kevin P. Mulvey

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Editorial Board

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Editorial

Evidence-Based Prevention Interventions for People Who Use Illicit Drugs

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The World Drug Report of 2012 [1] reports that, globally, illicit drug use is a common occurrence and is a growing health problem in some regions. Global reporting estimates indicate that approximately 230 million people or 5% of the global adult population have used illicit drugs. While somewhat stable use is ongoing in developed countries, resource-limited settings are seeing the growth and emergency of an illicit drug use as a new and significant national health issue. Heroin, cocaine, and other commonly used illicit drugs are particularly destructive to individual livelihoods, families, and neighborhoods with high social impact and increased morbidity and mortality related to the adverse health consequences of their use [2]. These adverse health consequences include addiction, overdose, violence, mental health disorders, suicide, and infectious complications such as HIV, tuberculosis, and hepatitis C [2–4].

To address the adverse health consequences of illicit drug use, the World Health Organization (WHO) and the United Nations Office of Drugs and Crime (UNODC) have developed a comprehensive package of interventions for the prevention and care of HIV among people who inject drugs [5]. There are nine component interventions comprised in this package and they are syringe service programs; medication-assisted treatment and other evidence-based drug dependence treatment; HIV testing and counseling; antiretroviral therapy; prevention and treatment of sexually transmitted infections; condom programs for people who inject drugs and their sexual partners; targeted information, education, and communication for people who inject drugs and their sexual partners; prevention, vaccination, diagnosis, and treatment of viral hepatitis; and prevention, diagnosis, and treatment of tuberculosis. The articles of this special issue address the importance of the prevention of the adverse health consequences of illicit drug use. This issue provides a framework for health policy and model programs across the globe as well as outcomes of the implementation of evidence-based interventions for people who use drugs, particularly in less resource health care systems.

T. F. Kresina et al. present the importance of a continuum of response as a framework for implementation of evidence-based prevention, care, and treatment interventions as part of a national strategic plan to address HIV/AIDS and the comorbidities associated with injection illicit drug use. This framework is developed by stakeholders who plan, develop, pilot, and provide a full range of services that address the various prevention, care/support, and treatment needs of individuals, families, and communities.

S. Pinkham et al. provide an overview of the need for multifaceted interventions for women who inject drugs that address relationship dynamics, housing, employment family life, and children's issues and needs as well as improved sexual and reproductive health care for women.

R. Yorick et al. present innovative service models that have been developed and implemented in the Russian Federation and Ukraine that comprise gender-specific approaches to drug rehabilitation, modification of risk behaviors, and psychosocial programs. In an enabling environment, services for women have been delivered and include prenatal care, child-care, women-only programs, mental health services, and workshops on women-focused topics. These service models have specifically reached out to recently released female detainees in the criminal justice system as well as street-involved girls and young women.

M. V. Volik et al. describe the development of a combination HIV prevention program for people who were opioid dependent that was implemented as a collaboration among the Russian federal government, nongovernment organizations, and civil society. The collaboration resulted in a model of a continuum of care comprised of a recommended package of HIV prevention services for people who inject drugs. The collaborative implementation has resulted in a unique relationship among the government and nongovernment stakeholders as well as program sustainability.

A. A. Boltaev et al. present an evaluation of the quality and effectiveness of a pilot medication-assisted treatment (MAT) program at three sites in Kazakhstan. The assessment determined the strengths and challenges of the MAT programs as well as the extent to which the MAT programs complied with the minimal recommendations developed by the WHO for psychosocially assisted pharmacologic treatment of opioid dependence.

E. A. Ratliff et al. introduce the reader to the emerging heroin epidemic in Eastern Africa and how that epidemic contributes to the national HIV/AIDS epidemic. The authors describe how the Tanzania AIDS Prevention Program has collaborated with NGOs and civil society to address heroin abuse as a public health issue with the implementation of MAT programs, syringe service programs, and a recovery program to include sober houses for residential treatment.

T. T. M. Nguyen et al. take us to Vietnam which is a country that has a high rate of HIV infection among people who inject drugs, as high as 60% in some provinces. Initial efforts to address this public health problem were centered around home and community detoxification programs as well as placement in rehabilitation centers. Recently, MAT programs have been piloted and shown to reduce HIV prevalence among those in treatment while improving quality of life. The authors also present the national scale-up plan for Vietnam.

L. M. Giang et al. present an integrated approach to preventive health focusing on men who have sex with men (MSM). The approach addresses syndemic conditions including substance use and abuse, mental health, and stigma, all of which play a role in reducing access and participation in prevention health care services.

B. Myers et al. present an evaluation of an important prevention intervention: screening and brief interventions to address alcohol and other drug use. This intervention was implemented in an emergency room setting by peers. The authors found that approximately 1 in 5 patients utilizing emergency services met the criteria for harmful alcohol or illicit drug use. The authors discuss the barriers to implementation and the importance of addressing substance use disorders in an emergency setting in South Africa.

E. Buckingham et al. provide a rationale for providing treatment for mental disorders as part of HIV prevention for people who use drugs. The authors discuss the importance of both detection and treatment of mental illness in the context of primary and secondary HIV prevention. The authors found limited models for implementation in low and middle income countries and propose models on integration of services to best address both substance use and cooccurring mental disorders in people who use illicit drugs.

These papers present a snapshot of the exciting and insightful manner in which prevention interventions are being developed and implemented globally to address the needs of people who use illicit drugs. Barriers to implementation and emerging new models of service delivery are presented in this special issue which is presented with the hope of inspiring further development and scale-up.

Acknowledgments

It has been with the hard work and dedication of the authors, reviewers, and editors that has made this special issue possible.

Thomas F. Kresina
R. Douglas Bruce
Kevin P. Mulvey

References

[1] United Nations Office of Drugs and Crime, World Drug Report 2012. United Nations publication Sales no. E. 12.XI. 1, http://www.unodc.org/documents/data-and-analysis/WDR-2012/WDR_2012_web_small.pdf.

[2] L. Degenhardt and W. Hall, "Extent of illicit drug use and dependence, and their contribution to the global burden of disease," *The Lancet*, vol. 379, no. 9810, pp. 55–70, 2012.

[3] P. Nelson, J. McLaren, L. Degenhardt et al., "What do we know about the extent of heroin and other opioid use and dependence? results of a global systematic review-NDARC," Tech. Rep. 309, Sydney: National Drug and Alcohol Research Centre, University of New South Wales, 2010.

[4] World Health Organization, *Global Health Risks: Mortality Ans Burden of Disease Attributable To Selected Major Risks*, WHO, Geneva, Switzerland, 2009.

[5] "WHO, UNODC, UNAIDS Technical Guide for countires to set targets for universal access to HIV prevention, treatment and care for injection drug users. 2012 revision," Tech. Rep., WHO document Production Services, Geneva, Switzerland, 2012.

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Review Article

Why the Treatment of Mental Disorders Is an Important Component of HIV Prevention among People Who Inject Drugs

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People who inject drugs are more likely to be HIV positive and to have a mental disorder than the general population. We explore how the detection and treatment of mental illness among people who are injecting drugs are essential to primary and secondary prevention of HIV infection in this population. Aside from opioid addiction, few studies have been conducted on the links between mental disorders and injection-drug use. However, independent of the injection-drug use literature, a growing number of studies demonstrate that untreated mental illness, especially depression and alcohol/substance use disorders, is associated with HIV-related risk behaviors, acquiring HIV infection, failure to access HIV care and treatment, failure to adhere to HIV care and treatment, and increased morbidity and mortality from HIV-related diseases and comorbidities. In our review of both the published literature and gray literature we found a dearth of information on models for providing care for both opioid addiction and other mental illnesses regardless of HIV status, particularly in low- and middle-income countries. We therefore make recommendations on how to address the mental health needs of HIV-positive people who inject drugs, which include the provision of opioid substitution therapy and integrated mental health, substance abuse, and HIV services.

1. Introduction

The HIV epidemic is intertwined with many other epidemics such as hepatitis C and tuberculosis and, just as powerfully, with substance use disorders and other mental illnesses. Throughout the world, HIV begins its spread among three vulnerable populations with high rates of mental disorders: people who inject drugs (PWID), men who have sex with men (MSM) and sex workers [1]. Following infection, the presence of HIV in the brain, HIV-related central nervous system and systemic complications, and the side effects of antiretroviral medications cause their own neuropsychiatric complications, further complicating this picture.

While in many treatment settings and government agencies substance use and other mental illnesses have been separated, this separation has created barriers to holistic care because there is considerable comorbidity between these two sets of disorders with nonaddictive mental disorders often preceding substance use disorders [2]. Data shows that among individuals with a lifetime history of substance abuse, over half were also affected by another mental disorder [3]. Conversely, individuals with nonaddictive mental disorders are more likely to have substance-use disorders than the general population. One survey found that 24% of individuals with lifetime major depressive disorder also had a substance-use disorder [3]. In a US national comorbidity study, aggregate analyses demonstrated significant prospective risks posed by baseline mental disorders for the onset of nicotine, alcohol and illicit drug dependence with abuse over the follow-up period [2].

This paper is focused on the key population of people who inject drugs keeping in mind that people engaging in injection-drug use overlap with both MSM and sex workers. We explore how the detection and treatment of mental

illness among people who are injecting drugs are essential to primary and secondary prevention of HIV infection in this population. The term mental disorders will be used in this paper in a manner that is consistent with the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV) of the American Psychiatric Association [4].

Aside from opioid addiction, few studies have been conducted on the links between mental disorders and injection-drug use. However, independent of the injection-drug use literature, a growing number of studies demonstrate that untreated mental illness, especially depression and alcohol/substance use disorders, is associated with HIV-related risk behaviors, acquisition of HIV infection, failure to access HIV care and treatment, failure to adhere to HIV care and treatment, and increased morbidity and mortality from HIV-related diseases and comorbidities [5, 6]. In addition, with an increased focus on antiretroviral treatment (ART) as a strategy for primary and secondary HIV prevention, addressing mental disorders that interfere with regularly taking HIV medications is essential to treatment as prevention efforts.

Studies not only show the negative impact of mental disorders on HIV/AIDS, but also the positive impact of mental health treatment for mental disorders. For example, several studies have shown that antidepressant treatment is associated with improved adherence to antiretrovirals in HIV-positive individuals with depression [7, 8].

Yet the treatment of mental disorders remains a highly underfunded component of HIV prevention, care and treatment, even in many high-income countries. If treatment as prevention is to be effective, we must do better at identifying people who have HIV infection, linking them to care, retaining them in care, initiating antiretroviral treatment and achieving adherence that results in suppressed viral load. For example, the CDC approximates that the U.S. has an estimated 1.2 million persons of whom about 80% know that they are infected [9]. Of those who knew their status about three quarters were linked to care and half remained in care. Among all HIV-infected persons in the United States the CDC has estimated that only 28% are on antiretroviral treatment and have a suppressed viral load. We know that mental disorders have a negative impact at each step in the cascade of HIV testing, care, and treatment. We argue that the time has come to identify and treat mental disorders as an integral part of HIV prevention strategies for people who inject drugs and other overlapping vulnerable populations.

2. Epidemiology of HIV and Access and Adherence to HIV Care and Treatment among People Who Inject Drugs

People who inject drugs are becoming more important in the global landscape of HIV/AIDS because PWID are accounting for a larger proportion of new cases of HIV infection [10]. Injection-drug use has been identified in 148 countries with the largest numbers of injectors identified in China, the United States, and Russia [11].

Data on the extent of injection-drug use is absent for many countries in Africa, the Middle East, and Latin America. Africa, the continent with the largest HIV epidemic, has had an increasing role in global drug trafficking routes, leading to increasing injection-drug use transmission of HIV [12]. This is especially true in Nigeria, Kenya, Tanzania, South Africa, and Mauritius. Kenya alone had 7% of its new HIV infections attributable to drug injection in 2008, and 42% of Kenya's PWID population are HIV infected [12].

It is estimated that outside of sub-Saharan Africa, one in three new HIV cases is attributed to injection-drug use [10]. And in parts of the world where the epidemic is growing rapidly, such as Eastern Europe and Central Asia, some estimates show more than 80% of HIV transmission occurring among PWID [10]. People who inject drugs are more likely to be HIV positive than the general population. Estimates vary widely on the prevalence of HIV among PWID; however a 2008 systematic review suggests that the average global prevalence rate of HIV among PWID is 18% [8], compared to 0.8% of the general population [13].

In recent years HIV prevention efforts have increasingly incorporated the concept of treatment as prevention in response to a growing understanding that antiretroviral treatment can protect HIV-negative people from acquiring HIV and HIV-positive people from transmitting HIV. Because people who inject drugs play such a central role in the acquisition and transmission of HIV infection through risky sexual and drug use practices, it is very important for PWID to have access to and adhere to antiretroviral treatment. However, multiple studies have shown that even in settings where ART is widely available, people who inject drugs are less likely to start ART than other HIV-positive populations [3, 13]. Studies have found that PWID commonly present for HIV treatment later in the stage of the disease when AIDS symptoms are present. Later HIV-stage initiation of ART predicts worse prognosis and survival outcomes [3] and, as already noted, poses a greater likelihood of HIV transmission to others. PWID have also been found to be less adherent to antiretroviral treatment than other HIV positive populations [3, 14] and are more likely to discontinue ART treatment outright after it has been started [14].

3. Epidemiology of Mental Disorders among People Who Inject Drugs

The literature on mental illness among people injecting drugs is limited. The presence of substance use disorders among PWID is the most obvious link between psychiatric illness and injection-drug use. In the USA and elsewhere, the most commonly injected drugs are opioids and stimulants [15]. While injection of these substances could be an intermittent behavior that is not occurring in the context of addiction, studies of current and former people who injected drugs have found that the vast majority of them suffer from one or more addictive disorders; they are polydrug users, using both injected and noninjected substances, including alcohol. In addition, the presence of nonaddictive mental disorders was much higher than that seen in the general population.

While not focused on specific mental disorders, one study in Australia measured the self-reported wellbeing of the PWID participants using the Personal Wellbeing Index (PWI) and found that PWID had profoundly lower scores than the general Australian population [16]. A review of psychiatric comorbidity among people who inject drugs in Africa and Asia found that psychological distress was high, including suicidal ideation and attempts [17].

A team in Chicago [18] used various outreach techniques to gather mental health information on 570 young and mostly white PWID who were not currently in treatment and who had injected less than one month ago. About 98% of subjects met criteria for opioid dependence. Rates of alcohol, cannabis and cocaine abuse and dependence among male and female subjects varied between 14%–21%. Lifetime prevalence for other mental illnesses was much higher than in the general population and differed by gender: primary major depression: men 9%, women 21%; substance-induced major depression: men 22%, women 35%; posttraumatic stress disorder (PTSD): men 6%, women 17%; any primary anxiety disorder: men 13%, women 30%; antisocial personality disorder: men 30%, women 23%; borderline personality disorder: men 19%, women 28%.

It can be difficult to distinguish between psychiatric syndromes induced by drug intoxication/withdrawal from those that are independent of drug use. Brooner et al. attempted to do this by assessing 716 opioid abusers in Baltimore, Maryland after they had been stabilized on methadone maintenance [19]. Using the Structured Clinical Interview for DSM-III-R [20], the authors found that 24% of subjects met lifetime criteria for an Axis-I nonsubstance psychiatric disorder, most commonly major depression. On Axis-II, 35% had a personality disorder, most commonly antisocial personality disorder. At the time of entry into treatment 100% of subjects met criteria for current opioid dependence. In addition, lifetime rates of drug dependence with other substances were as follows: cocaine, 65%; cannabis, 51%; alcohol, 50%; sedatives, 45%; stimulants, 19%; and hallucinogens, 18%.

Other studies in the USA and Taiwan underscore the well-established finding that the vast majority of people who inject drugs suffer from addictive disorders [21, 22].

The type of drug addiction affects the degree of HIV risk that drug injection poses. For example, to maintain a high, individuals injecting cocaine, which is rapidly metabolized, must inject much more frequently than those using longer acting drugs like opioids; therefore obtaining new needles for each injection can become difficult [15].

Nonaddictive mental illnesses can also increase unsafe injection-drug use practices. In a study of 343 opioid-dependent adults recruited from 12 sites across the United States and enrolled in multisite studies of the National Drug Abuse Treatment Clinical Trials Network (CTN001-002), depressive symptoms were associated with an increased level of injection risk behaviors [23]. Past suicide attempts were associated with a history of drug injection among almost 7,000 Swedish criminal justice clients with suspected substance-related problems [24].

Although not specific to injection-drug use, the US national comorbidity study (NCS) of 5,000 people interviewed at two time points about a decade apart provides evidence that strongly suggests nonaddictive mental disorders often precede addictive disorders [2]. Among participants who had never used illicit drugs before, having any sort of psychiatric disorder almost tripled the risk for eventually using, abusing, or becoming dependent on illicit substances, and the greater number of psychiatric disorders the greater the risk. With regard to specific disorders and the risk of developing a future substance use disorder, major depression was associated with twice the risk; panic disorder, intermittent explosive disorder and oppositional defiant disorder with three times the risk; and attention deficit hyperactivity disorder and separation anxiety with about a fourfold increase in risk. The authors state "retrospective and prospective studies both indicate that mental disorders have a temporally primary age of onset in the majority of these forms of comorbidity".

In summary, nonaddictive mental disorders often precede addictive disorders and both contribute to the risk of acquiring and transmitting HIV among people at risk for or currently injecting drugs, including high-risk sex, non-help-seeking behaviors, and nonadherence to ART.

4. Overlap between Injection-Drug Use, Sex Work, and Mental Illness

Injection-drug use and commercial sex work are strongly linked. Examining this link is helpful for two reasons: risky sexual behavior is an important route of HIV transmission from PWID to the general population and there is a larger literature on mental illness among sex workers than there is among those who inject drugs.

Commercial sex work is an economic exchange in which specific sexual activities are purchased or traded for other goods. Many social and economic factors are associated with sex work, including extreme poverty, illiteracy, and unaddressed (or even sanctioned) violence, especially against men who have sex with men and women. These factors are in turn associated with poor mental health. Multiple studies of sex workers, including female, male, and transgendered sex workers, have shown that this is a population with high rates of both addictive and nonaddictive mental disorders, as well as high rates of HIV-related risk behaviors.

In a study in St. Petersburg (Russia), 81% of surveyed sex workers said they injected drugs at least once a day, 65% of those injecting had used nonsterile injecting equipment, and 48% of sex workers were HIV-positive [25]. Similar rates of HIV infection were reported among female sex workers who inject drugs in Ho Chi Minh City (Viet Nam) [25]. Among men who inject drugs in Viet Nam, having contacts with female sex workers was associated with a greater likelihood of being HIV positive [26]. Illegal drug use, particularly with injection drugs, was the single greatest risk factor for HIV infection among female sex workers in Kaiyuan City, China [27].

A study in Zanzibar looked at 509 men who have sex with men (MSM) living in the community of whom 66 also injected drugs [28]. MSM-PWID were twice as likely to have HIV infection as non-PWID MSM. They were also five times less likely to wear a condom with a paid female partner and ten times less likely with a nonpaid female partner. MSM-PWID were much more likely to have engaged in group sex with other men in the past month. They also reported poor needle habits with a majority indicating that they used a needle after someone else and had passed around a needle after using it themselves. This study demonstrates that while MSM are at high risk of HIV acquisition and transmission, those who are also injecting drugs are at even higher risk, in part through unsafe drug injection practices and in part through links to commercial sex work and other risky sexual practices.

Transition to injection-drug use was associated with involvement in sex work among Aboriginal people in Canada [29], and in another Canadian study, this time of HIV-infected PWID who had achieved viral suppression on ART, sex-trade involvement was associated with viral rebound [30].

A study in Puerto Rico found that 47% of female sex workers injected drugs [31]. In this study sex workers with high levels of depressive symptoms had a 70% HIV infection rate, whereas those with low depressive symptoms had a 30% infection rate. This did not appear to be a consequence of HIV infection, since depressive symptoms were independent of HIV status.

Childhood sexual and physical abuse histories are common among male and female sex workers [32–35]. Moreover, throughout the world, including Australia, South Africa, Thailand, Turkey, the United States, and Zambia, sex workers report being raped and physically assaulted during the course of their work. These childhood and adult traumas are associated with significant suicidal ideation and risk, and high rates of mental disorders, especially depression and PTSD [16, 32–40].

Roxburgh et al. studied 72 female street-based sex workers in Australia. More than 80% were heroin dependent and injecting drugs [35]. About half of these sex workers had begun injecting drugs prior to sex work and used sex work to pay for their drugs. Half of the women reported using drugs to facilitate their sex work largely through their numbing effects. Among these women, 47% met a lifetime DSM-IV diagnosis of posttraumatic stress disorder. What emerged was a complex intertwinement of childhood abuse and neglect, PTSD, symptoms of depression, injection drug use, and engaging in sex work.

Vanwesenbeeck [41] conducted an exhaustive review of the research literature on sex workers from 1990 through 2000 and concluded that in the Western world, injection drug use and noncommercial sexual activity are the most important risk factors for HIV infection in female sex workers. This is similar to the findings of Gilchrist et al. [42] who studied 118 women who inject drugs in Barcelona and found that coercion into sex and sex exchange were common. However, noncommercial partners had a stronger influence on risky behaviors, needle sharing, and unprotected sex than did male clients.

5. Mental Disorders as Risk Factors for Injection-Drug Use

Mental disorders often precede the onset of injection-drug use. Again, the most obvious link is to current addictive disorders as already described above. In addition, studies show that early onset of alcohol and polysubstance use is an important risk factor for injecting drugs in adulthood [43].

Injection-drug use has been found to be a risk factor for HIV among people with severe mental illness. Meade and Sikkema [44] did a literature review of this link and found 17 studies demonstrating an average rate of ever injecting drugs of 22%, and a past year rate of 4%. Of these studies, eight looked at needle sharing and found on average 61% lifetime and 50% past year rates of this behavior.

6. Need for Mental Health Services for People Living with HIV/AIDS

The need for mental health services for people living with HIV/AIDS (PLWHA) is clear. Mental illness has been shown to impact HIV transmission as well as disease progression [45]. Depression, substance use disorders, and other severe mental illnesses are associated with transmission risk behaviors such as risky sexual activity and drug injection among both HIV-negative and HIV-positive people [46]. In terms of disease progression, poor mental health in general, and depression and substance use in particular, have been shown to negatively affect antiretroviral therapy adherence, which can cause poorer health outcomes and increased risk for HIV transmission [47, 48].

People who have been diagnosed with severe mental illnesses have a higher prevalence of HIV than the general population [49]. One study found individuals with serious mental illnesses 8 times more likely to be HIV positive than the general population [8]. Conversely, PLWHA have higher rates of mental disorders [14], particularly depression [50], with HIV-positive individuals nearly twice as likely to be diagnosed with major depression as HIV-negative individuals [50]. Depression is the most common mental disorder among HIV-infected people and is present in 30–50% of patients in HIV care and treatment settings [48]. Studies have found that chronic depressive symptoms are associated with a higher risk of mortality, particularly for women living with HIV, who are twice as likely to die as HIV-infected women with limited or no depressive symptoms [51, 52]. There is also evidence that psychological distress can shorten the time from HIV to AIDS, particularly among PWID [53].

7. Recommendations for Mental Health Services for People Living with HIV/AIDS

There are a variety of guidelines for addressing mental disorders among people with HIV/AIDS. We have chosen to present guidelines developed by the US Agency for

International Development (USAID) because USAID has a global focus and has been very involved, particularly in their collaboration with the US Office of the Global AIDS Coordinator, in supporting the care of people with HIV/AIDS.

Support and Technical Assistance Resources (AIDSTAR-One) through USAID produced a technical briefing in 2009 on the mental health needs of people living with HIV/AIDS who suffer from mental health or substance use disorders [54]. They break down the continuum of HIV/AIDS into three phases: pre-ART, ART, and the advanced disease/end-of-life phase. Even as the pre-ART phase becomes briefer and in some countries disappears as patients who test HIV positive are offered immediate ART, the AIDSTAR-One recommendations remain relevant.

7.1. Pre-ART Phase. During the pre-ART phase of HIV/AIDS, PLWHA have five distinct mental health needs. Firstly, it is essential that PLWHA receive early screening for and diagnoses of mental health and substance use disorders. The mental disorders that are associated with HIV include adjustment disorders, mood disorders including major depression, anxiety disorders including panic disorder and posttraumatic stress disorder, substance use disorders, HIV-associated dementia (also known as AIDS dementia complex), and milder neurocognitive impairment. Treatment of co-occurring disorders can lead to improved HIV-related health outcomes and reduce transmission risk.

Secondly, PLWHA with a substance use or other mental disorder must have access to HIV care and treatment. PLWHA with co-occurring mental disorders are less likely to start and remain on ART treatment. Thirdly, when a person living with HIV/AIDS is first diagnosed, there are specific mental health needs that arise in response to the HIV diagnosis. HIV diagnosis can trigger concerns over death, stigma of the disease, changes in personal relationships, and uncertainty of the future. These concerns can trigger anxiety or depression and both can have a negative impact on accessing ART treatment or remaining in treatment. Fourthly, there are very specific mental health needs for PLWHA around stigma and discrimination as a result of being HIV positive. The consequences of HIV stigma can include social isolation, marginalization and discrimination and can directly impact a person's care-seeking behaviors. Finally, because HIV infection is a chronic illness, PLWHA are in need of ongoing psychosocial support. Psychosocial support can help reduce the psychological distress of living with HIV and also improve ART adherence and disease outcomes.

7.2. Antiretroviral Treatment Phase. During the ART phase, many of the mental health needs from the pre-ART phase are still relevant, particularly those dealing with stigma, access to care, emotional response, and psychosocial support. However there are certain mental health needs that are specific to the ART phase of HIV/AIDS in people with co-occurring disorders. These include adherence to ART, management of mental and substance use disorders, and side effects and cognitive impairments as a result of HIV itself and its treatment.

7.3. Advanced Disease/End-of-Life Phase. Despite the fact that effective treatment exists for HIV, many deaths still occur as a result of HIV infection. If a person living with AIDS progresses to very advanced stages of the disease where death is likely, mental health needs are particularly important in caring for that person and his or her caregivers. Both the patient and the caregivers will need substantive physical, emotional and spiritual support as they go through the process of death and dying, as well as grief and loss. These support systems can be both formal and informal.

8. Models for and Barriers to Mental Health Services for People Living with HIV/AIDS

It is currently not possible to carry out most of the AIDSTAR-One recommendations in most parts of the world, and the vast majority of people who inject drugs are not in treatment for their addictive or nonaddictive mental illnesses. While mental disorders are common, accounting for 13% of the total global burden of disease, adequate treatment is often not available [14]. In high-income countries, there is a 35–50% treatment gap for mental disorders. In low- and middle-income countries the gap is even more pronounced, with between 76–85% of those in need of services not receiving treatment for mental disorders [14]. Low- and middle-income countries have not only the largest treatment gap for mental disorders, but also the highest burden of HIV/AIDS, with sub-Saharan Africa alone accounting for 69% of the entire population of people living with HIV/AIDS [55]. Still another barrier to treatment is that drug use disorders are often criminalized rather than treated [56]. With the clear association between mental disorders and HIV/AIDS and the enormous gap in mental health treatment services, especially in low- and middle-income countries, there is an obvious need for improved HIV and mental health interventions.

In addition, virtually every funding stream for people with HIV/AIDS spends very little money on the treatment of mental disorders. Factors that explain this include the lack of recognition and the stigma of mental illnesses and the low priority given to these disorders by country leadership (both public and private), including in the USA, and by the HIV experts and scientists who drive the HIV treatment and research agenda. They may share a common misperception that mental health services are costly, derived from basing their estimates on per capita costs of psychiatric care, even though many services are now provided by community workers through an approach called task-shifting [57].

Another concern in relation to the specific needs of people who inject drugs is the availability and legality of opioid substitution therapy (OST). Of the five countries that have megaepidemics of HIV among PWID—Russia, China, Ukraine, Vietnam, and Malaysia—OST is available in all but Russia. In Russia, methadone and buprenorphine remain illegal for use in addiction treatment [58]. However, even in those countries where opioid substitution therapy is legal, OST is offered to less than 5% of patients that are in need

of drug treatment. While these percentages are very low, they are on the rise and countries, particularly those with megaepidemics, with the exception of Russia, are increasing the number of people receiving OST [58].

In high-income countries, OST is generally more available. By 2000, all but two European Union countries (Cyprus and Estonia) had introduced opioid substitution therapy, providing drug treatment for approximately one third of the PWID. It is estimated that between 1998 and 2004, 15% to 25% of addicted opioid users were receiving opioid substitution therapy [59].

While availability of OST is often the first step to treating PWID, maintaining drug treatment is also important. In the Mackesy-Amiti et al. [18] US-based study of PWID, while 68% had received some form of substance abuse treatment in the past, only 5% were currently in treatment and only 10% reported current 12-step program attendance.

Beyond the treatment of opioid addiction with OST and the provision of clean injection equipment, it is difficult to identify effective and tested treatment models for HIV positive PWID with the common psychiatric comorbidities that we have discussed. Our own search through the Columbia University Libraries article database and PubMed revealed a dearth of peer-reviewed articles on models for providing care for both opioid addiction and other mental illnesses regardless of HIV status. Rarer still are articles that concern non-Western countries, as other reviewers have noted [17]. Even fairly comprehensive articles on the subject of illicit drugs and HIV treatment seem to handle mental illness as merely another comorbidity that includes its own set of prescription drugs with specific interactions, rather than addressing the absence of systems to deliver mental health care [60].

We therefore also searched the gray literature in the hopes of finding studies, technical reports, and other publications that could aid the search for information about active treatments in the field. Some of the largest organizations with the greatest reach financially and logistically do not include much information on mental health in their reports. Organizations and programs like UNAIDS, the World Health Organization, and the US Government's President's Emergency Plan for AIDS Relief (PEPFAR) often mention mental health briefly and in terms of the broader psychosocial aspects without going into psychiatric diagnoses and the options to treat them [10, 61–65].

Some smaller organizations have been making strides in treatment for HIV positive PWID and in reporting on methods of treatment. For example reports from the Global Initiative on Psychiatry are often in-depth and discuss the treatment options, or lack thereof, with a focus on mental health and HIV globally, in such places as Eastern Europe [66], Kazakhstan [67], and Tajikistan [68]. If there is to be any progress in the integration of mental health treatment options for HIV positive PWID, it will take a concerted effort on the part of all organizations to include and incorporate the screening for and treatment of mental disorders into their activities.

Extrapolating from the existing literature on treating comorbid substance use and nonaddictive mental disorders, a number of recommendations can be made for meeting the mental health needs of people who inject drugs. To the extent possible it works best to have one-stop care where all services are integrated within the same program and team meetings take place with all providers present [69]. This would include the integration of medical care for those programs that serve HIV positive populations. Use of a shared electronic record in this setting further enhances integration because providers can rapidly see one another's interventions. Mental health services that can be provided in integrated settings include comprehensive assessment and differential diagnosis; medications for both psychiatric and substance use disorders; psychotherapies, especially motivational interviewing and cognitive behavioral therapy; psychosocial support and social services; a thorough assessment of drug interactions and toxicities; and a comprehensive way to monitor people with multiple chronic relapsing disorders.

Other possibilities to achieve at least some degree of integration of services, in descending order of the likelihood of success, are programs colocated at the same site even though they are not integrated, case managers who escort patients from one service to other unrelated services, and having clinicians in unrelated settings share information and clinical decision making. Because buprenorphine treatment is more realistic to provide than methadone in medical settings, use of this agent for opioid substitution therapy can also facilitate integration of services. Screening consenting clients for common mental illnesses in methadone maintenance programs and those that offer clean injection equipment could help facilitate comprehensive care if such programs are linked with and make referrals to mental health services.

Achieving integrated services will require more successful strategies for funding the treatment of mental disorders, especially in low and middle-income countries; new approaches to overcoming systemic barriers to integration, such as the tendency seen in the United States to separately fund and operate services for addictive and nonaddictive mental disorders [70]; and a commitment by the largest global health care organizations to include the diagnosis and treatment of mental disorders in HIV/AIDS and other treatment guidelines and programming.

9. Conclusion

People who inject drugs are more likely to be HIV positive and to have a mental disorder than the general population. The health needs of PWID should be met not only because it is a human right, but also to effectively combat the global HIV epidemic. In order to address the needs of HIV positive PWID, policy and programs must include mental health services, which include adequate and available drug treatment options, including opioid substitution therapy. Addressing the mental health and substance abuse needs of people who inject drugs will help to prevent the acquisition and spread of HIV. Mental disorders and injection-drug use are highly stigmatized and remain a low priority for HIV-related funding and research. More research must be done to understand the relationship between mental disorders,

injection-drug use and HIV prevention, and more programming addressing these three problems in a comprehensive way needs to be developed, funded, and studied.

References

[1] F. Cournos, K. McKinnon, and M. Wainberg, "Global initiatives for HIV/AIDS and programs promoting global access to mental health care: putting mental health into public health," in *Mental Health in Public Health*, L. B. Cottler, Ed., pp. 57–76, Oxford University Press, Oxford, UK, 2011.

[2] J. Swendsen, K. P. Conway, L. Degenhardt et al., "Mental disorders as risk factors for substance use, abuse and dependence: results from the 10-year follow-up of the National Comorbidity Survey," *Addiction*, vol. 105, no. 6, pp. 1117–1128, 2010.

[3] E. Wood, T. Kerr, M. W. Tyndall, and J. S. Montaner, "A review of barriers and facilitators of HIV treatment among injection drug users," *AIDS*, vol. 22, no. 11, pp. 1247–1256, 2008.

[4] American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, American Psychiatric Association Press, Washington, DC, USA, 4th edition, 2000.

[5] C. T. Williams and C. A. Latkin, "The role of depressive symptoms in predicting sex with multiple and high-risk partners," *Journal of Acquired Immune Deficiency Syndromes*, vol. 38, no. 1, pp. 69–73, 2005.

[6] L. W. H. Yun, M. Maravi, J. S. Kobayashi, P. L. Barton, and A. J. Davidson, "Antidepressant treatment improves adherence to antiretroviral therapy among depressed HIV-infected patients," *Journal of Acquired Immune Deficiency Syndromes*, vol. 38, no. 4, pp. 432–438, 2005.

[7] E. T. Golub, J. A. Astemborski, D. R. Hoover, J. C. Anthony, D. Vlahov, and S. A. Strathdee, "Psychological distress and progression to AIDS in a cohort of injection drug users," *Journal of Acquired Immune Deficiency Syndromes*, vol. 32, no. 4, pp. 429–434, 2003.

[8] World Health Organization, *The Global Burden of Disease: 2004 Update*, World Health Organization, Geneva, Switzerland, 2008.

[9] S. M. Cohen, M. M. van Handel, B. M. Branson et al., "Vital signs: HIV prevention through care and treatment—United States," *Morbidity & Mortality Weekly Report*, vol. 60, no. 47, pp. 1618–1623, 2011.

[10] Joint United Nations Programme on HIV/AIDS (UNAIDS), *Global Report: UNAIDS Report on the Global AIDS Epidemic 2010*, UNAIDS, Geneva, Switzerland, 2010.

[11] B. M. Mathers, L. Degenhardt, B. Phillips et al., "Global epidemiology of injecting drug use and HIV among people who inject drugs: a systematic review," *The Lancet*, vol. 372, no. 9651, pp. 1733–1745, 2008.

[12] S. A. Strathdee and J. K. Stockman, "Epidemiology of HIV among injecting and non-injecting drug users: current trends and implications for interventions," *Current HIV/AIDS Reports*, vol. 7, no. 2, pp. 99–106, 2010.

[13] The Henry J. Kaiser Family Foundation, *Fact Sheet: The Global HIV/AIDS Epidemic*, The Henry J. Kaiser Family Foundation, Menlo Park, Calif, USA, 2012.

[14] G. Chander, S. Himelhoch, and R. D. Moore, "Substance abuse and psychiatric disorders in HIV-positive patients: epidemiology and impact on antiretroviral therapy," *Drugs*, vol. 66, no. 6, pp. 769–789, 2006.

[15] L. R. Ropelewski, B. E. Mancha, A. Hulbert, A. E. Rudolph, and S. S. Martins, "Correlates of risky injection practices among past-year injection drug users among the US general population," *Drug and Alcohol Dependence*, vol. 116, no. 1–3, pp. 64–71, 2011.

[16] P. Dietze, M. Stoové, P. Miller et al., "The self-reported personal wellbeing of a sample of Australian injecting drug users," *Addiction*, vol. 105, no. 12, pp. 2141–2148, 2010.

[17] S. Iskandar, R. Kamal, and C. A. de Jong, "Psychiatric comorbidity in injecting drug users in Asia and Africa," *Current Opinion in Psychiatry*, vol. 25, no. 3, pp. 213–218, 2012.

[18] M. E. Mackesy-Amiti, G. R. Donenberg, and L. J. Ouellet, "Prevalence of psychiatric disorders among young injection drug users," *Drug and Alcohol Dependence*, vol. 124, no. 1-2, pp. 70–78, 2012.

[19] R. K. Brooner, V. L. King, M. Kidorf, C. W. Schmidt, and G. E. Bigelow, "Psychiatric and substance use comorbidity among treatment-seeking opioid abusers," *Archives of General Psychiatry*, vol. 54, no. 1, pp. 71–80, 1997.

[20] American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, American Psychiatric Association Press, Washington, DC, USA, 3rd edition, 1987.

[21] S. H. Dinwiddie, "Characteristics of injection drug users derived from a large family study of alcoholism," *Comprehensive Psychiatry*, vol. 38, no. 4, pp. 218–229, 1997.

[22] S. C. Chiang, S. J. Chen, H. J. Sun, H. Y. Chan, and W. J. Chen, "Heroin use among youths incarcerated for illicit drug use: psychosocial environment, substance use history, psychiatric comorbidity, and route of administration," *American Journal on Addictions*, vol. 15, no. 3, pp. 233–241, 2006.

[23] D. J. Pilowsky, L. T. Wu, B. Burchett, D. G. Blazer, and W. Ling, "Depressive symptoms, substance use, and HIV-related high-risk behaviors among opioid-dependent individuals: results from the Clinical Trials Network," *Substance Use & Misuse*, vol. 46, no. 14, pp. 1716–1725, 2011.

[24] A. Hakansson, L. Bradvik, F. Schlyter, and M. Berglund, "Factors associated with the history of attempted suicide: a criminal justice population examined with the Addiction Severity Index (ASI)," *Crisis*, vol. 31, no. 1, pp. 12–21, 2010.

[25] Joint United Nations Programme on HIV/AIDS (UNAIDS), *AIDS Epidemic Update : 2004*, UNAIDS, Geneva, Switzerland, 2004.

[26] C. M. Schumacher, V. F. Go, L. van Nam et al., "Social injecting and other correlates of high-risk sexual activity among injecting drug users in northern Vietnam," *International Journal of Drug Policy*, vol. 20, no. 4, pp. 352–356, 2009.

[27] H. Wang, R. Y. Chen, G. Ding et al., "Prevalence and predictors of HIV infection among female sex workers in Kaiyuan City, Yunnan Province, China," *International Journal of Infectious Diseases*, vol. 13, no. 2, pp. 162–169, 2009.

[28] L. G. Johnston, A. Holman, M. Dahoma et al., "HIV risk and the overlap of injecting drug use and high-risk sexual behaviours among men who have sex with men in Zanzibar (Unguja), Tanzania," *International Journal of Drug Policy*, vol. 21, no. 6, pp. 485–492, 2010.

[29] C. L. Miller, M. E. Pearce, A. Moniruzzaman et al., "The Cedar Project: risk factors for transition to injection drug use among young, urban Aboriginal people," *Canadian Medical Association Journal*, vol. 183, no. 10, pp. 1147–1154, 2011.

[30] M. J. Milloy, T. Kerr, J. Buxton et al., "Social and environmental predictors of plasma HIV RNA rebound among injection drug users treated with antiretroviral therapy," *Journal of Acquired Immune Deficiency Syndromes*, vol. 59, no. 4, pp. 393–399, 2012.

[31] M. Alegría, M. Vera, D. H. Freeman Jr., R. Robles, C. M. Del Santos, and C. L. Rivera, "HIV infection, risk behaviors, and depressive symptoms among Puerto Rican sex workers," *American Journal of Public Health*, vol. 84, no. 12, pp. 2000–2002, 1994.

[32] M. L. Burnette, E. Lucas, M. Ilgen, S. M. Frayne, J. Mayo, and J. C. Weitlauf, "Prevalence and health correlates of prostitution among patients entering treatment for substance use disorders," *Archives of General Psychiatry*, vol. 65, no. 3, pp. 337–344, 2008.

[33] M. Farley, I. Baral, M. Kiremire, and U. Sezgin, "Prostitution in five countries: violence and post-traumatic stress disorder," *Feminism and Psychology*, vol. 8, no. 4, pp. 405–426, 1998.

[34] M. Farley and V. Kelly, "Prostitution: a critical review of the medical and social sciences literature," *Women & Criminal Justice*, vol. 11, no. 4, pp. 29–64, 2000.

[35] A. Roxburgh, L. Degenhardt, and J. Copeland, "Posttraumatic stress disorder among female street-based sex workers in the greater Sydney area, Australia," *BMC Psychiatry*, vol. 6, article 24, 2006.

[36] M. Shahmanesh, S. Wayal, F. Cowan, D. Mabey, A. Copas, and V. Patel, "Suicidal behavior among female sex workers in Goa, India: the silent epidemic," *American Journal of Public Health*, vol. 99, no. 7, pp. 1239–1246, 2009.

[37] Y. Hong, X. Fang, X. Li, Y. Liu, M. Li, and T. Tai-Seale, "Self-perceived stigma, depressive symptoms, and suicidal behaviors among female sex workers in China," *Journal of Transcultural Nursing*, vol. 21, no. 1, pp. 29–34, 2010.

[38] W. Rössler, U. Koch, C. Lauber et al., "The mental health of female sex workers," *Acta Psychiatrica Scandinavica*, vol. 122, no. 2, pp. 143–152, 2010.

[39] P. M. Simon, E. V. Morse, H. J. Osofsky, P. M. Balson, and H. R. Gaumer, "Psychological characteristics of a sample of male street prostitutes," *Archives of Sexual Behavior*, vol. 21, no. 1, pp. 33–44, 1992.

[40] N. El-Bassel, R. F. Schilling, K. L. Irwin et al., "Sex trading and psychological distress among women recruited from the streets of Harlem," *American Journal of Public Health*, vol. 87, no. 1, pp. 66–70, 1997.

[41] I. Vanwesenbeeck, "Another decade of social scientific work on sex work: a review of research 1990–2000," *Annual Review of Sex Research*, vol. 12, pp. 242–289, 2001.

[42] G. Gilchrist, A. Blazquez, and M. Torrens, "Psychiatric, behavioral and social risk factors for HIV infection among female drug users," *AIDS and Behavior*, vol. 15, no. 8, pp. 1834–1843, 2011.

[43] R. C. Trenz, M. Scherer, P. Harrell, J. Zur, A. Sinha, and W. Latimer, "Early onset of drug and polysubstance use as predictors of injection drug use among adult drug users," *Addictive Behaviors*, vol. 37, no. 4, pp. 367–372, 2012.

[44] C. S. Meade and K. J. Sikkema, "HIV risk behavior among adults with severe mental illness: a systematic review," *Clinical Psychology Review*, vol. 25, no. 4, pp. 433–457, 2005.

[45] J. Leserman, "HIV disease progression: depression, stress, and possible mechanisms," *Biological Psychiatry*, vol. 54, no. 3, pp. 295–306, 2003.

[46] P. van Empelen, G. Kok, N. M. C. van Kesteren, B. van den Borne, A. E. R. Bos, and H. P. Schaalma, "Effective methods to change sex-risk among drug users: a review of psychosocial interventions," *Social Science and Medicine*, vol. 57, no. 9, pp. 1593–1608, 2003.

[47] R. Harding, F. C. Lampe, S. Norwood et al., "Symptoms are highly prevalent among HIV outpatients and associated with poor adherence and unprotected sexual intercourse," *Sexually Transmitted Infections*, vol. 86, no. 7, pp. 520–524, 2010.

[48] L. Sherr, F. Lampe, S. Norwood et al., "Adherence to antiretroviral treatment in patients with HIV in the UK: a study of complexity," *AIDS Care*, vol. 20, no. 4, pp. 442–448, 2008.

[49] L. Sherr, C. Clucas, R. Harding, E. Sibley, and J. Catalan, "HIV and depression—a systematic review of interventions," *Psychology, Health & Medicine*, vol. 16, no. 5, pp. 493–527, 2011.

[50] E. G. Bing, M. A. Burnam, D. Longshore et al., "Psychiatric disorders and drug use among human immunodeficiency virus-infected adults in the United States," *Archives of General Psychiatry*, vol. 58, no. 8, pp. 721–728, 2001.

[51] J. A. Ciesla and J. E. Roberts, "Meta-analysis of the relationship between HIV infection and risk for depressive disorders," *American Journal of Psychiatry*, vol. 158, no. 5, pp. 725–730, 2001.

[52] J. R. Ickovics, M. E. Hamburger, D. Vlahov et al., "Mortality, CD4 cell count decline, and depressive symptoms among HIV-seropositive women: longitudinal analysis from the HIV epidemiology research study," *Journal of the American Medical Association*, vol. 285, no. 11, pp. 1466–1474, 2001.

[53] J. A. Cook, D. Grey, J. Burke et al., "Depressive symptoms and AIDS-related mortality among a multisite cohort of HIV-positive women," *American Journal of Public Health*, vol. 94, no. 7, pp. 1133–1140, 2004.

[54] M. Gutmann and A. Fullem, *Mental Health and HIV/AIDS*, USAID|AIDSTAR-ONE PROJECT, Task Order I, Arlington, Va, USA, 2009.

[55] K. Demyttenaere, P. Morosini, G. Polidori et al., "Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization World Mental Health Surveys," *Journal of the American Medical Association*, vol. 291, no. 21, pp. 2581–2590, 2004.

[56] A. Gonzalez, J. Barinas, and C. O'Cleirigh, "Substance use: impact on adherence and HIV medical treatment," *Current HIV/AIDS Reports*, vol. 8, no. 4, pp. 223–234, 2011.

[57] V. Patel, "Mental health in the developing world: time for innovative thinking," Science and Development Network, 2008, http://www.scidev.net/en/opinions/mental-health-in-the-developing-world-time-for-inn.html.

[58] D. Wolfe, M. P. Carrieri, and D. Shepard, "Treatment and care for injecting drug users with HIV infection: a review of barriers and ways forward," *The Lancet*, vol. 376, no. 9738, pp. 355–366, 2010.

[59] L. Wiessing, G. Likatavičius, D. Klempová, D. Hedrich, A. Nardone, and P. Griffiths, "Associations between availability and coverage of HIV-prevention measures and subsequent incidence of diagnosed HIV infection among injection drug users," *American Journal of Public Health*, vol. 99, no. 6, pp. 1049–1052, 2009.

[60] F. L. Altice, A. Kamarulzaman, V. V. Soriano, M. Schechter, and G. H. Friedland, "Treatment of medical, psychiatric, and substance-use comorbidities in people infected with HIV who use drugs," *The Lancet*, vol. 376, no. 9738, pp. 367–387, 2010.

[61] World Health Organization, UNODC, and UNAIDS, *Technical Guide for Countries to Set Targets for Universal Access to HIV Prevention, Treatment and Care for Injecting Drug Users*, World Health Organization, Geneva, Switzerland, 2009.

[62] U. S. President's Emergency Plan for AIDS Relief (PEPFAR), *Comprehensive HIV Prevention For People Who Inject*

Drugs, Revised Guidance, 2010, http://www.pepfar.gov/documents/organization/144970.pdf.

[63] World Health Organization, *Global HIV/AIDS Response: Epidemic Update and Health Sector Progress Towards Universal Access: Progress Report 2011*, World Health Organization, Geneva, Switzerland, 2011.

[64] World Health Organization, *European Action Plan For HIV/AIDS, 2012–2015*, WHO Regional Office for Europe, Copenhagen, Denmark, 2011.

[65] Joint United Nations Programme on HIV/AIDS, *UNAIDS World AIDS Day Report 2011*, UNAIDS, Geneva, Switzerland, 2011.

[66] Global Initiative on Psychiatry, *Double Stigma, Double Challenge: Mental Health and HIV/AIDS in Central and Eastern Europe and the Newly Independent States*, 2006, http://www.gip-global.org/images/28/282.pdf.

[67] M. Aigul, V. Nadezhda, and K. Vladimir, "Mental health problems of drug injecting PLHIV in Kazakhstan," *Mental Health and HIV/AIDS Project (2005–2008) of The Global Initiative on Psychiatry (GIP)*, 2007, http://www.mh-center.org/library/MAIDS_Research_Reports_MH_IDU_in_Kazakhstan.pdf.

[68] N. Juraeva, M. Haitova, P. Jamailov, and K. Aliev, "Rapid assessment of mental health problems among PLHIV-IDU," *Center on Mental Health and HIV/AIDS*, 2008.

[69] P. Murthy and P. Chand, "Treatment of dual diagnosis disorders," *Current Opinion in Psychiatry*, vol. 25, no. 3, pp. 194–200, 2012.

[70] J. Walkup, M. B. Blank, J. S. Gonzalez et al., "The impact of mental health and substance abuse factors on HIV prevention and treatment," *Journal of Acquired Immune Deficiency Syndromes*, vol. 47, supplement 1, pp. S15–S19, 2008.

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Review Article

An Overview of HIV Prevention Interventions for People Who Inject Drugs in Tanzania

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In the past decade, Tanzania has seen a rapid rise in the number of people who inject drugs (PWID), specifically heroin. While the overall HIV prevalence in Tanzania has declined recently to 5.6%, in 2009, the HIV prevalence among PWID remains alarmingly high at 35%. In this paper, we describe how the Tanzania AIDS Prevention Program (TAPP), Médecins du Monde France (MdM-F), and other organisations have been at the forefront of addressing this public health issue in Africa, implementing a wide array of harm reduction interventions including medication-assisted treatment (MAT), needle and syringe programs (NSP), and "sober houses" for residential treatment in the capital, Dar es Salaam, and in Zanzibar. Looking toward the future, we discuss the need to (1) *extend* existing services and programs to reach more PWID and others at risk for HIV, (2) *develop* additional programs to strengthen existing programs, and (3) *expand* activities to include structural interventions to address vulnerabilities that increase HIV risk for all Tanzanians.

1. Introduction

Until recently, heroin use and associated health risks were not perceived as major issues in sub-Saharan Africa. However, in the mid-1980s and early 1990s, East Africa became an important stop along international drug trafficking routes thereby introducing heroin in the region [1]. Consequently, heroin injection emerged in Dar es Salaam, Tanzania, in the late 1990s [2, 3]. The Tanzanian government acknowledges that injection drug use is a well-established problem across many cities in the country [4].

During the 2000s, the rapid escalation of injection drug use in Tanzania accompanied a synergistic rise in HIV prevalence among people who inject drugs (PWID) due to unsafe injection practices and risky sexual behavior. Since 2003, the majority of PWID in Dar es Salaam reported injecting three times per day [2, 5, 6], with 41% of all users sharing needles in the past 30 days [6]. In addition, 28% of PWID reported reusing used rinse water [1], which is not effective in preventing HIV. With regard to sexual risk behavior, only 42% of PWID reported using condoms during sex in the last 30 days [7]. Studies conducted between 2003 and 2007 estimated an HIV prevalence of 42% among PWID [6, 8], compared to an estimated prevalence of 9% in the general population [9]. Subsequent studies conducted between 2009 and 2010 found an HIV prevalence among younger PWID of approximately 31% and 35%, respectively [5, 10]. These studies also found a much higher prevalence among women who inject drugs from 55% to 68%, respectively. Although overall HIV prevalence rates in Tanzania have declined from

8.7% in 1999 to 5.6% in 2009 [9, 11], continuing high rates of PWID-related HIV infection threaten to destabilize the progress that Tanzania has made in controlling its HIV epidemic. The importance of addressing the high HIV burden among PWID is critically important in its own right and is especially so because they often engage in risky sexual behaviors with people who do not inject drugs. Neglecting HIV among PWID could spur a resurgence of HIV throughout the Tanzanian population.

2. Harm Reduction in Tanzania

On World AIDS Day 2006, researchers from Muhimbili University of Health and Allied Sciences (MUHAS) and the University of Texas School of Public Health (UT-Houston) conducted a day-long media workshop in Dar es Salaam to present findings they had published in peer-reviewed journals to the press, community-based organisations (CBOs), nongovernmental organisations (NGOs), and donors. The national press coverage of the event and of other antidrug trafficking efforts presaged the Tanzanian government's 2007 request to direct some funds from the President's Emergency Funds for AIDS Relief (PEPFAR) toward HIV prevention outreach projects specifically targeting PWID.

In Dar es Salaam, PEPFAR funded the Tanzania AIDS Prevention Program (TAPP) in 2007 to implement prevention and outreach activities among PWID. TAPP is a consortium that MUHAS manages in partnership with UT-Houston, Pangaea Global AIDS Foundation (Pangaea), the Tanzanian Ministry of Health and Social Welfare (MoHSW), and the Tanzanian Drug Control Commission (DCC). TAPP partners coordinate a multiarm approach to HIV prevention and outreach, covering a broad population of clients. For the general population in Dar es Salaam, TAPP offers HIV testing and counseling (HTC) for individuals and couples through mobile van outreach, provider-initiated testing and counseling (PITC) and onsite testing at Muhimbili National Hospital, as well as training for health care personnel in prevention and outreach procedures. TAPP staff have also provided HTC services at annual events, including World AIDS Day, Africa Day, Rotary Club Day at Chanika, International Day Against Drug Abuse and Illicit Trafficking, and the *Saba Saba* Trade Fair.

For PWID, the community-based outreach project helps to coordinate many intervention programs through the cooperation and input from local partner CBOs: Kimara Peer Educators and Health Promoters Trust Fund (KPE); Youth Volunteers Against Risky Behaviours (YOVARIBE); Centre for Human Rights Promotion (CHRP); and Blue Cross Society of Tanzania (BCST). These CBOs and two mobile clinics provide HTC outreach services for IDUs in the Kinondoni District of Dar es Salaam. These services include distribution of health kits (containing information, education, and communication (IEC) materials along with kits for wound care, condoms, and bleach kits for cleaning of works), psychosocial support services, individual counseling, self-support groups, Narcotics Anonymous (NA) and Methadone Anonymous (MA) meetings, and family group therapy meetings. As part of this project, UT-Houston, together with community outreach workers from MUHAS and CBO partners, maps communities to identify suitable locations for mobile units, and monitors current heroin use patterns in Dar es Salaam to modify program strategies. Additionally, TAPP provides continuing education training for community outreach workers. Through August 2012, TAPP partner CBOs have engaged over 11,800 heroin users through outreach activities, of which 2530 were PWIDs and referred 571 to the medication-assisted treatment (MAT) clinic (see below) [12, 13].

During February 2011, a dedicated public methadone-based MAT clinic, the second in sub-Saharan Africa after Mauritius, opened at the Muhimbili National Hospital. The MAT clinic is staffed year-round to accommodate the project participants who are all required to travel to the clinic on a daily basis to receive their dose of liquid methadone where consumption is directly observed by healthcare providers. CBO outreach efforts also include identifying, screening, and preparing possible candidates for medically assisted treatment. Through the development of service provision guides and clinical mentoring, Pangaea assisted in building local capacity to launch the MAT clinic and continues to support the services with ongoing clinical mentoring and the use of implementation science methodologies. From its opening to August 2012, TAPP has enrolled over 431 PWID in methadone treatment at its MAT clinic [13].

During late 2010, Médecins du Monde France (MdM-F) began a harm reduction program in the Temeke District of Dar es Salaam with a drop-in center (DIC) and outreach activities. This program is funded by the French Agency for Development (AFD), the Municipality of Paris, and private donors. In November 2010, MdM-F signed a Memorandum of Cooperation with the MoHSW and the district council in Temeke to strengthen local capacities of stakeholders in harm reduction. Between August 2011 and March 2012, MdM-F had engaged 2932 PWID and 1265 PWUD (people who use drugs, including those who do not inject) through outreach activities and the DIC. Approximately 45 PWID attend the DIC daily, and an additional 120 PWUD attend during the two days per week when the DIC is open to those who do not inject heroin. In March 2011, MdM-F began a needle and syringe program (NSP). This program distributes approximately 25,000 syringes and condoms per month, and tests clients for HIV, hepatitis B, and hepatitis C.

MdM-F also has special services for women due to their increased vulnerability as PWID/PWUD. There is a separate room for women at the DIC, and, once a week, the DIC is open only to women. Many bring their children as the DIC provides food assistance, and MdM-F provides a staff member to accompany pregnant clients to HIV and antenatal care at other clinics. MdM-F supports several self-support groups: one for women who use drugs, one for PWUD who are HIV-positive, and one for PWID enrolled in the MAT program. MdM-F has also been working with government and private clinics in Temeke to provide services that are more welcoming to PWID/PWUD and others who often experience discrimination in these settings (i.e., men

who have sex with men, sex workers). Finally, because PWID/PWUD are often blamed for social problems and criminal activities, MdM-F advocates for fair treatment of PWID/PWUD in accordance with local laws.

To build local capacity and sustainability of harm reduction activities, MdM-F has initiated a "Temeke committee" to help design and expand interventions for PWUD. The committee coordinates government agencies and non-government organisations to strengthen referral systems, to exchange experiences and to advocate jointly at national level for increased attention and funding for HIV-prevention services for PWUD. MdM-F offers training and coaching to stakeholders who have a role in HIV prevention among PWUD in Temeke, including medical staff, police officers, community, and religious leaders. They also provide intensive training and mentoring through internships, exchange of staff and continuous consultation to several national non-government organisations: Poverty Fighters, Tayohag, and Mukikute. MdM-F has also been working with the Alliance of Mayors and Municipal Leaders on HIV/AIDS in Tanzania (AMICALL) to support the development of a strategic plan for HIV prevention efforts, improving access to care and treatment. For their PWID clients, MdM-F provides training and support for income-generating activities. Some have been trained as peer educators; others have received training and legal assistance to develop small businesses.

In Zanzibar, PEPFAR funded two projects to address the needs of PWID: The American International Health Alliance (AIHA) partnered with the DCC, MOHSW, and the Department of Substance Abuse Prevention and Rehabilitation (DSAPR) in Zanzibar, and the Great Lakes Addiction Technologies Transfer Center, based in Detroit, Michigan, to introduce the recovery oriented systems of care (ROSC) model in Zanzibar. These initial efforts focused on establishing recovery groups like Narcotics Anonymous, using the "12 Steps Recovery Model" and the "Islamic *Milati*." A key PWID leader emerged from within this Zanzibari recovery group movement, Sulieman Mauly, and in 2009 through his CBO and with support from Bi Fatma and others he created the first Zanzibari "sober house" based on the 12-step recovery model. The program integrates group counseling with art therapy, yoga, and acupuncture. The men also play soccer and engage in meditation, and they can receive training in carpentry. By May 2012, there were nine sober houses in Zanzibar, including one for women that opened in 2010 [14].

The other PEPFAR-funded project on Zanzibar is United for Risk Reduction and HIV/AIDS Prevention (URRAP) initiated through Columbia University's International for AIDS Care and Treatment Programs (ICAP). URRAP involves a partnership between national government agencies and three nongovernmental organisations: Zanzibar Youth Education, Environment and Development Support Association; Zanzibar Association of Information against Drug Abuse and Alcohol; and the Zanzibar Youth Forum. Outreach workers provide PWUD with information regarding HIV prevention, linkage to HIV testing and, for those found to be HIV-infected, access to care and treatment. URRAP provides static and mobile HTC outreach services in conjunction with sexually transmitted infection (STI) and tuberculosis (TB) screening, and peer escort referrals for services and for those needing HIV care and treatment. Between January 2009 and March 2011, 698 PWID received HTC services in Zanzibar. Eighty-seven were HIV positive and 64 enrolled in care and treatment [15].

3. Improving HIV Prevention among PWID

TAPP, MdM-F, and other organisations have made great strides in providing behavioral interventions to prevent the spread of HIV among PWID in Tanzania. Now that these organisations have created the basic structures and established the viability of medication-assisted treatment (MAT), needle and syringe programs (NSP), and other forms of drug treatment and rehabilitation, there is a need to improve the implementation of HIV prevention interventions along three dimensions: (1) *extend* existing services and programs to reach more PWID and others at risk for HIV; (2) *develop* additional programs to strengthen existing programs; and (3) *expand* activities to include structural interventions to address vulnerabilities that increase HIV risk for all Tanzanians.

3.1. Extending Existing Services. Extending existing services can occur along several distinct avenues. First, harm reduction organisations are extending services geographically to reach a greater number of PWID. To date, interventions to reduce HIV risk behaviors among PWID in Tanzania are limited to Zanzibar and parts of the capital, Dar es Salaam. TAPP, with funding from the Open Society Foundation, is preparing to launch a needle and syringe program (NSP) in Kinondoni District of Dar es Salaam during 2012 to complement MDM-F's existing NSP activities in the neighboring Temeke District. TAPP is also extending HIV testing and counseling (HTC) services and the recruitment of PWID for the MAT program to the other two districts of Dar es Salaam (Ilala and Temeke) and is exploring different options for distribution of methadone beyond the clinic at Muhimbili National Hospital. As part of this effort, MdM-F has recently begun referring PWID clients to MAT clinic at Muhimbili Hospital. The American International Health Alliance (AIHA) team from Zanzibar, with assistance from the Detroit Recovery Program, is expanding the 12-step program and sober houses to Dar es Salaam and other areas of mainland Tanzania. Efforts are also underway to extend existing programs and services to PWID across the country. TAPP is collecting behavioral data and estimating PWID population sizes in the cities of Arusha and Tanga for possible extension of intervention programs, and other organisations are conducting similar surveys in Mbeya, Mwanza, Iringa, and other towns with an eye toward implementing similar programs for PWID in those areas.

Second, there is a strong argument for extending drug treatment services to noninjecting heroin users. Most heroin users in Tanzania consume the drug by smoking it in a "cocktail" (*kokteli*) of tobacco and marijuana. For those who transition from smoking to injecting, the median transition time from smoking to injection is five years, and those PWUD

under 25 years of age transition in two years [10]. TAPP and its partner CBOs currently provide outreach services including education, HIV testing, condom distribution, and facilitating Narcotics Anonymous meetings for heroin smokers in the target area. However, those who smoke heroin are not eligible for MAT services due to limited resources. There is a programmatic rationale for targeting PWID first because their injection practices place them at increased risk for contracting and transmitting HIV to others. But this is also a compelling reason for preventing smokers from transitioning to riskier injecting practices [16], and research has shown that noninjecting heroin users exposed to treatment (e.g., residential detoxification, methadone maintenance, and outpatient rehabilitation) are less likely to initiate injecting [17].

Third, extending services also entails addressing PWIDs' risky behaviors that might be associated with other targeted populations. There is a need to coordinate and integrate programs for people who are categorized as members of different key populations (KPs)—including PWID, men who have sex with men, and sex workers—as their risky behaviors often overlap [12]. For example, most Tanzanian women who inject heroin also engage in sex work, and more than half of the MSM sampled in a recent study had been married or cohabited with women [18]. Yet we in public health often approach people who engage in these behaviors as distinct "risk groups," and develop intervention programs that emphasize the primary behavior for the targeted group. Local organisations often follow this logic, focusing on a particular group without addressing how these risky behaviors intersect. Using the targeted approach, we overlook people at risk who do not fit into our narrow objectives and we do not use our limited resources as efficiently as we could. By integrating intervention activities to cover all risky behaviors instead of focusing on certain groups, we could move away from the outdated "risk group" approach, reducing stigmatization and discrimination in the process. TAPP and MdM-F recognize the importance of integrating services originally designed for different KPs, and are developing programs to address these intersecting behaviors and identities (see below).

3.2. Developing Additional Programs. In terms of developing additional programs, MdM-F has been advocating a comprehensive approach to harm reduction as defined by various UN agencies (WHO/UNAIDS/UNODC). In Temeke, MdM-F strives to offer a holistic package of interventions, including psychosocial support, economic (re)integration, overdose prevention and management, and defense of human rights for PWID/PWUD. TAPP is also planning a broad array of intervention activities and services to enhance the efficacy of existing programs. First, because HIV is spread through intimate activities such as sexual intercourse and needle/syringe sharing, TAPP is developing programs that move beyond individual behaviors to address these intimate interactions, including (a) targeting couples for testing, counseling, and other intervention activities and (b) integrating gender-based and interpersonal violence reduction strategies into counseling and outreach activities. In addition to adapting and developing the content for these activities, TAPP will train partner CBOs and service providers from government ministries (e.g., MOHSW) to implement these interventions.

Second, because of the synergistic intersections between polysubstance abuse, violence, and risky sexual behavior, TAPP is developing a brief, motivational intervention to reduce alcohol consumption among PWID and others who use TAPP services. TAPP will also integrate alcohol moderation messages into community outreach activities. Third, TAPP is also exploring the possibilities for more women-friendly services, such as extending MAT clinic hours and locations for those PWID who are sex workers and unable to travel to the MAT clinic during daytime hours.

Finally, TAPP is developing additional clinical services to address comorbidities among PWID and members of other key groups. These clinical services include (a) integrated HIV and TB testing and treatment, and testing for hepatitis B and C; (b) training of "treatment navigators" to assist clients in their use of health and social services; and (c) training of local clinic and organisation personnel in issues of stigma, human rights, and values clarification concerning sexual orientation, drug use, and sex work, as well as awareness of specific health needs of people who engage in these activities [19].

3.3. Expanding Activities to Include Structural Interventions. While behavioral interventions (e.g., HTC, MAT, and NSP) have proven effective in reducing HIV/AIDS prevalence among PWID in high-income countries, many countries in sub-Saharan Africa face structural challenges that need to be addressed before long-term, sustainable changes can occur. Many of the drug users in Dar es Salaam use heroin to escape the harsh realities of life associated with past traumas and continuing limitations on political and economic opportunities [20]. While this is true in high-income countries too, in the Tanzanian setting it is complicated by the lack of support many PWID experience as orphans.

For example, sixty-eight percent of young PWID in a 2009-2010 survey were orphaned [20]. The experience of a PWID epidemic emerging in the third and fourth decades of the AIDS epidemic in Africa reveals deep chasms in the social support systems upon which communities traditionally relied. The trauma of parental loss and lack of access to a range of resources exists within a framework of other limitations originating in underlying social structures that people in power use to foster discrimination, inequity, and exclusion. Social structures are manifestations of social norms, where people use difference—in gender, sexuality, religion, economic status, political affiliation, and so forth—to express power and control over one another. Social structures include class and gender schemes that privilege one group over another; social structures also include formal institutions such as legal frameworks that criminalize certain behaviors (drug use, prostitution, homosexuality, etc.). These structures thus increase the vulnerability of people who are marginalized because they do not always follow social norms and lack strong family support, predisposing them to more harmful behaviors and outcomes through discrimination and hampering their ability to change their lives [21]. So even if TAPP's current harm reduction activities are successful

in reducing or eliminating heroin dependence among individual PWID, many will continue to face discrimination that diminishes their long-term prospects, making it more difficult for them to fully recover from their addiction.

These social structures exist across different levels of society (family, community, nation) and interact with biological organisms and individual behaviors to form a complex, dynamic system. Because these systems are composed of numerous elements and change in unpredictable (nonlinear) ways, a comprehensive approach using a variety of methodologies is required. "Combination prevention" includes biomedical, behavioral, and structural interventions for HIV prevention tailored to local conditions [22, 23]. TAPP is working with ministries at the national level (e.g., DCC and MOHSW) to advocate for changes in policies and practices that can reduce the vulnerability of PWID and other key populations. Moreover, their partner CBOs work closely with government officials at the local level to coordinate outreach activities, identify additional resources, and assist harm reduction clients.

MdM-F is also developing programs to help vulnerable communities speak for themselves. In collaboration with Openair Communication, MdM-F has trained a group of PWUD to use film and music as advocacy tools. For World Aids Day 2011, clients produced the music video *Inawezakana*, calling for an end to the HIV epidemic in the country through harm reduction services. In August 2012, group screened its first short film *Mdudu Mbaya* (literally "bad insect" in Swahili, but also a euphemism for "bad virus"). These productions are widely distributed to raise awareness throughout Tanzanian society and to foster a sense that everyone in Tanzania is addressing HIV together. The group is also planning to produce an educational video on HIV prevention. Along the same line the initiatives mentioned earlier (peer educators, support groups, creation of local and national PWUD-networks) are strongly supported by MdM-F.

While these organisations have made great strides in promoting individual harm reduction, more work on these structural barriers remains, and every harm reduction organisation is looking at new ways to integrate different interventions at various levels to ensure that behavioral interventions produce better outcomes and are sustainable beyond the life of the programs. Unless organisations can coordinate with governments, other social institutions, and communities to address structural disparities, help recovered users reintegrate into communities and pursue functional positions in society, harm reduction may only offer short-term, temporary benefits. TAPP, MdM-F, and the other organisations are committed to responding to the large numbers of PWID and their families and communities, but coordination with government and nongovernment organisations is needed to address the many contentious and complex issues associated with heroin use in Tanzania.

4. Conclusion

TAPP, MdM-F, and the other organisations working in Dar es Salaam and Zanzibar are pioneers of harm reduction in sub-Saharan Africa because we have overcome considerable ideological and structural barriers to offer services such as medication-assisted treatment and needle and syringe programs. These are monumental achievements given a political atmosphere that favors drug trafficking control and the criminalization of drug use. Furthermore, the Tanzanian government has promised to continue supporting clients in the MAT program if external funding ends, signifying a long-term commitment to recognizing and addressing PWID needs. Tanzania is one of only two countries in sub-Saharan Africa to offer public methadone services, and one of the few countries to have recognized the severity of HIV in the PWID population. Government agencies, community-based organisations, and international collaborators have come together to respond to the problem via specific public health programming. Looking toward the future, organisations working with PWID/PWUD should strive to integrate input from the community during program planning stages to develop well-targeted, streamlined programs that address the specific experiences and needs of that community. Harm reduction organisations working in Tanzania continue to develop collaborative efforts to serve PWID/PWUD, but we need strong support from national governments and regional intergovernmental organisations such as the East African Community (EAC). While there are many challenges in the road ahead, these harm reduction programs serve as positive examples for the possibility of coordinated public health responses to PWID epidemics in sub-Saharan Africa.

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References

[1] M. W. Ross, S. A. McCurdy, G. P. Kilonzo, M. L. Williams, and M. T. Leshabari, "Drug use careers and blood-borne pathogen risk behavior in male and female Tanzanian heroin injectors," *American Journal of Tropical Medicine and Hygiene*, vol. 79, no. 3, pp. 338–343, 2008.

[2] S. A. McCurdy, M. L. Williams, G. P. Kilonzo, M. W. Ross, and M. T. Leshabari, "Heroin and HIV risk in Dar es Salaam, Tanzania: youth hangouts, *mageto* and injecting practices," *AIDS Care*, vol. 17, supplement 1, pp. S65–S76, 2005.

[3] S. A. McCurdy, M. W. Ross, G. P. Kilonzo, M. T. Leshabari, and M. L. Williams, "HIV/AIDS and injection drug use in the neighborhoods of Dar es Salaam, Tanzania," *Drug and Alcohol Dependence*, vol. 82, supplement 1, pp. S23–S27, 2006.

[4] Tanzania Drug Control Commission (DCC), *The National Strategic Framework for HIV/AIDS Prevention for Injecting Drug Users (2011–2015)*, Dar es Salaam, Tanzania, 2010.

[5] J. Atkinson, S. McCurdy, M. Williams, J. Mbwambo, and G. Kilonzo, "HIV risk behaviours, perceived severity of drug use problems, and prior treatment experience in a sample of young heroin injectors in Dar es Salaam, Tanzania," *African Journal of Drug & Alcohol Studies*, vol. 10, no. 1, pp. 1–9, 2011.

[6] M. L. Williams, S. A. McCurdy, A. M. Bowen et al., "HIV seroprevalence in a sample of Tanzanian intravenous drug

users," *AIDS Education and Prevention*, vol. 21, no. 5, pp. 474–483, 2009.

[7] M. L. Williams, S. A. McCurdy, J. S. Atkinson, G. P. Kilonzo, M. T. Leshabari, and M. W. Ross, "Differences in HIV risk behaviors by gender in a sample of Tanzanian injection drug users," *AIDS and Behavior*, vol. 11, no. 1, pp. 137–144, 2007.

[8] A. Msami, *HIV Infection among Injecting Drug Users in Kinondoni Municipality, Dar es Salaam*, Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania, 2004.

[9] Tanzania Commission for AIDS (TACAIDS), Zanzibar AIDS Commission (ZAC), National Bureau of Statistics (NBS), Office of the Chief Government Statistician (OCGS), and Macro International Inc., *Tanzania HIV/AIDS and Malaria Indicator Survey, 2007-08*, TACAIDS, ZAC, NBS, OCGS, and Macro International Inc., Dar es Salaam, Tanzania, 2008, http://www.tacaids.go.tz/dmdocuments/THMIS%202007-08.pdf.

[10] A. Bowring, C. van Gemert, A. Toufik, P. Dietze, and M. Stoove, *Assessment of Risk Practices and Infectious Disease among Drug Users in Temeke District, Dar es Salaam, Tanzania*, Centre for Population Health, Burnet Institute, Melbourne, Australia, 2011.

[11] Joint United Nations Programme on HIV/AIDS (UNAIDS) and World Health Organisation (WHO), "Epide-miological fact sheet on HIV and AIDS: Tanzania," 2009, http://www.unaids.org/en/regionscountries/countries/unitedrepublicoftanzania/.

[12] R. Needle, J. Fu, C. Beyrer et al., "PEPFAR's evolving HIV prevention approaches for key populations—people who inject drugs, men who have sex with men, and sex workers: progress, challenges, and opportunities," *Journal of Acquired Immune Deficiency Syndromes*, vol. 60, supplement 3, pp. S145–S151, 2012.

[13] B. Lambdin, "Evaluating enrollment and retention of people who inject drugs in the medication assisted therapy cascade in Dar es Salaam," in *Proceedings of the 19th International AIDS Conference*, Washington, DC, USA, 2012.

[14] H. Heuler, "Global: recovering addicts lead effort to kick Zanzibar's heroin habit," 2012, http://www.empowermagazine.com/global-recovering-addicts-lead-effort-to-kick-zanzibars-heroin-habit/.

[15] R. Needle, G. Anderson, S. Prohow, and G. Djomand, "Regional workshop on HIV and drug use, HIV prevention, care and treatment for people who inject drugs: a review of evidence-based findings and best practices," Nairobi, Kenya, 2011, http://pdf.usaid.gov/pdf_docs/PNADX495.pdf.

[16] J. Bridge, "Route transition interventions: potential public health gains from reducing or preventing injecting," *International Journal of Drug Policy*, vol. 21, no. 2, pp. 125–128, 2010.

[17] M. S. Kelley and D. D. Chitwood, "Effects of drug treatment for heroin sniffers: a protective factor against moving to injection?" *Social Science & Medicine*, vol. 58, no. 10, pp. 2083–2092, 2004.

[18] J. E. Nyoni and M. W. Ross, "Condom use and HIV-related behaviors in urban Tanzanian men who have sex with men: a study of beliefs, HIV knowledge sources, partner interactions and risk behaviors," *AIDS Care*, vol. 25, no. 2, pp. 223–229, 2013.

[19] K. Moen, P. Aggleton, M. T. Leshabari, and A. Middelthon, "Not at all so hard-to-reach: same-sex attracted men in Dar es Salaam," *Culture, Health & Sexuality*, vol. 14, no. 2, pp. 195–208, 2012.

[20] S. McCurdy, M. Slashinski, D. Maro et al., "Young injecting drug users'needs and vulnerabilities in Dar es Salaam, Tanzania," in *Proceedings of the 22nd International Conference of the International Harm Reduction Association's*, Beirut, Lebanon, 2011.

[21] N. Ezard, "Public health, human rights and the harm reduction paradigm: from risk reduction to vulnerability reduction," *International Journal of Drug Policy*, vol. 12, no. 3, pp. 207–219, 2001.

[22] J. D. Auerbach, J. O. Parkhurst, and C. F. Caceres, "Addressing social drivers of HIV/AIDS for the long-term response: conceptual and methodological considerations," *Global Public Health*, vol. 6, supplement 3, pp. S293–S309, 2011.

[23] Joint United Nations Programme on AIDS (UNAIDS), "Combination HIV prevention: tailoring and coordinating biomedical, behavioural and structural strategies to reduce new HIV infections," Discussion Paper, UNAIDS, Geneva, Switzerland, 2010.

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Research Article

Evaluation of a Pilot Medication-Assisted Therapy Program in Kazakhstan: Successes, Challenges, and Opportunities for Scaleup

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Study Aims. Evaluate the quality and effectiveness of the medication-assisted therapy (MAT) pilot in Kazakhstan and review implementation context and related challenges. *Methods*. We performed a desk review of MAT policy and program documents and reviewed medical records at three MAT sites in Kazakhstan. MAT patients ($n = 93$) were interviewed to assess their perceptions of the program and its impact on their health, criminal, drug use, and HIV risk related behaviors as well as expenditures on nonprescribed psychoactive drugs. Persons injecting drugs who are not in treatment, MAT program staff, and other stakeholders were interviewed to obtain their perspectives on MAT. *Results*. Legislation supports introducing MAT as a standard of care for treatment of opioid dependence; however, its progress has been hampered by active opposition. Inadequate access and coverage, insufficient supply management, scarce infrastructure of narcological facilities, limited opportunities for staff development, and restrictive methadone dispensing policies compromise the quality of the intervention and limit its potential benefits. There were significant reductions in criminal, drug use, and HIV risk related behaviors in patients receiving MAT. *Conclusions*. The MAT pilot in Kazakhstan demonstrated its feasibility and effectiveness in the local context and is recommended for scaleup throughout the country.

1. Introduction

Kazakhstan faces a concentrated HIV epidemic, with drug use being the most important risk factor for HIV transmission [1, 2]. The country is located on a major drug trafficking route from Afghanistan, resulting in the availability of inexpensive heroin and a high prevalence of drug use in the country, an environment that is increasingly conducive to the spread of HIV and other blood-borne infections. According to the national HIV integrated biobehavioral surveillance data from 2010, the estimated number of people who injected drugs (PWID) during the last 12 months was 119,140, which is 3.5-times higher than the number of PWID officially registered with the drug addiction treatment service.

Medication-assisted therapy (MAT), more widely known in the region as opioid substitution therapy (OST), is a rigorously evaluated and evidence-based medical intervention to treat opioid dependence that consists of prescription of methadone or buprenorphine as a replacement for illicit street opioid narcotics such as heroin. Research conducted to date has generated a great amount of evidence demonstrating that MAT in combination with psychosocial support produces the best outcomes in terms of reduced frequency of illicit drug use and injections, decreased criminal behavior, and improved social functioning [3].

MAT was initiated in Kazakhstan in October 2008 as a pilot intervention within the national multicomponent HIV project funded by the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM). By March 2012, MAT was implemented at three sites (Pavlodar, Temirtau, and Ust-Kamenogorsk), with a cumulative enrollment of 265 patients, of whom 118 were still actively enrolled in the program.

Between February and March 2012, ICAP-Columbia University designed and implemented an assessment to

determine the strengths and challenges of the MAT program in Kazakhstan at the request of the Ministry of Health (MOH). The purpose of this assessment was to determine the extent to which the program complies with the minimal recommendations developed by the World Health Organization (WHO) for psychosocially assisted pharmacological treatment of opioid dependence [3]. Specific objectives included to (1) describe the existing models of providing MAT to PWID; (2) assess the quality and efficacy of current MAT models; and (3) provide specific and feasible recommendations to the MOH based on identified capacity building needs to improve the quality, efficiency, and effectiveness of MAT.

2. Materials and Methods

The assessment was conducted using qualitative and quantitative research methodologies including (1) systematic review of relevant documents; (2) semistructured interviews with key stakeholders and staff involved in the provision of MAT at narcological[1] centers ($n = 18$); (3) semi-structured interviews with opiate-dependent persons not in treatment ($n = 32$), as well as patients who were enrolled in MAT for more than three months ($n = 93$); (4) MAT site/narcological facility assessments ($n = 3$); (5) and medical chart review ($n = 227$). Information was triangulated across the various data collection methodologies to assess the outcome measures described below.

For individual interviews with MAT patients, we used a standardized structured questionnaire that included validated research instruments including the Treatment Perceptions Questionnaire (TPQ) [4], the Drug use and Criminality section of the Opiate Treatment Index (OTI) [5], and the HIV Risk Questionnaire-Short Version [6]. In addition, questions related to patients' overall satisfaction with their own health and their drug-related expenses in the last 30 days were included. Similar variables related to participants' status one month prior to their admission to MAT were collected using the timeline follow-back (TLFB) methodology. TLFB is a measurement tool developed to help respondents to recall their behaviors, including substance use and sexual activities, through construction of an event calendar that provides memory cues for recollection of required details of the past [7, 8]. Each TPQ item was scored on a five-point scale, where 0 means strongly disagree and 4 means strongly agree. Scores for negative items were recoded to measure positive evaluations on all measures, with higher scores indicating greater satisfaction [9].

To evaluate the patients' satisfaction with existing services, the semi-structured portion of the questionnaire included items related to accessibility of drug dependency treatment services, personal experiences with using narcological services, perceived quality of services, cost considerations, potential and actual reasons that could lead to drop out from treatment, factors that could improve uptake and adherence to MAT, unmet needs related to drug dependence and HIV-related treatment services, and perspectives on improvement of services. Demographics and clinical characteristics of MAT patients who participated in interviews are shown in Table 1.

Interviews with PWID were conducted at all three MAT sites. Interviewers collected information about respondents' knowledge and attitudes about MAT, the accessibility of and barriers to narcological care and HIV prevention services for PWID, as well as potential ways to improve the current situation.

Medical charts and registers were reviewed by the assessment teams to assess the scope and quality of existing MAT services. A standardized data abstraction form was used to measure the nine indicators indicated in Table 3.

2.1. Statistical Analysis. Means and standard deviations were calculated separately for each TPQ item. Paired samples t-tests were used to compare differences in mean OTI scores and mean drug-related expenses 30 days prior to MAT enrollment and during the last 30 days on MAT. The Wilcoxon Signed Ranks test was used to compare the patients' satisfaction with their health and criminal behavior before and during MAT. Associations between MAT enrollment and HIV risk behaviors were evaluated with McNemar's test. A P value < 0.05 was used as the threshold for significance in all analyses.

3. Results

3.1. Sociopolitical Environment. The sociopolitical environment around MAT in Kazakhstan is ambiguous. Kazakhstan leadership demonstrates strong support for MAT: in 2005, President Nazarbayev urged Kazakh healthcare to introduce innovative methods of HIV prevention, including the use of methadone to treat drug users [10, 11], and MAT was included in the National Healthcare Program "Salamatty Kazakhstan" and budget [12] as a measure to prevent HIV among PWID. However MAT is actively opposed in mass media publications and public campaigns by different groups, including medical specialists and community organizations. As a result of this active opposition [13], MAT implementation has been limited to only three sites with a total ceiling of 150 opioid dependent persons allowed for enrollment.

Implementation of the existing MAT program is regulated by the MOH order on expanded access to MAT in Kazakhstan [14] and is implemented in accordance with clinical guidelines elaborated by the Republican Applied Research Center on Medical and Social Problems of Drug Abuse (RARC) [15], which are largely based on the WHO guidelines on psychosocially assisted pharmacological treatment of opioid dependence [3]. The guidelines include 18 years of age or older as one of the eligibility criteria; however available evidence does not suggest any contraindications to including younger age groups in MAT, nor does it demonstrate that nonopioid maintenance types of treatments are more effective in younger age groups [16]. Two other inclusion criteria that cause concern include the requirement for at least a three-year verified history of injecting drugs and/or at least two documented unsuccessful treatment attempts.

Table 1: Characteristics of MAT patients who participated in interviews.

Site	Age Mean (SD)	Gender (men) Percentage	Completed years of school Mean (SD)	Months since enrollment Mean (SD)	Years of injecting drugs before MAT Mean (SD)
Pavlodar	34,7 (7,26)	69	9,3 (1,30)	17,1 (10,4)	12,4 (5,4)
Ust-Kamenogorsk	32,6 (4,56)	72	9,6 (2,03)	10,2 (4,3)	11,3 (4,9)
Temirtau	36,0 (7,55)	77	9,6 (1,19)	17,3 (12,9)	14,6 (4,6)

Table 2: Variables reported by medication-assisted treatment sites in Kazakhstan to the Republican Applied Research Center for Medicosocial Problems of Drug Addiction (RARC) and Republican AIDS Center (RAC).

Variables reported to the RARC	Variables reported to the RAC
(i) Patients' personal data	(i) Patients' sociodemographic profile
(ii) Patients' sociodemographic profile	(ii) Patients' biopsychosocial status
(iii) Patients' biopsychosocial status	(iii) Average daily dose of methadone per patient
(iv) Years of drug use	(iv) Remaining amount of methadone
(v) Information about types of treatment currently and previously received	(v) Number of new patients
(vi) Date of initiation of MAT	(vi) Number of dropouts and reasons for dropout
(vii) Clinical diagnosis based on ICD-10	(vii) Criminal charges
(viii) Daily dose of methadone prescribed	(viii) Concurrent illnesses including HIV, hepatitis B (HBV), hepatitis C (HCV), and tuberculosis
(ix) Changes in prescribed dose of methadone and reason for the changes	
(x) Number of new patients	
(xi) Number of dropouts and reasons for dropout	
(xii) Criminal charges	
(xiii) Concurrent illnesses including HIV, hepatitis B, hepatitis C, and tuberculosis	
(xiv) Laboratory test results	
(xv) Results of psychological assessment with dates	
(a) Short form of Minnesota Multiphasic Personality Inventory (MMPI-Short)	
(b) Addiction Severity Index	
(c) Zung Self-Rating Depression Scale	
(d) WHO QOL-100 (Quality of Life)	
(xvi) Description of side effects related to MAT with observation dates	
(xvii) Description of changes in patients' social well-being	
(xvii) Outcomes of therapy	
(xix) Reasons for exclusion from MAT (if applicable)	

Although excluding "fresh" opioid users who have not yet developed dependence is reasonable, patients' ability to prove the duration of their drug use and previous treatment attempts may be limited, especially for people who use anonymous treatment services to avoid inclusion in the official register of drug dependent individuals. Another obstacle that discourages PWID from entering MAT programs is the limited number of sites in the country and regulations forbidding take-home doses which prevent patients from travelling far from the treatment site without stopping MAT.

3.2. Costing and Financing. Currently MAT is virtually free for patients in Kazakhstan and the existing MAT sites are fully supported by the GFATM. Over 1.2 billion Kazakh tenges (approximately 8.5 million US dollars) were allocated for MAT by the MOH from 2011 to 2015; however these funds are not being spent because of the logistical difficulties related to local procurement of methadone described below.

3.3. Procurement and Supply Management of Commodities. Methadone and buprenorphine are included in the list of medical substances that are strictly controlled by national regulatory bodies and their import, storage, and administration require special permissions in accordance with the law on narcotics, psychotropic substances, precursors and counteracting measures to prevent illegal circulation and abuse of these substances [17]. In part due to the limited market capacity, neither methadone nor buprenorphine are officially

Table 3: Results of medical chart review for patients on medication-assisted therapy, by treatment site.

Indicator	Pavlodar	Temirtau	Ust-Kamenogorsk
Proportion of patients on MAT with at least one complete clinical review in the last quarter	0	0	0
Proportion of MAT patients screened for hepatitis B	57%	85%	62%
Proportion of MAT patients screened for hepatitis C	77%	94%	59%
Proportion of patients on MAT with at least one psychosocial counseling session during the last month	21%	51%	94%
Proportion of patients who remained free from nonprescribed opioids[1] six months after initiation of MAT	95%	68%	95%
Proportion of patients on MAT remaining in care six months after initiation of MAT	72%	55%	65%
Proportion of patients who remained free from nonprescribed opioids[1] twelve months after initiation of MAT	92%	41%	84%
Proportion of patients on MAT remaining in care twelve months after initiation of MAT	61%	46%	61%
Proportion of patients on MAT with at least one sexual- and drug-related risk assessment completed during the last month	0%	0%	0%
Mean daily dose of methadone received by patients enrolled in MAT for three months or longer, mg (standard deviation)	66 (23,9)	69 (22,7)	73 (40,4)

[1] Based on urine toxicology test.

registered in Kazakhstan. This significantly complicates the import of methadone and makes it virtually impossible for local MAT providers to procure it independently.

Currently methadone is procured by the Republican AIDS Center (RAC), the primary recipient of the GFATM HIV grant. Procurement is done based on the forecast provided by the RARC that collects information on methadone stock and potential demand from each MAT site on a monthly basis. Results of key stakeholder interviews show that this procurement mechanism is not very effective and the complete procurement cycle (from forecasting and planning to product delivery) takes as long as six to nine months. Current constraints in procurement management resulted in stockouts in 2010, when sites had to significantly reduce daily doses of methadone provided to patients during two months. Methadone supply interruptions lead to the loss of patients who could not continue to participate in the program with insufficient doses; some of these patients went back to using heroin.

3.4. Human Resources. All three MAT sites have standard staffing structures that include a site coordinator, two narcologists, two nurses, a pharmacist, a social worker, and a psychologist. All MAT staff members were recruited from the same narcology clinics and MAT-related functions are performed in addition to their main jobs. The percentage of staff time devoted to MAT varies from 25% to 50% depending on the number of the patients, their needs, and the number of scheduled procedures such as individual and group therapies, and toxicology tests.

The majority of narcologists participating in the pilot project learned how to use methadone during various trainings and study tours organized by international development partners within and outside of the country. None of the nurses working in MAT sites received any formal training on MAT.

RARC has a three-day training module that was developed based on the existing MAT guidelines and various international training materials and is mandatory for all MAT clinicians. However, none of the medical schools include opioid substitution therapy as a part of their curricula on drug dependency treatment, which may contribute to the biased attitude towards MAT among medical professionals.

3.5. Current Models of MAT and Their Infrastructure. All three MAT sites are located in the premises of local narcological dispensaries. In Pavlodar and Ust-Kamenogorsk MAT sites are located in areas with good access to public transportation while in Temirtau patients experience difficulties accessing the site due to limited public transport in that area. Methadone dispensing rooms in Pavlodar and Ust-Kamenogorsk are located among several other rooms where narcologists see ambulatory patients. In Temirtau, next to the MAT dispensing room there is a medical correction department, also known as a drunk tank that provides sobering up services for intoxicated people brought in by police. The proximity of these services demotivates some patients from going to the MAT site on a daily basis due to their fear of coming into contact with police or other persons they might know.

MAT sites in Pavlodar and Ust-Kamenogorsk operate from 8:00 am to 10:00 am and from 5:00 pm to 6:00 pm seven days a week, while in Temirtau MAT site operations start at 10:00 am, which makes it difficult for patients to receive methadone before work. Only MAT sites in Pavlodar and Ust-Kamenogorsk have separate rooms where clinical staff can provide counseling to patients in a confidential environment.

In Pavlodar, the MAT dispensing space is adjacent to a needle exchange point administered by the Oblast AIDS Center where PWID can receive HIV counseling, exchange syringes, and needles and obtain condoms for free. In the same end of the corridor there is a room provided by Pavlodar Narcology center to a nongovernmental organization, "INSIDE," where MAT patients socialize and organize self-help groups and seminars with health specialists, including the Center's psychologist. Pavlodar has also arranged for an HIV specialist from the Oblast AIDS Center to work part time at the MAT site, to offer integrated HIV care to MAT patients.

3.6. Monitoring and Evaluation. Variables collected and reported by each MAT site to RARC and RAC are shown in Table 2. Although semistandardized paper-based patient records are completed for all MAT patients, MAT sites have limited capacities for proper collection and documentation of data reported to RARC. As such, MAT sites differ in the ability to screen for viral hepatitis and provide other laboratory tests (this is discussed in more detail later in the paper); psychological assessments are conducted inconsistently and in some instances such assessments are conducted using nonstandard tools with unknown reliability. There are inconsistencies among MAT sites on the forms used for recording toxicology test results and the content of counseling sessions. The use of paper-based medical records makes it difficult to conduct data quality assessments and track overall treatment results. In 2011 uncertainty about the continuation of the MAT program led to a yearlong disruption in data collection and reporting to RARC.

3.7. Results of Medical Chart Review. Results of the medical chart review are summarized in Table 3. According to the existing MAT guidelines in Kazakhstan, the spectrum of services provided to MAT patients should include MAT, diagnosis of viral hepatitis, HIV and other sexually transmitted infections, and psychosocial care. Attending physicians are required to elaborate individual treatment plans addressing medical complications for each patient [15]. All MAT patients are tested for HIV on an opt-out basis; however, only one of the three MAT sites provides treatment of nonnarcological illnesses and is actively engaged in ART counseling and monitoring.

Chart review revealed that documentation of complete clinical reviews is not practiced and is not required by the existing MAT guidelines. However, clinical staff at all three MAT sites indicated that all patients undergo review by all specialists (narcologist, psychologist, and social worker) and urine toxicology tests are performed on a quarterly basis and that the results of these reviews are communicated within the MAT team and to the patient.

The percentage of patients screened for both HBV and HCV ranged from 55% to 85%. The low rate of HBV and HCV testing was mainly due to the fact that only one site (Temirtau) performed HBV and HCV testing on site. In the other two sites, HIV-positive patients are referred for free HBV and HCV testing to the local AIDS Centers and HIV-negative patients to private laboratories where services are expensive and often unaffordable for patients.

The percentage of MAT patients with at least one counseling session during the last month differed significantly between sites. This is mainly due to the fact that in Pavlodar many patients attended group psychotherapy which was not systematically recorded in patients' charts; in Temirtau specialists do not have an ability to conduct individual counseling sessions with their patients due to a shortage of rooms and thus only organize group-counseling sessions that also are not recorded in individual patient records.

The vast majority (95%) of MAT patients in Pavlodar and Ust-Kamenogorsk remained free from nonprescribed opioids six months after initiation of MAT, while in Temirtau over two-thirds of patients (68%) remained free from nonprescribed opioids at six months. Temirtau's comparably lower percentage of patients who remained opioid free is in part due to the fact that 22% ($N = 5$) of patient charts did not have urine toxicology tests results for the indicated time interval and thus were counted as positive for opioids.

In all sites more than a half of all enrolled patients remained in care for at least six months, with retention rates ranging from 55% to 72%. Reasons for discontinuation of MAT are summarized in Table 4. The highest percentage of patients discharged from the MAT program due to the continued breach of MAT program rules including regular omitted methadone doses (32%) were registered in Temirtau. This is in part explained by the late opening hours, inconvenient location, and inability to obtain individual counseling at the site. It is also important to note that among all patients who prematurely discontinued MAT, 22% did so in order to undergo inpatient treatment.

The majority of MAT patients in Pavlodar (92%) and Ust-Kamenogorsk (84%) remained free from nonprescribed opioids at twelve months after the initiation of MAT. Temirtau's comparably lower percentage of patients who remained free from opioids at twelve months after initiation of MAT is in part due to the fact that 50% ($N = 11$) of patient charts did not have urine toxicology test results recorded for the indicated time interval. According to MAT staff, these patients refused to undergo periodic toxicology tests. This situation, besides highlighting a potential source of unidentified positive test results, indicates gaps in the staff's capacity to motivate patients to follow project rules.

The proportion of patients on MAT remaining in care twelve months after the initiation of MAT ranged from 46% to 61% (Table 3). Of note, Temirtau had the highest proportion of dropouts from MAT by patients that needed to undergo treatment in various inpatient clinics. It is reasonable to assume that if it were possible to continue MAT in such clinics, a significant number of these patients would have remained in MAT, and thus the retention rate in Temirtau could have been comparable with the same indicator at the other two sites.

International evidence suggests that the optimal daily dose of methadone is between 60 and 120 mg [3], although higher doses of methadone are associated with better clinical outcomes [18]. According to patients interviewed at MAT

Table 4: Reasons for patient discharge from medication-assisted therapy in Kazakhstan, by treatment site.

	Pavlodar	Temirtau	Ust-Kamenogorsk
	N (%)	*N* (%)	*N* (%)
Total number of patients ever enrolled	102	85	78
Total number of patients discharged from MAT	54	50	43
Reasons for discharge from MAT			
Criminal charges	5 (4,9)	2 (2,4)	5 (6,4)
Personal life circumstances (voluntary)	18 (17,6)	11 (12,9)	16 (20,5)
Continued breach of MAT program rules	6 (5,9)	16 (18,8)	6 (7,7)
Completion of therapy (after methadone tapering)	20 (19,6)	5 (5,9)	6 (7,7)
Change of country of residence	2 (1,9)	3 (3,5)	9 (11,5)
Inpatient treatment	3 (2,9)	11 (12,9)	0
Death caused by concurrent illnesses	0	2 (2,4)	1 (1,3)

sites, many try to avoid increasing their methadone dose due to fears of disruptions in supply or discontinuation of the pilot MAT project. However, all clinicians interviewed report practicing flexible methadone dosing depending on patients' individual needs and health conditions.

3.8. Patients' Satisfaction with the Program and Their Own Health Status. Patients' overall satisfaction with MAT was average to low: the highest mean score of 2,96 (SD = 0,47) was in Pavlodar, followed by Ust-Kamenogorsk and Temirtau where patients' overall satisfaction was scored 2,63 (SD = 0,37) and 2,40 (SD = 0,42), respectively. In Temirtau and Ust-Kamenogorsk MAT patients gave considerably low scores to how well they have been informed about decisions made regarding their treatment: 0,95 (SD = 0,38) and 0,72 (SD = 0,45), respectively; however patients in Pavlodar rated their satisfaction highly in the same domain (M = 3,29; SD = 0,46).

Patients' level of satisfaction with their dose of methadone was the highest compared to the global mean score calculated on TPQ: in Pavlodar, Ust-Kamenogorsk, and Temirtau patients scored 3,36 (SD = 0,53), 3,48 (SD = 0,51) and 3,14 (SD = 0,47), respectively, on the item assessing the adequacy of the methadone dose they received to avoid experiencing withdrawal symptoms and craving drugs. Results of the treatment perception questionnaire are provided in Figure 1.

MAT patients were asked "How satisfied with your health status were you during the last 30 days (and before starting MAT)?" and requested to choose one answer on a scale ranging from 0 (very unsatisfied) to 4 (very satisfied). As shown in Figure 2, there were statistically significant improvements in patients' perception of their health status compared to the period before initiating MAT in Pavlodar (median (before MAT) = 0.50, median (on MAT) = 3.0, $Z = -5.337$, $P < 0.001$); Temirtau (median (before MAT) = 0.00, median (on MAT) = 3.00, $Z = -3.486$, $P < 0.001$); Ust-Kamenogorsk (median (before MAT) = 1.00, median (on MAT) = 3.00, $Z = -4.662$, $P < 0.001$).

Our observation of a relatively low level of perception of MAT by patients and a significant increase in their health satisfaction after enrollment to MAT suggests that many of them did like the methadone but did not like the way in which services were delivered.

Table 5: Opiate treatment index scores interpretation table.

Frequency/quantity	Score
Abstinence	0.00
Once a week or less	0.01–0.13
More than once a week	0.14–0.99
Daily	1.00–1.99
More than once a day	2.00 or more

3.9. Evaluation of Patient Behaviors (Sexual, Drug Use, and Criminal). The Opioid Treatment Index (OTI) was used to assess frequency of the use of psychotropic drugs for nonmedical purposes by patients during the last 30 days before their enrollment in MAT and the last 30 days prior to the interview. Table 5 shows how the results were interpreted.

3.9.1. Heroin. Paired t-tests demonstrated a significant difference in the frequency of heroin use by patients during the last 30 days prior to starting MAT and during the last 30 days on MAT across all three sites: in Pavlodar patients' heroin use frequency index dropped from 0.61 prior to MAT (SD = 0.67) to 0.07 (SD = 0.46); $t(41) = 4.09$, $P < 0.001$), while in both Temirtau and Ust-Kamenogorsk the indexes of heroin use frequency were reduced from 0.49 and 0.59, respectively, to 0.00, or in other words respondents reported that they did not consume any heroin during the last 30 days on MAT (In Temirtau, (M = 0.49, SD = 0.44) and (M = 0.00, SD = 0.00); $t(21) = 5.28$, $P < 0.001$), and in Ust-Kamenogorsk (M = 0.59, SD = 0.76) and (M = 0.00, SD = 0.00); $t(28) = 4.2$, $P < 0.001$). Figure 3 demonstrates mean differences in heroin use. The relatively low level of heroin use prior to MAT enrollment can be explained by the fact that many MAT clients were enrolled at a time when they did not have easy access to heroin, which stimulated them to enroll in the program. In fact, a number of patients interviewed indicated that they were in opioid withdrawal when they enrolled in MAT. Over 90% of active PWID that participated in interviews reported daily use of heroin which may better

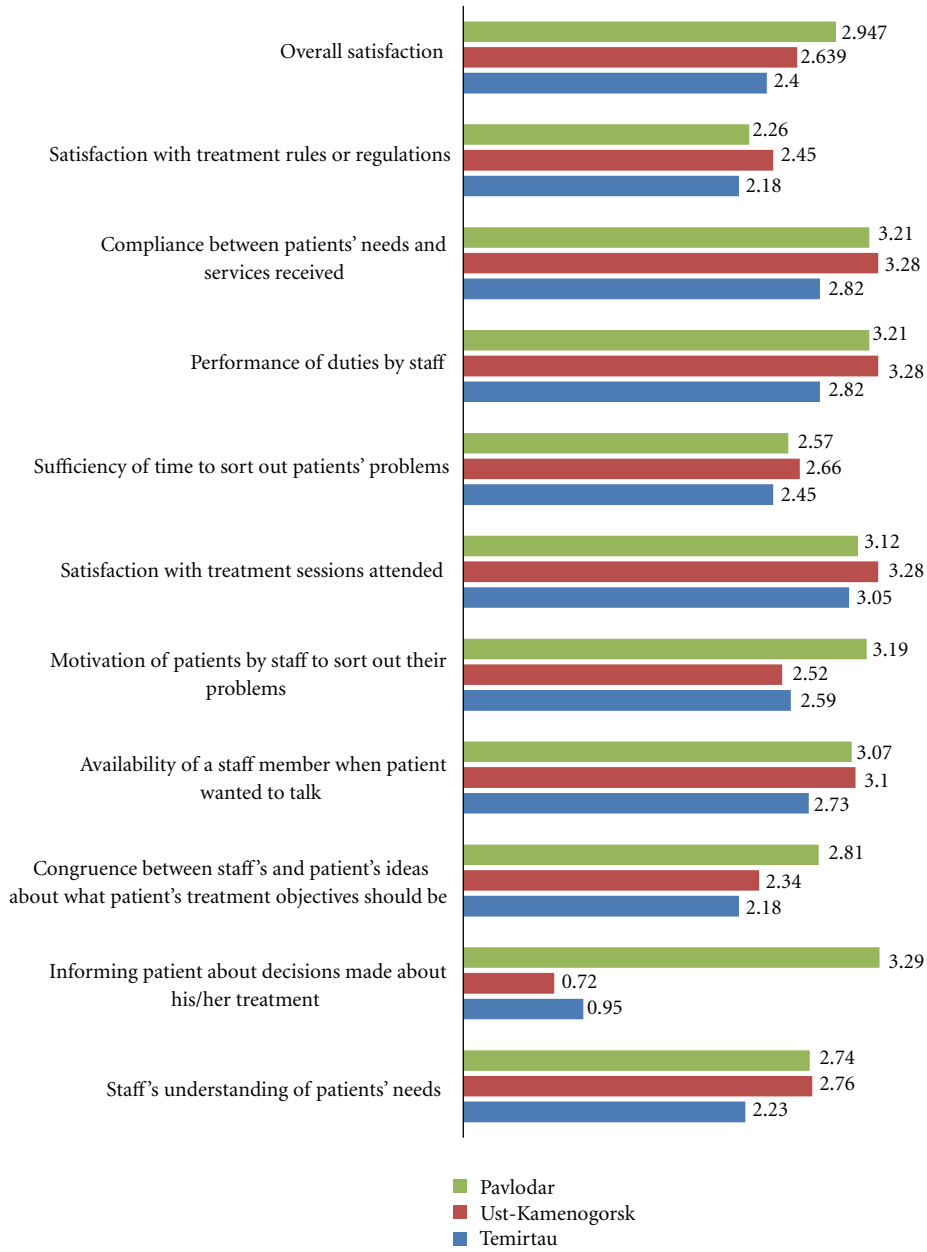

Figure 1: Clients' satisfaction with medication-assisted treatment services in Kazakhstan as indicated by responses to the Treatment Perception Questionnaire. Mean scores are depicted, where 0 means strong dissatisfaction and 4 means strong satisfaction.

reflect MAT patients' "normal" drug use patterns prior to facing difficulties in sourcing heroin.

3.9.2. Opiates. A significant difference in the frequency of opiate use by patients during the last 30 days prior to starting MAT and during the last 30 days on MAT was observed in Pavlodar and Ust-Kamenogorsk: mean frequency score of opiate use by patients in Pavlodar prior to MAT dropped from 0.12 (M = 0.12, SD = 0.30) to 0.01 during the last 30 days on MAT (M = 0.01, SD = 0.08); $t(41) = 2.2$, $P < 0.05$) and in Ust-Kamenogorsk it dropped from 0.97 (M = 0.97, SD = 1.9) to 0.00 (M = 0.00, SD = 0.00); $t(28) = 2.73$, $P < 0.05$). In Temirtau the frequency of opiate use also dropped, but this change was not statistically significant. Figure 4 below demonstrates the mean differences in opiate use.

The assessment results showed that participation in MAT for at least three months resulted in a statistically significant reduction in HIV risk related to drug-taking behavior. The percentage of participants who injected any drug decreased from 95% during the last 30 days before enrolling in MAT to 9% during the last 30 days on MAT in Temirtau ($P < 0.001$); from 100% to 0% in Ust-Kamenogorsk ($P < 0.0001$); from 100% to 2% in Pavlodar ($P < 0.001$). Similarly, the proportion of persons who shared any injection equipment

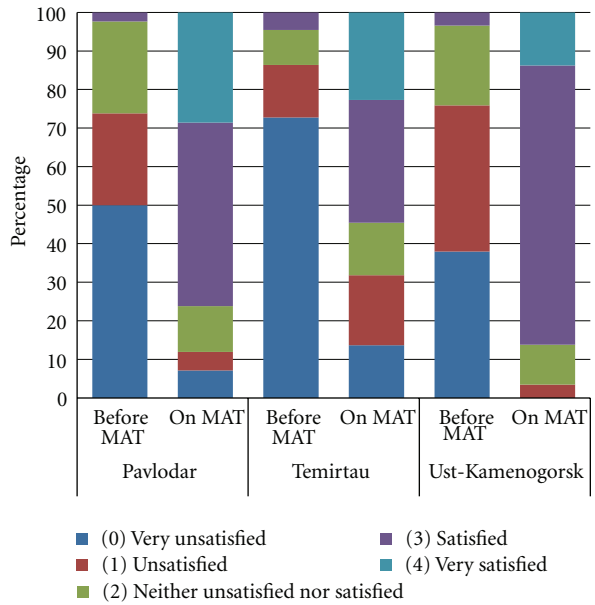

Figure 2: Level of satisfaction with one's own health status in the last 30 days before and after enrollment in medication-assisted therapy, by site.

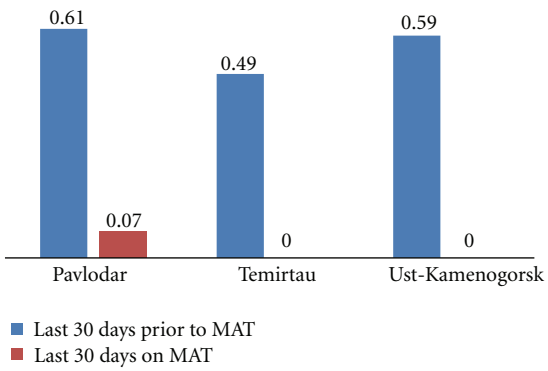

Figure 3: Use of heroin according to mean Opiate Treatment Index scores in patients before and after enrollment into medication-assisted treatment, by site.

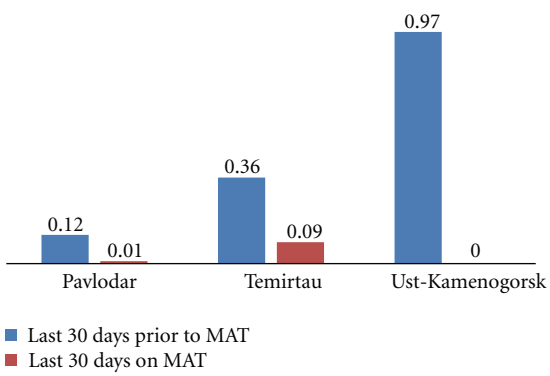

Figure 4: Use of opiates according to mean Opiate Treatment Index scores in patients before and after enrollment into medication assistance therapy, by site.

(cooker, filter, swabs, etc.) reduced from 77% to 9% in Temirtau ($P < 0.001$); from 79% to 0% in Ust-Kamenogorsk ($P < 0.001$); from 52% to 2% in Pavlodar ($P < 0.0001$). Reductions in sharing syringes and needles were seen across all three sites; however, this parameter was low at baseline and differences were not statistically significant: in Pavlodar, Temirtau, and Ust-Kamenogorsk 10%, 5%, and 21% of MAT patients reported sharing needles and syringes prior to entering MAT. During the last 30 days on MAT none of patients in Temirtau and Ust-Kamenogorsk and only 2% of patients in Pavlodar reported sharing syringes and needles ($P > 0,05$) (Figure 5). Low levels of syringes sharing at baseline can be explained by easy access to syringes via pharmacies and through network syringe exchange points that cover on average 47% of the estimated number PWID in Kazakhstan [19]. Similarly,no significant differences between low risk sexual behavior prior to MAT enrollment and on MAT were recorded.

As shown in Figure 6, there were statistically significant reductions in engagement in criminal activity during the last 30 days by patients who participated in MAT for three months or longer compared to during the last 30 days prior to initiating MAT. As such, MAT patients in Pavlodar reported that 14% of them had committed some sort of crime (including fraud, drug dealing, sex work, violence, and/or property crime) before starting MAT and this figure was reduced to 2% after starting MAT (Wilcoxon signed ranks test: $Z = -3.473$, $P = 0.001$). Similarly, initiation of MAT by patients in Ust-Kamenogorsk and Temirtau was associated with reductions in criminal behavior from 9% and 14% to 1% and 1%, respectively ($Z = -3.025$, $P = 0.002$ and $Z = -3.090$, $P = 0.002$). In addition, the data gathered suggests reductions in frequency of all types of criminal activities among patients compared to the period before MAT.

3.10. Drug Use Related Expenses. Patients were asked about their expenses for use of nonprescribed psychoactive substances on each of the last three days of use of those substances during MAT and just before starting MAT. As shown in Figure 7, patients' mean expenses for nonprescribed psychoactive substances on each single day of use prior to MAT were significantly greater than during MAT across all three sites: in Pavlodar (M = 9357.5 KZT[2], SD = 6184.7 KZ and M = 18.25 KZT, SD = 61.6 KZT); $t(39) = 9.52$, $P = 0.000$); in Temirtau (M = 5939.4 KZT, SD = 4045.9 KZT and M = 102.3 KZT, SD = 288.9 KZT); $t(21) = 6.94$, $P = 0.000$); in Ust-Kamenogorsk (M = 6413.8 KZT, SD = 3905.5 KZT and M = 0.00 KZT, SD = 0.00 KZT); $t(28) = 8.84$, $P = 0.000$). Respondents receiving MAT considered regained control over their own financial expenses and relief from a need to seek money for new doses of heroin as key benefits of MAT.

4. Limitations

One of the limitations of our study is that data collected on patients' criminal, drug use, and HIV risk behavior

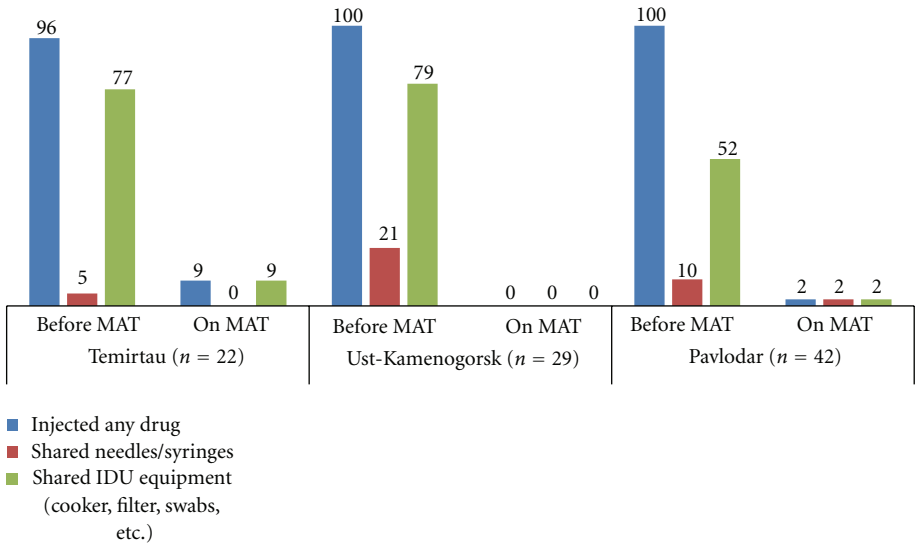

Figure 5: Drug injection practices, in %.

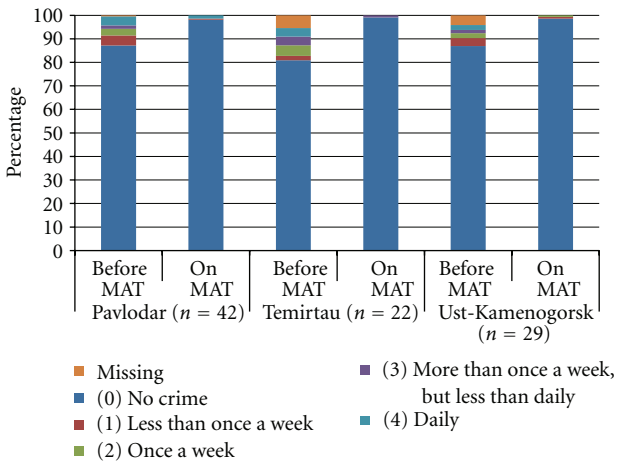

Figure 6: Criminal behavior before and after enrollment in medication-assisted therapy.

were based on self-report; however, self-reports about drug use during the last thirty days prior to the interview were well correlated with the results of urine toxicology tests performed during the same period, allowing us to regard self-reported behaviors as reliable. Also, evidence from researches that studied outcomes of methadone maintenance therapy in other countries [20–23] support the findings of our assessment.

5. Discussion and Conclusions

The GFTAM-funded pilot MAT project in Kazakhstan clearly demonstrates the feasibility and efficacy of prescription of methadone to treat opioid dependence in the local context. Between 46% and 61% of MAT patients at each pilot site were retained in the program at 12 months, which is similar to retention rates observed in other countries [24–26]. Of those retained in the program for 12 months or longer, between 41% and 92% of patients at each MAT site remained free from opioids. Patients reported that following the enrollment in MAT there was a decrease in their heroin use, risky drug injection behavior, spending on non-prescribed psychoactive substances, and criminal behavior, as well as an improvement in their health status.

It is crucial to adopt evidence-based policies for the success of any health intervention, including MAT (6). The existing policies allow introducing MAT as a standard of care for treatment of opioid dependence in Kazakhstan. Furthermore methadone-based MAT may be provided in Kazakhstan at a relatively low cost: in 2011, the daily dose of methadone per patient was procured at US $1.00. This cost could be even lower if methadone was produced locally without dependence on external suppliers.

Results of the assessment show several best practices that should be considered when scaling up MAT in Kazakhstan. In Pavlodar, MAT and other narcological services were effectively integrated with harm reduction programs, so that injection equipment and condoms could be accessed through a trust point located in the same building. The MAT site also supports the work of a patient self-help group, placing the nongovernmental organization's office adjacent to the MAT dispensing room. In addition, Pavlodar Narcology Center has arranged for an HIV specialist from the Oblast AIDS Center to work part time at the MAT site, to provide integrated HIV care for MAT patients which is in line with the best international practices and associated with decreased substance use, HIV, and health care utilization outcomes [26, 27].

The assessment also revealed some limitations that challenge effective implementation of MAT in Kazakhstan. Firstly, despite the legislature that enables provision of MAT and the highest political support, MAT program has been limited to only three cities of the country with a low number of patients enrolled. Biased attitudes towards MAT among the general public, medical professionals, and

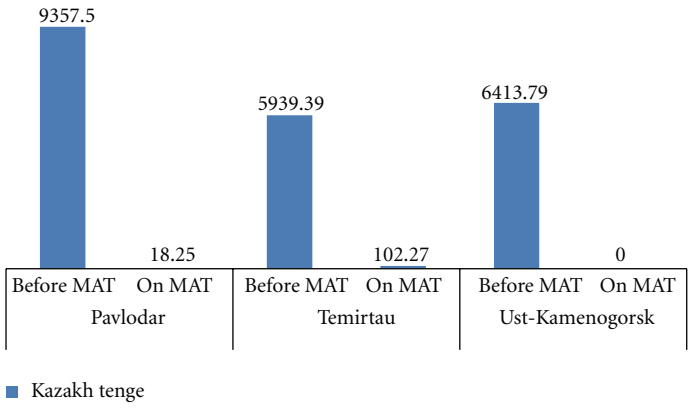

Figure 7: Mean daily expenditure in tenge for non-prescribed psychoactive substances by patients before and after enrollment in medication-assisted therapy, by site.

PWID, based upon incorrect information about the clinical and pharmacological features of opiate substitution therapy, have led active opposition to MAT. Some authors explain this opposition by the fact that Kazakhstan, as a former Soviet Union country, maintains close relationships with the Russian Federation and its older medical professionals are still much influenced by the Russian medical practice and theory [28]. Russia proactively promotes its well-known and internationally criticized antiopioid treatment policies [29, 30] employing various resources, including internet, mass media, professional medical journals, books, and conferences and these information channels still play a major role in the professional development of medical doctors in Central Asia. Secondly, training and technical assistance for MAT staff are currently provided as a part of the international development aid without the involvement of local medical education institutions and thus are not sustainable. An effective methadone procurement system is also lacking, and as a result there are often supply interruptions and the cost of the medication is unreasonably high.

The MAT monitoring and evaluation system is limited in that it is primarily focused on patient coverage and program expenditure indicators, with little attention paid to patient level outcomes or patient satisfaction. Clinicians providing MAT commonly rely on patients' feedback regarding the adequacy of their methadone dose as the sole measure of service quality. However our study found that while most patients gave high scores to the adequacy of their methadone dose to avoid experiencing withdrawal symptoms and craving drugs, they had a relatively modest perception of the quality of MAT services. This is an important observation as patients' satisfaction with services has been identified as a strong predictor of retention in treatment and better treatment outcomes [4, 31, 32].

Other limitations of the pilot MAT program include facility infrastructure and availability of services. There is a need for more patient-friendly locations for MAT sites, as well as adequate space for patient counseling. The opening hours of MAT sites are not always responsive to patients' needs, as patients are obliged to visit the narcological clinic on a daily basis while meeting their social responsibilities including employment and family-related functions. The unregistered status of methadone in Kazakhstan does not allow for take-home doses, and as a result MAT is often interrupted when patients must undergo inpatient treatment in other medical facilities or move away from their home cities. Such restrictive dispensing policy is maintained despite a growing body of evidence that take-home doses of methadone improve treatment outcomes and reduce health care costs [3, 33, 34]. In addition MAT is not available in the penitentiary system, which not only results in treatment interruption for incarcerated patients but also seriously limits the health care system's ability to control HIV and other blood-borne diseases among opioid dependent prison population. International evidence suggests that MAT in prison settings can be as equally beneficial as in community settings, helping opioid dependent inmates access health care services, increase adherence to ART when indicated, and reduce criminality and HIV risk behaviors [35, 36].

In order to prevent further expansion of the HIV epidemic, the government of Kazakhstan should support staged expansion of MAT starting with localities with a high prevalence of intravenous opioid use and HIV among PWID, followed by other places in the country where there is a need for such therapy. Such expansion should be implemented in accordance with the target coverage and quality indicators recommended by the WHO, UNAIDS, and UNODC [37]. Further expansion can be attained through training and authorization of narcologists at outpatient departments of dispensaries to prescribe MAT to opioid dependent patients in their catchment areas. Doing so would contribute to scaling up MAT availability and would also reduce the workload of narcologists currently working in the pilot MAT project, who currently are the only providers authorized to prescribe methadone.

The assessment results demonstrated insufficiency in MAT related specialist training that limits further expansion of this treatment method. To strengthen staff capacity building, updated information on MAT should be integrated into graduate and postgraduate medical curricula and qualified local professionals, including addiction psychiatry specialists, should be trained and engaged to work as

technical advisors to support MAT sites in the provision of quality services consistent with national and international guidelines.

Considering the wealth of knowledge gained during the MAT pilot phase, the existing clinical guidelines and standards on MAT should be revised based on lessons learned and WHO recommendations. This includes allowing the provision of MAT outside of narcological facilities, such as in correctional settings and nonnarcological hospitals; revision of admission and discharge criteria to ensure that the maximum number of PWID in need of MAT benefit from and are retained in treatment; and expanding the hours of operation at MAT sites.

Given previous disruptions in methadone procurement and supply, the Kazakhstan's Ministry of Health should establish a centralized state-controlled mechanism of procurement and distribution of medications for MAT. Procurement should be properly planned considering all of the factors affecting time of actual product delivery, including tendering, licensing requirements, import procedures, and customs clearance. Regular monitoring of procurement performance should be established in order to address emerging challenges in a timely manner [38].

Improvements in monitoring and evaluation procedures should aim to ensure collection and analysis of data related not only to program implementation but also to its impact on patient behavior and health. It is also important to ensure standardization and simplification of data collection and reporting forms from various sites. Introduction of reliable health management information systems can increase data quality as well as clinical and programmatic decision making.

It is essential to develop comprehensive advocacy and communication strategies for MAT in order to deliver easy to comprehend evidence-based information for medical professionals and the general public, thus reducing the negative impact of false information. Nongovernment and community-based organizations should be engaged in such activities as intensively as possible, particularly to promote MAT among PWID and their families. Such organizations can include self-organized groups of MAT patients as in Pavlodar or parents of MAT patients such as in Ukraine [39].

Finally, we recommend that the Ministry of Health continues to make evidence-based decisions regarding the development of HIV and drug dependence treatment services and strengthens its emphasis on state-of-the-art research data, such as Cochrane reviews, that repeatedly confirm the safety and effectiveness of MAT compared to other methods of treatment for opiate addiction [40–42]. It is our pleasure to note that based on the findings and recommendations of our assessment report the Ministry of Health of the Republic of Kazakhstan has decided to expand MAT to two additional sites in the country [43, 44].

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Endnotes

1. Narcology is a subspecialty of psychiatry that deals with diagnosis and treatment of drug dependence. Narcologist is a medical doctor who specializes in narcology and provides narcological services.
2. KZT: Kazakh tenge. 1 USD = 146.35 KZT—exchange rate on February 16, 2012 obtained from http://www.nationalbank.kz.

References

[1] Republican AIDS Center, *Report on Activities of the AIDS Service in 2011*, Almaty, Kazakhstan, 2012.

[2] WHO, UNAIDS, and UNICEF, *Global HIV/AIDS Response—Epidemic Update and Health Sector Progress Towards Universal Access—Progress Report*, Geneva, Switzerland, 2011.

[3] WHO, *Guidelines For the Psychosocially Assisted Pharmacological Treatment of Opioid Dependence*, Geneva, Switzerland, 2009.

[4] J. Marsden, D. Stewart, M. Gossop et al., "Assessing client satisfaction with treatment for substance use problems and the development of the treatment perceptions questionnaire (TPQ)," *Addiction Research and Theory*, vol. 8, no. 5, pp. 455–470, 2000.

[5] S. Darke, W. Hall, A. Wodak, N. Heather, and J. Ward, "Development and validation of a multidimensional instrument for assessing outcome of treatment among opiate users: the Opiate Treatment Index," *British Journal of Addiction*, vol. 87, no. 5, pp. 733–742, 1992.

[6] M. L. Copersino, C. S. Meade, G. E. Bigelow, and R. K. Brooner, "Measurement of self-reported HIV risk behaviors in

injection drug users: comparison of standard versus timeline follow-back administration procedures," *Journal of Substance Abuse Treatment*, vol. 38, no. 1, pp. 60–65, 2010.

[7] L. C. Sobell, M. B. Sobell, G. Buchan, P. A. Cleland, I. Fedoroff, and G. I. Leo, "The reliability of the Timeline Followback method applied to drug, cigarette, and cannabis use," in *Proceedings of the 30th Annual Meeting of the Association for Advancement of Behavior Therapy*, New York, NY, USA, November, 1996.

[8] L. T. Midanik, A. M. Hines, D. C. Barrett, J. P. Paul, G. M. Crosby, and R. D. Stall, "Self-reports of alcohol use, drug use and sexual behavior: expanding the timeline follow-back technique," *Journal of Studies on Alcohol*, vol. 59, no. 6, pp. 681–689, 1998.

[9] Z. S. Morris and M. Gannon, "Drug misuse treatment services in Scotland: predicting outcomes," *International Journal for Quality in Health Care*, vol. 20, no. 4, pp. 271–276, 2008.

[10] A. Sharman, Acquired immunodeficiency syndrome. Monograph, part 1. 3. Injecting drug use and HIV infection, July 2012, http://www.zdrav.kz/data/cms/file/part1_3.pdf.

[11] "Harm Reduction Development 2005," IHRD, 2012, http://www.hivpolicy.org/Library/HPP001740.pdf.

[12] The State Program on the Development of Health Care of the Republic of Kazakhstan for 2011–2015 "Salamatty Kazakhstan", Endorsed by President's Decree No. 1113 (November 2010).

[13] L. Kunekova, *Physicians in Almaty Refuse to Implement Heroin-Substitution Program for Drug Addicts*, KTK News Agency, Almaty, Kazakhstan, 2012, http://www.ktk.kz/ru/news/video/2011/02/03/11351/.

[14] Ministry of Health, "On expansion of accessibility of opioid substitution therapy," Order No. 333, (May 2010).

[15] Republican Applied Research Center on Medical and Social Problems of Drug Abuse, *Application of Opiate Agonists Maintenance Therapy in Narcological Practice of the Republic of Kazakhstan*, Methodological recommendations, Pavlodar, Kazakhstan, 2010.

[16] B. P. Smyth, J. Fagan, and K. Kernan, "Outcome of heroin-dependent adolescents presenting for opiate substitution treatment," *The Journal of Substance Abuse Treatment*, vol. 42, no. 1, pp. 35–44, 2012.

[17] Law on Narcotics, Psychotropic Substances, Precursors and Counteracting Measures to Prevent Illegal Circulation and Abuse of these Substances, Law No. 279-1 adopted 10. 10. 1998 (with amendments and additions as of 07. 17. 2009). Astana, Kazakhstan.

[18] E. C. Strain, G. E. Bigelow, I. A. Liebson, and M. L. Stitzer, "Moderate- versus high-dose methadone in the treatment of opioid dependence: a randomized trial," *Journal of the American Medical Association*, vol. 281, no. 11, pp. 1000–1005, 1999.

[19] L. Ganina, *Review of the HIV Epidemiologic Situation in the Republic of Kazakhstan*, Republican AIDS Center, Almaty, Kazakhstan, 2010.

[20] R. Noori, H. Narenjiha, H. Aghabakhshi, G. Habibi, and B. Khoshkrood Mansoori, "Methadone maintenance therapy outcomes in Iran," *Substance Use Misuse*, vol. 47, no. 7, pp. 767–773, 2012.

[21] I. I. Michels, H. Stöver, and R. Gerlach, "Substitution treatment for opioid addicts in Germany," *Harm Reduction Journal*, vol. 4, article 5, 2007.

[22] N. M. Noordin, M. I. Merican, H. A. Rahman, S. S. Lee, and R. Ramly, "Substitution treatment in Malaysia," *The Lancet*, vol. 372, no. 9644, pp. 1149–1150, 2008.

[23] S. B. Sells and D. D. Simpson, Eds., *The Effectiveness of Drug Abuse Treatment*, Ballinger, Cambridge, Mass, USA, 1976.

[24] R. L. Hubbard, M. E. Marsden, J. V. Rachal, H. J. Harwood, E. R. Cavanaugh, and H. M. Ginzburg, *Drug Abuse Treatment: A National Study of Effectiveness*, University of North Carolina Press, Chapel Hill, NC, USA, 1989.

[25] J. C. Ball and A. Ross, *The Effectiveness of Methadone Maintenance Treatment: Patients, Programs, Services, and Outcomes*, Springer, New York, NY, USA, 1991.

[26] L. E. Sullivan, D. Barry, B. A. Moore et al., "A trial of integrated buprenorphine/naloxone and HIV clinical care," *Clinical Infectious Diseases*, vol. 43, supplement 4, pp. S184–S190, 2006.

[27] B. Spire, G. M. Lucas, and M. P. Carrieri, "Adherence to HIV treatment among IDUs and the role of opioid substitution treatment (OST)," *International Journal of Drug Policy*, vol. 18, no. 4, pp. 262–270, 2007.

[28] A. Latypov, D. Otiashvilli, O. Aizberg, and A. Boltaev, *Opioid Substitution Therapy in Central Asia: Towards Diverse and Effective Treatment*, Eurasian Harm Reduction Network, Vilnius, Lithuania, 2010.

[29] T. Burki, "Russia's drug policy fuels infectious disease epidemics," *The Lancet Infectious Diseases*, vol. 12, no. 4, pp. 275–276, 2012.

[30] R. Elovich and E. Drucker, "On drug treatment and social control: Russian narcology's great leap backwards," *Harm Reduction Journal*, vol. 5, article 23, 2008.

[31] L. M. Sanders, C. Trinh, B. R. Sherman, and S. M. Banks, "Assessment of client satisfaction in a peer counseling substance abuse treatment program for pregnant and postpartum women," *Evaluation and Program Planning*, vol. 21, no. 3, pp. 287–296, 1998.

[32] Z. S. Morris and N. McKeganey, "Client perceptions of drug treatment services in Scotland," *Drugs*, vol. 14, no. 1, pp. 49–60, 2007.

[33] E. Peles, S. Schreiber, A. Sason, and M. Adelson, "Earning, "take-home" privileges and long-term outcome in a methadone maintenance treatment program," *Journal of Addiction Medicine*, vol. 5, no. 2, pp. 92–98, 2011.

[34] H. M. Rhoades, D. Creson, R. Elk, J. Schmitz, and J. Grabowski, "Retention, HIV risk, and illicit drug use during treatment: methadone dose and visit frequency," *American Journal of Public Health*, vol. 88, no. 1, pp. 34–39, 1998.

[35] H. Dagmar, A. Paula, F. Michael, S. Heino, M. Lars, and M. Soraya, "The effectiveness of opioid maintenance treatment in prison settings: a systematic review," *Addiction*, vol. 107, no. 3, pp. 501–517, 2012.

[36] UNODC, *Drug Dependence Treatment: Interventions for Drug Users in Prison*, Vienna, Austria, 2012, http://www.unodc.org/docs/treatment/111_PRISON.pdf.

[37] WHO, UNODC, and UNAIDS, Technical guide for countries to set targets for universal access to HIV prevention, treatment and care for injecting drug users, 2009.

[38] WHO, *Operational Principles for Good Pharmaceutical Procurement*, Geneva, Switzerland, 1999.

[39] UNDP, *Opioid Substitution Therapy from the Viewpoint of Specialists and Former Injecting Drug Users*, Kiev, Russia, 2007.

[40] R. P. Mattick, C. Breen, J. Kimber, and M. Davoli, "Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence," *Cochrane Database of Systematic Reviews*, no. 3, p. CD002209, 2009.

[41] S. Minozzi, L. Amato, S. Vecchi, and M. Davoli, "Maintenance agonist treatments for opiate dependent pregnant women," *Cochrane Database of Systematic Reviews*, no. 2, p. CD006318, 2008.

[42] M. Connock, A. Juarez-Garcia, S. Jowett et al., "Methadone and buprenorphine for the management of opioid dependence: a systematic review and economic evaluation," *Health Technology Assessment*, vol. 11, no. 9, pp. 1–171, 2007.

[43] Ministry of Health, *Minutes of the Meeting on Results of Evaluation of Opioid Substitution Therapy in Kazakhstan*, Astana, Kazakhstan, 2012.

[44] Ministry of Health, *Roadmap for Execution of the Decision Made at the Meeting on Results of Evaluation of Opioid Substitution Therapy in Kazakhstan*, Astana, Kazakhstan, 2012.

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Review Article

HIV Prevention and Rehabilitation Models for Women Who Inject Drugs in Russia and Ukraine

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Women who inject drugs require gender-specific approaches to drug rehabilitation, modification of risk behaviors, and psychosocial adaptation. Improved outcomes have been demonstrated when the specific needs of women's subpopulations have been addressed. Special services for women include prenatal care, child care, women-only programs, supplemental workshops on women-focused topics, mental health services, and comprehensive programs that include several of the above components. To address the special needs of women injecting drug user (IDU) subpopulations, such as HIV-positive pregnant women and women with young children, recently released female prisoners, and street-involved girls and young women, HealthRight International and its local partners in Russia and Ukraine have developed innovative service models. This paper presents each of these models and discusses their effectiveness and implementation challenges specific to local contexts in Russia and Ukraine.

1. Introduction

The prevalence of injecting use of opioid substances among people 15–64 years of age is estimated at 0.9% in Ukraine and 2.29% in Russia [1]. There is no reliable data on gender distribution of IDUs in the region. Global trends suggest that drug use in general is more prevalent among boys and men than among girls and women [2]. Some data from the region demonstrate that women constitute between 20 and 30% of IDUs [3, 4]. The HIV epidemic in Russia has been closely linked with IDU: 56.2–61.3% of newly reported HIV infections in 2008–2011 were attributed to IDUs [5]. In Ukraine, heterosexual sex has been the predominant route of HIV transmission since 2008, but drug use is still a key force in the epidemic, with 38.4% of new infections occurring in IDUs in 2011 [6]. The midestimates of HIV prevalence in IDUs in the region are close to 40% [7].

Female sub-populations with the highest prevalence of injecting drug use and HIV in the region include commercial sex workers (CSWs) and those who engage in transactional sex, street-involved girls and young women, and prisoners. These groups are highly intertwined. Among CSWs, 18–70% inject drugs [8–10]; among IDUs, some 40% report transactional sex [11]. Among street children and youth, approximately one-third are female; 20–50% have experience of injecting drug use, and 5–10% report transactional sex [12–14]. Women constitute 5.3% and 8.2% of the prison populations in Russia and Ukraine, or 60 and 8 thousand women prisoners, respectively [15]. There are no reliable national data on the proportion of IDUs among prisoners in the region. In some regions of Russia and Ukraine, the proportion of IDUs among inmates is greater than 10%, HIV prevalence in prisons is greater than 10%, and HIV prevalence among inmates who have used injecting drugs is close to 50% [16]. Evidence from other parts of the world

suggests that, compared to men, a larger proportion of women in prisons is convicted for drug-related crimes, and between 20 and 70 percent of women in prisons are drug-dependent [17–20].

A number of studies conducted within the last 20 years have addressed gender differences in the needs, experiences and rehabilitation approaches for drug users [21–23]. In particular, women start using drugs later than men, and their addiction progresses much faster. Women's substance abuse practices are formed by their male partners. Women demonstrate a much higher prevalence of psychiatric conditions, such as depression, that coexist with and predate substance abuse [24]. Women are less likely than men to access drug rehabilitation treatment, and for this treatment to be effective it has to address the needs of specific subgroups of women. Special services for women include prenatal care, child care, women-only programs, supplemental workshops on women-focused topics, mental health services, and comprehensive programs that include several of the above components [25].

To address the needs of drug-using women in Russia and Ukraine, the global health and human rights organization HealthRight International and its local implementing partners developed a model to assist HIV-positive pregnant women and women with young children (MAMA+), a model for psychosocial adaptation of recently released female prisoners, and comprehensive services to assist street-involved girls and young women.

Medication-assisted treatment for women IDUs is an important asset to psychosocial rehabilitation services. As most IDUs in Russia and Ukraine are opioid-dependent, they can benefit from opioid substitution therapy (OST). In Russia, however, OST is not permitted, with methadone being on the list of illegal substances and buprenorphine not approved for OST [26]. The only other medication option for opioid-dependent IDUs is the opioid antagonist naltrexone. Despite a number of studies in Russia demonstrating its effectiveness in preventing relapse in heroin users [27–31], naltrexone remains largely unavailable due to its prohibitive cost: a recommended nine-month treatment course costs over $6,000 [32]. In September 2012, naltrexone became available in St. Petersburg through a government-funded program to just 40 HIV-positive IDUs a year citywide to prevent the spread of HIV [33].

In Ukraine, OST with buprenorphine has been available since 2004, with methadone added in 2008 [30]. Early OST rollout data showed that women, particularly pregnant women and women with young children, were not accessing OST in proportion to their presence in the IDU population [4, 34]. A number of restrictions apply to OST access in Ukraine raising the entry threshold for potential participants. Among others, these limitations include the requirement to produce an identification document, which many IDUs do not have, or present a certificate of two unsuccessful attempts of nonmedicated rehabilitation within the last year [35]. The MAMA+ for IDUs model in Kyiv worked to overcome these shortfalls by incorporating OST as an important component of psychosocial rehabilitation of women IDUs [33, 35].

2. MAMA+: Comprehensive Assistance to HIV-Positive Pregnant Women and Women with Young Children

The MAMA+ model was initially developed in 2004 in St. Petersburg, Russia, to prevent child abandonment by HIV-positive mothers. That year, the rate of child abandonment by HIV-positive women in St. Petersburg was 11.7%, ranging from 5.5% in noninjectors to 15.6% in IDUs [36]. HealthRight, the St. Petersburg-based NGO Doctors to Children (DTC), and government Centers of Social Services for Families and Children in three districts of the city implemented the MAMA+ model to deliver psychosocial services for HIV-positive women at high risk of child abandonment. Other partners include the city infectious disease hospital where women with known HIV-positive status deliver and the only two maternity hospitals in the city that admit women for delivery who have not previously accessed prenatal care. These two high-risk maternity hospitals provide women in labor with counseling and rapid testing for HIV. This allows for catchment of all HIV-positive pregnant women perinatally. Prenatal clinics or women's consultancies and NGOs serving IDUs and people living with HIV were later added to the referral network to allow for earlier identification of HIV-positive pregnant women. Risk factors for abandonment include expressed intention to abandon, injecting drug use, depression, no stable housing, family violence, and lack of support from family members. Initial screening is conducted by healthcare staff who refer at-risk women to professional counselors. After additional screening, motivational interviewing, and crisis psychological counseling, the counselor asks the woman to sign an informed consent for services.

The model is comprised of the following components (Figure 1): (1) home-visiting services; (2) child daycare at the MAMA+ center; (3) halfway house residential support for pregnant women and women with young children; (4) counseling and referral to government and community-based drug treatment programs; (5) social counseling, referral and escort to government institutions to process paperwork, apply for housing, receive government child allowance, and so forth; (6) school for young mothers on child care, parenting, and HIV-related issues in children; (7) workshops on women's issues, such as improving self-image and self-esteem, coping with family violence, and building independence; (8) workshops for family members on HIV, care and support for women and children affected by HIV, and substance codependence; (9) vocational counseling and job placement for women and family members; (10) peer support groups for women, their partners, and other family members; (11) peer counseling by former MAMA+ clients. This model is implemented by a multidisciplinary case management team comprised of at least one of each of the following professionals and supplemented by peer volunteers: social workers, psychologists, child development specialists, medical providers (nurse or nurse practitioner), and lawyers. All services are provided according to a multidisciplinary case management protocol (Figure 2), which has

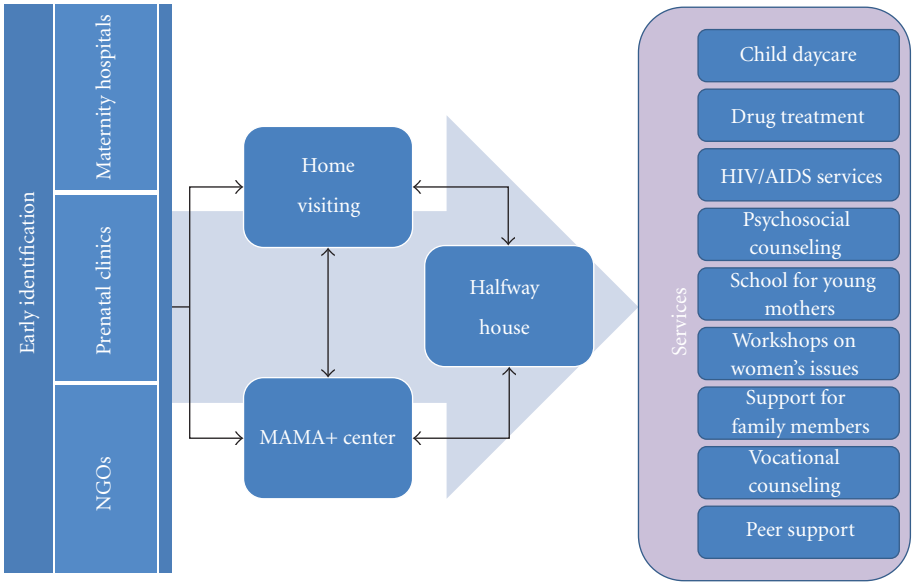

Figure 1: MAMA+ model.

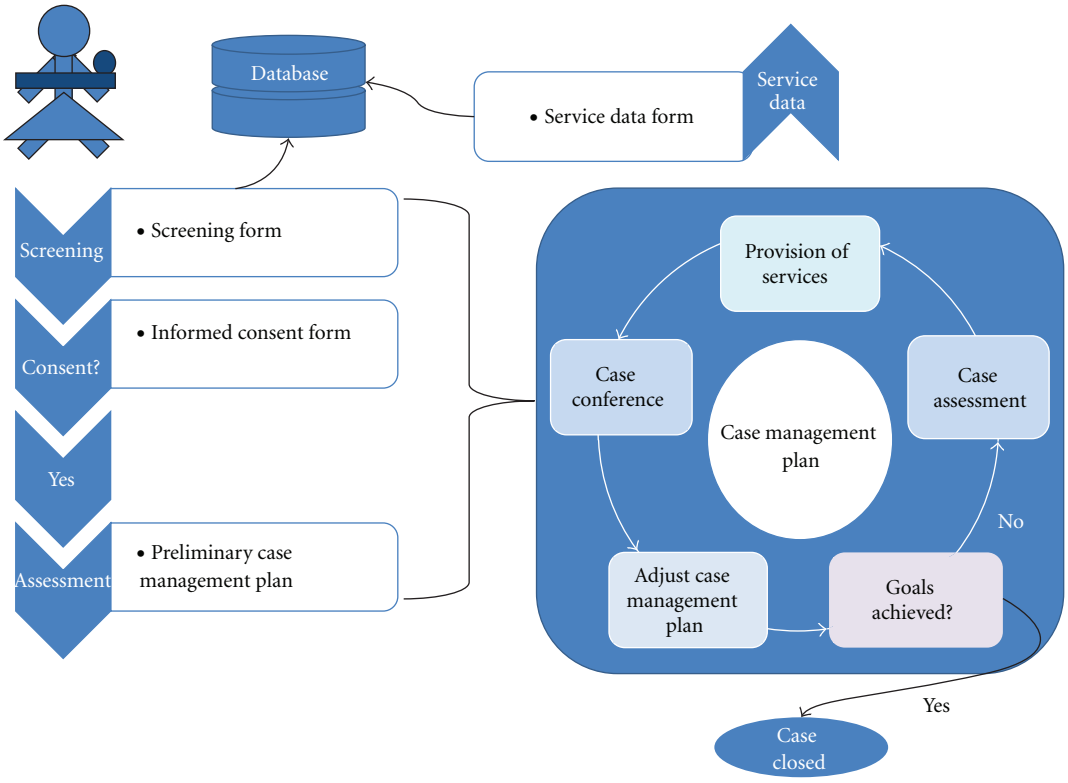

Figure 2: Case management protocol.

been documented and published in Russian and Ukrainian [37, 38].

In Russia, the MAMA+ model has been implemented in the cities of St. Petersburg and Yekaterinburg in partnership with NGOs and government Centers of Social Services for Families and Children. The network of government social service facilities has been the single most important factor contributing to the model's sustainability in Russia. Most components of the MAMA+ model have been institutionalized as part of government Centers of Social Services, with

437 government providers receiving training and supervision from HealthRight and DTC in 2007–2012. In 2005–2011, 808 HIV-positive women and their children and other family members received MAMA+ services in St. Petersburg, with a specific emphasis on drug-using women as most at-risk of child abandonment. The proportion of IDUs among HIV-positive pregnant women in St. Petersburg decreased from 62.3% in 2004 to 40.9% in 2008 [36]. At the same time, IDUs constituted approximately 80% of MAMA+ clients in St. Petersburg [37]. As a result, child abandonment by HIV-positive women decreased from 11.7% in 2004 to 6.0% in 2008, with the most significant decrease of the abandonment rate among injecting drug users, from 15.6% to 9.9% ($P = 0.009$) [36]. In 2010–2012, as a result of MAMA+ replication in the city of Yekaterinburg, child abandonment rates among HIV-positive women dropped from 6.3% in 2009 to 1.9% in 2011 ($P = 0.0037$) [39]. Most HIV-positive women who abandon their children, even with available MAMA+ services, are active IDUs who do not access prenatal care. They learn about their HIV status in the maternity hospital and leave the hospital within hours after delivery seeking their next dose of illicit drugs, as opioid substitution therapy (OST) is not available in Russia [40, 41].

In Ukraine, where MAMA+ was replicated in 2005 in the cities of Kyiv, Donetsk, and Simferopol, OST with buprenorphine has been available since 2004, with methadone added in 2008 [40]. Originally, only 25% of MAMA+ clients in Ukraine were IDUs, reflecting the national trends of the HIV epidemic [6, 42]. Injecting drug use, however, has been identified as the single most important risk factor for child abandonment by HIV-positive women in Ukraine [43]. Thus the MAMA+ model, which was implemented in partnership with the All-Ukrainian Network of People Living with HIV (AUN) and the Ukrainian Foundation for Public Health, was adapted for IDUs in Kyiv city. Services added to better meet the needs of IDUs included counseling by a drug-abuse physician (narcologist), referral to OST programs, and a peer support group for IDU pregnant women and women with young children [44, 45]. In 2008–2010, 100 female IDUs who were pregnant or had young children, as well as 139 of their family members received MAMA+ for IDUs services, and 14 women were linked with OST programs in Kyiv [46]. Unlike in Russia, where the model benefitted from government investment in a social service system, the main factor of model sustainability in Ukraine has been local NGOs and international donors. The AUN has disseminated the MAMA+ model across Ukraine beyond the original three cities and has continued to support MAMA+ for IDUs in Kyiv.

3. Psychosocial Adaptation of Recently Released Female Prisoners

To respond to the specific needs of female prisoners, such as HIV/AIDS, sexual and reproductive health concerns, drug use, child custody, family support, and other issues [17, 47], HealthRight, in partnership with DTC and regional social protection and penitentiary authorities, developed a model on psychosocial adaptation of recently released female prisoners. The model was implemented in 2010–2012 in a medium-security female penitentiary facility in the Leningrad region near St. Petersburg. Among 800–1,200 inmates, 67% are under the age of 35; 51% have children under 18; over 60% were sentenced for drug-related crimes, many of whom have experience of injecting drug use; 37% are HIV-positive; 45% of those who are positive require ARV treatment.

The model components include the following (Figure 3): (1) a specialized Department for Social Adaptation (DSA) of recently released female prisoners at the government Crisis Center for Women in St. Petersburg; (2) prerelease school at the penitentiary facility conducted by DSA staff; (3) individual psychosocial counseling at the penitentiary and after release; (4) group training activities on HIV prevention, drug abuse, sexual risks, and other risky behaviors before and after release; (5) laboratory monitoring of immune status, consultations by an infectious disease specialist, and access to ARV treatment for HIV-positive women in prison; (5) peer support groups for IDUs and HIV-positive women at the penitentiary and at the DSA upon release; (6) psychosocial support upon release to secure necessary documents, housing, employment, child custody, and so forth; (7) referral and support in accessing government and NGO-run drug rehabilitation programs and community-based twelve-step programs; (8) referral for AIDS Center services, ARV treatment, and support in treatment adherence; (9) psychosocial counseling and peer support groups for family members of prisoners.

The team of providers is comprised of the team leader (head of the DSA), DSA social workers and psychologists, penitentiary counselors, and a DSA lawyer. All services are provided according to the case management and cross-referral protocol, which was approved by the regional social protection and penitentiary authorities and published in the form of methodological recommendations for social service providers and penitentiary staff [48].

Over two years, over 1,200 women received services in the penitentiary facility regardless of their HIV or IDU status, and 287 (or 24%) accessed services in St. Petersburg upon release. This access rate is comparable to the 30% rate of access to HIV services reported in the United States for HIV-positive recently released inmates [49, 50]. A key factor of success in linking former female prisoners to services is utilization of the same staff who established a rapport with inmates before release to provide services after release. Access to postrelease services is impeded by the fact that over 30% of the inmates at the facility in the Leningrad region are not from St. Petersburg and so do not seek services in the city upon release. Linking IDUs to residential drug treatment programs immediately upon release has been crucial in preventing relapse. Access to HIV treatment and care for female prisoners in Russia has been significantly impaired in 2011-2012 by the reform that transferred penitentiary healthcare to the responsibility of the civilian healthcare system, but failed to effectively link civilian providers with prison populations.

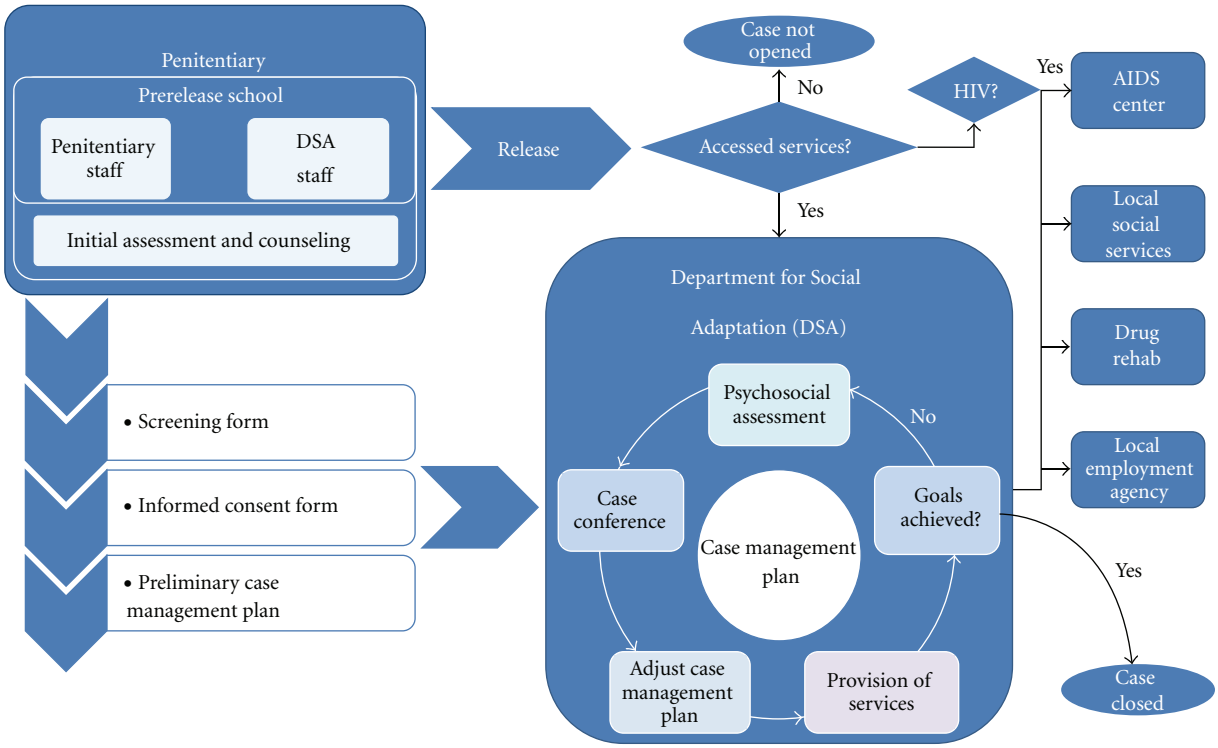

Figure 3: Psychosocial adaptation of recent female prisoners.

4. Comprehensive Services for Street-Involved Girls and Young Women

HealthRight and the US Centers for Disease Control and Prevention conducted an HIV seroprevalence study among street youth in Ukraine in 2008, which demonstrated that girls are at a significantly higher risk of HIV, suggesting the need to implement services specifically targeting street-involved girls and young women [13]. In response, in 2010-2011 HealthRight in partnership with the Ukrainian Foundation for Public Health and the government Kyiv City Center of Social Services for Families, Children and Youth developed a model serving street-involved girls and young women. The model includes the following components (Figure 4): (1) street outreach by partner organizations providing psychosocial counseling to all street youth and referral for street-involved girls and young women to the project drop-in center (DIC); (2) low-threshold DIC where clients receive access to a safe space, shower, clean clothes, snacks, and case management services; (3) halfway house residential support for street-involved girls and young women (this component is currently in development); (4) psychosocial counseling for girls and young women on government paperwork, housing, education, employment, and other issues; (5) voluntary counseling and rapid testing for HIV, STIs and pregnancy at the DIC, and referral to specialized clinics; (6) behavior change communication intervention entitled STEPS to reduce HIV and other risks, which was developed specifically for street youth [51–54]; (7) training activities and workshops on women-related topics, such as gender-based violence, sexual and reproductive health, self-image and self-assurance; (8) peer support groups for girls and young women; (9) referral to drug abuse rehabilitation and OST, where appropriate; (10) services for male partners of DIC clients, including counseling, education, and group activities.

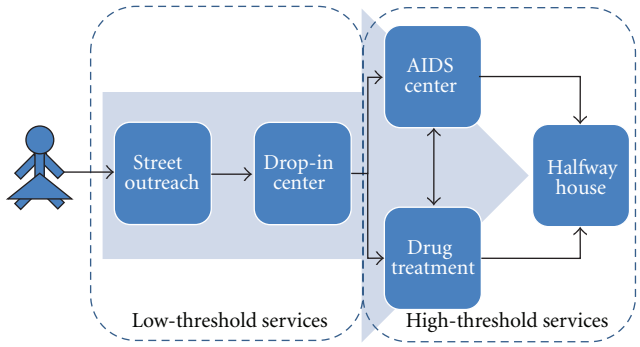

Figure 4: Comprehensive services for street-involved girls and young women.

Services are provided according to a case management protocol to assist street youth, which was documented and published in Russian and Ukrainian [55–58]. The case management team includes the team leader, a medical provider (nurse), social workers, psychologists, and a lawyer. Since 2012, the DIC and its entire staff have been integrated into the government Kyiv City Center of Social Services. In 2010-2011, 759 girls and young women received services.

Of them, 42% sleep on the streets, in basements, attics, or abandoned buildings; 13% are substance users; 39% have children of their own; 26% are HIV-positive [59].

This gender-sensitive model of services for street-involved girls and young women was developed from a coeducational model implemented earlier in Russia and Ukraine [54–57]. The gender-specific approach has proven successful in making services more attractive and accessible for female clients, providing counseling and group activities on woman-related topics, and addressing some specific needs of women, such as pregnancy and sexual health in a woman-friendly atmosphere. At the same time, it has proven unproductive to exclude male partners of DIC clients from counseling services and group activities, as street-involved girls and women are often dependent on men in their sexual, drug using, and other behaviors, as well as for protection and financial support. Coeducational service facilities are required to provide psychosocial rehabilitation and support to street youth, with special attention to gender-sensitive topics addressed in separate and mixed-sex groups.

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References

[1] UNODC, World Drug Report 2012, United Nations Publication, Sales No. E.12.XI.1, http://www.unodc.org/unodc/secured/wdr/Prev_All_2012.pdf.

[2] L. Degenhardt and W. Hall, "Extent of illicit drug use and dependence, and their contribution to the global burden of disease," *The Lancet*, vol. 379, pp. 55–70, 2012.

[3] C. Aceijas, S. R. Friedman, H. L. F. Cooper, L. Wiessing, G. V. Stimson, and M. Hickman, "Estimates of injecting drug users at the national and local level in developing and transitional countries, and gender and age distribution," *Sexually Transmitted Infections*, vol. 82, supplement 3, pp. iii10–iii17, 2006.

[4] Analytical Report, Monitoring of Behavior of Injecting Drug Users as a Component of the Second Generation Epidemiological Surveillance, International HIV/AIDS Alliance in Ukraine, Kyiv, Ukraine, 2005, http://www.aidsalliance.org.ua/ru/library/our/monitoring_reports/pdf/idu.pdf.

[5] Russian Federal AIDS Center, HIV Infection in the Russian Federation in 2012, http://www.hivrussia.ru/files/sprav_31032012.doc.

[6] Ukrainian AIDS Center, Operational Information on Officially Registered HIV-infected Citizens of Ukraine for December 2011, http://ukraids.gov.ua/attachments/article/266/%D0%93%D1%80%D1%83%D0%B4%D0%B5%D0%BD%D1%8C%202011.pdf.

[7] B. M. Mathers, L. Degenhardt, B. Phillips et al., "Global epidemiology of injecting drug use and HIV among people who inject drugs: a systematic review," *The Lancet*, vol. 372, no. 9651, pp. 1733–1745, 2008.

[8] P. Kyrychenko and V. Polonets, "High HIV risk profile among female commercial sex workers in Vinnitsa, Ukraine," *Sexually Transmitted Infections*, vol. 81, no. 2, pp. 187–188, 2005.

[9] W. M. Wechsberg, E. Krupitsky, T. Romanova et al., "Double jeopardy—drug and sex risks among Russian women who inject drugs: initial feasibility and efficacy results of a small randomized controlled trial," *Subst Abuse Treat Prev Policy*, vol. 7, article 1, 2012.

[10] L. Platt, T. Rhodes, C. M. Lowndes et al., "Impact of gender and sex work on sexual and injecting risk behaviors and their association with HIV positivity among injecting drug users in an HIV epidemic in togliatti city, Russian Federation," *Sexually Transmitted Diseases*, vol. 32, no. 10, pp. 605–612, 2005.

[11] E. G. Benotsch, A. M. Somlai, S. D. Pinkerton et al., "Drug use and sexual risk behaviours among female Russian IDUs who exchange sex for money or drugs," *International Journal of STD and AIDS*, vol. 15, no. 5, pp. 343–347, 2004.

[12] D. M. Kissin, L. Zapata, R. Yorick et al., "HIV seroprevalence in street youth, St Petersburg, Russia," *AIDS*, vol. 21, no. 17, pp. 2333–2340, 2007.

[13] C. L. Robbins, L. Zapata, D. M. Kissin et al., "Multicity HIV seroprevalence in street youth, Ukraine," *International Journal of STD and AIDS*, vol. 21, no. 7, pp. 489–496, 2010.

[14] J. R. Busza, O. M. Balakireva, A. Teltschik et al., "Street-based adolescents at high risk of HIV in Ukraine," *Journal of Epidemiology and Community Health*, vol. 65, no. 12, pp. 1166–1170, 2011.

[15] International Center for Prison Studies, http://www.prisonstudies.org/.

[16] K. Dolan, B. Kite, E. Black, C. Aceijas, and G. V. Stimson, "HIV in prison in low-income and middle-income countries," *The Lancet Infectious Diseases*, vol. 7, no. 1, pp. 32–41, 2007.

[17] UNODC, "Handbook for Prison Managers and Policymakers on Women and Imprisonment," United Nations Publication, Sales No. E.08.IV.4, 2008, http://www.unodc.org/documents/justice-and-prison-reform/women-and-imprisonment.pdf.

[18] R. Taylor, *Women in Prison and Children of Imprisoned Mothers*, Quaker United Nations Office, Geneva, Switzerland, 2004.

[19] M. Bastick and L. Townhead, *Women in Prison: A Commentary on the UN Standard Minimum Rules for the Treatment of Prisoners*, Quaker United Nations Office, Geneva, Switzerland, 2008.

[20] B. Bergh, A. Gatherer, A. Fraser et al., "Imprisonment and women's health: concerns about gender sensitivity, human rights and public health," *Bulletin of the World Health Organization*, vol. 89, no. 9, pp. 689–694, 2011.

[21] S. F. Greenfield, A. J. Brooks, S. M. Gordon et al., "Substance abuse treatment entry, retention, and outcome in women: a review of the literature," *Drug and Alcohol Dependence*, vol. 86, no. 1, pp. 1–21, 2007.

[22] S. Wasilow-Mueller and C. K. Erickson, "Drug abuse and dependency: understanding gender differences in etiology and management," *Journal of the American Pharmaceutical Association*, vol. 41, no. 1, pp. 78–90, 2001.

[23] Center for Substance Abuse Treatment, "Substance abuse treatment: addressing the specific needs of women," Tech. Rep.

(SMA) 09-4426, Substance Abuse and Mental Health Services Administration (US), 2009.

[24] K. T. Brady and C. L. Randall, "Gender differences in substance use disorders," *Psychiatric Clinics of North America*, vol. 22, no. 2, pp. 241–252, 1999.

[25] O. S. Ashley, M. E. Marsden, and T. M. Brady, "Effectiveness of substance abuse treatment programming for women: a review," *American Journal of Drug and Alcohol Abuse*, vol. 29, no. 1, pp. 19–53, 2003.

[26] List of narcotics, psychoactive substances and their precursors subject to control in the Russian Federation, Approved by the decision of the Government of the Russian Federation, 1998, http://fskn.gov.ru/pages/main/info/official_information/7947/index.shtml.

[27] E. Krupitsky, E. Zvartau, E. Blokhina et al., "Randomized trial of long-acting sustained-release naltrexone implant vs oral naltrexone or placebo for preventing relapse to opioid dependence," *Archives of General Psychiatry*, vol. 69, no. 9, pp. 973–981, 2012.

[28] E. Krupitsky, E. V. Nunes, W. Ling, A. Illeperuma, D. R. Gastfriend, and B. L. Silverman, "Injectable extended-release naltrexone for opioid dependence: a double-blind, placebo-controlled, multicentre randomised trial," *The Lancet*, vol. 377, no. 9776, pp. 1506–1513, 2011.

[29] E. Krupitsky, E. Zvartau, and G. Woody, "Use of naltrexone to treat opioid addiction in a country in which methadone and buprenorphine are not available," *Current Psychiatry Reports*, vol. 12, no. 5, pp. 448–453, 2010.

[30] E. M. Krupitsky, E. E. Zvartau, D. V. Masalov et al., "Naltrexone with or without fluoxetine for preventing relapse to heroin addiction in St. Petersburg, Russia," *Journal of Substance Abuse Treatment*, vol. 31, no. 4, pp. 319–328, 2006.

[31] E. M. Krupitsky, E. E. Zvartau, D. V. Masalov et al., "Naltrexone for heroin dependence treatment in St. Petersburg, Russia," *Journal of Substance Abuse Treatment*, vol. 26, no. 4, pp. 285–294, 2004.

[32] E. Holt, "Russian injected drug use soars in face of political inertia," *The Lancet*, vol. 376, no. 9734, pp. 13–14, 2010.

[33] Authors' communication with the St. Petersburg City Narcological Hospital.

[34] S. Dvoriak, "Overview of opioid substitution treatment in Ukraine," in *National Conference on Harm Reduction*, Kyiv, Ukraine, February 2006.

[35] Order of the Ministry of Ukraine, "On approving the order of administering the substitution supportive treatment for patients with opioid dependency," 2012, http://www.moz.gov.ua/ua/portal/dn_20120327_200.html.

[36] D. M. Kissin, M. G. Mandel, N. Akatova et al., "Five year trends in epidemiology and prevention of mother-to-child HIV transmission, S. Petersburg, Russia: results from perinatal HIV surveillance," *BMC Infectious Diseases*, vol. 11, article 292, 2011.

[37] Guidebook on Retaining Family Support for HIV-affected Children, St. Petersburg, Doctors to Children, 2008, http://doctors2children.ru/files/dtc_family__support__for__hiv-affected__children_.pdf.

[38] Manual on Multidisciplinary Case Management, "The Project "Prevention of Abandonment of Children Born to HIV-positive Mothers (MAMA+)"," Doctors of the World-USA, Kyiv, Ukraine, 2007.

[39] R. Yorick, S. Suvorova, O. Sukovatova et al., "Replication of the MAMA+ model to prevent child abandonment by HIV-positive women in Yekaterinburg, Russia," in *Proceedings of the 19th International AIDS Conference*, Washington, DC, USA, July 2012.

[40] D. Wolfe, M. P. Carrieri, and D. Shepard, "Treatment and care for injecting drug users with HIV infection: a review of barriers and ways forward," *The Lancet*, vol. 376, no. 9738, pp. 355–366, 2010.

[41] Golichenko, "Russia: district court upholds legal ban on opioid substitution treatment," *HIV/AIDS Policy & Law Review*, vol. 15, no. 3, pp. 57–58, 2011.

[42] A. Shapoval, "Socioeconomic profile of HIV+ mothers including those who abandon their infants in Ukraine," in *Proceedings of the 17th International AIDS Conference*, Mexico City, Mexico, August 2008.

[43] H. Bailey, I. Semenenko, T. Pilipenko, R. Malyuta, and C. Thorne, "Factors associated with abandonment of infants born to HIV-positive women: results from a Ukrainian birth cohort," *AIDS Care*, vol. 22, no. 12, pp. 1439–1448, 2010.

[44] E. Finnerty, H. Skipalska, O. Libanov et al., "MAMA+ for injecting drug users: a pilot programme in Ukraine," in *Proceedings of the 20th International Harm Reduction Conference (IHRC '09)*, Bangkok, Thailand, 2009.

[45] J. Beard, G. Biemba, M. Brooks et al., "Children of female sex workers and drug users: a review of vulnerability, resilience and family-centred models of care," *Journal of the International AIDS Society*, vol. 13, supplement 2, p. S6, 2010.

[46] "MAMA+ for Drug Using Pregnant Women and New Mothers Project in Ukraine," HealthRight International, 2010, http://www.healthright.org.ua/en/leafletmama.

[47] Women and HIV in prison settings, UNODC, 2008, http://www.unodc.org/documents/hiv-aids/Women%20and%20HIV%20in%20prison%20settings.pdf.

[48] Comprehensive Support to Women Released from Penitentiary Institutions. St. Petersburg, Doctors to Children, 2011, http://doctors2children.ru/publications/methodological%20materials/.

[49] J. Baillargeon, T. P. Giordano, J. D. Rich et al., "Accessing antiretroviral therapy following release from prison," *Journal of the American Medical Association*, vol. 301, no. 8, pp. 848–857, 2009.

[50] J. G. Baillargeon, T. P. Giordano, A. J. Harzke, G. Baillargeon, J. D. Rich, and D. P. Paar, "Enrollment in outpatient care among newly released prison inmates with HIV infection," *Public Health Reports*, vol. 125, supplement 1, pp. 64–71, 2010.

[51] R. Yorick, K. Zakharov, A. Shaboltas et al., "HIV prevention and access to care for HIV-positive street youth in St. Petersburg, Russia," in *Proceedings of the 17th International AIDS Conference*, Mexico City, Mexico, August 2008.

[52] R. Yorick, J. Batluk, A. Shaboltas et al., "HIV prevention for street youth in St. Petersburg, Russia," in *Proceedings of the 18th International AIDS Conference*, Vienna, Austria, July 2010.

[53] "STEPS Prevention Training Program for Adolescents," Trainer's Guide. St. Petersburg, Doctors to Children, 2009, http://doctors2children.ru/files/DTC_STEPS_Trainer%E2%80%99s_%20Guide%20.pdf.

[54] "STEPS Educational Training for Adolescents," Kalita, Kyiv, Ukraine, 2010, http://www.healthright.org.ua/sites/default/files/ourbook3.pdf.

[55] Guidebook on Integrated Assistance to Street Youth. St. Petersburg, Doctors to Children, 2009, http://doctors2children.ru/files/dtc_guidebook__assistance_to__street_youth_.pdf.

[56] Guidebook on HIV prevention and Assistance to HIV-positive Street Children and Youth. St. Petersburg, Doctors

to Children, 2009, http://doctors2children.ru/publications/methodological%20materials/.

[57] *Comprehensive Care and Assistance to Homeless and Neglected Children: Methodological Recommendations*, Kalita, Kyiv, Ukraine, 2010.

[58] "Guidebook on Multidisciplinary Case Management in Working with Homeless Minors," HealthRight International, Kyiv, Ukraine, 2010, http://www.healthright.org.ua/sites/default/files/ourbook2.pdf.

[59] H. Skipalska, N. Grytsaienko, R. Yorick et al., "Targeted, gender-sensitive support for street girls: linking the most vulnerable to care," in *Proceedings of the 19th International AIDS Conference*, Washington, DC, USA, July 2012.

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Research Article

Development of Combination HIV Prevention Programs for People Who Inject Drugs through Government and Civil Society Collaboration in the Russian Federation

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Population Services International (PSI) has worked collaboratively with several government institutions of the Russian Federation to develop and implement a model program to access health services for individuals who are opioid dependent, including those with HIV infection. Through the development of partnership agreements between government organizations (GOs) and non-government organizations (NGOs), a model of the continuum of care has been developed that identifies a Recommended Package of HIV Prevention Services for Injecting Drug Users (RPS-IDU). The implementation of the RPS-IDU in the Russian Federation offers a model for other countries with HIV epidemics associated with injection drug use. This paper will describe the model program and its implementation in one of the pilot program regions.

1. Introduction

Globally, the trafficking and subsequent use of addictive substances is widespread [1, 2]. Vulnerability to drug dependence, particularly heroin, can occur rapidly for injection drug users and is behaviorally complex as a function of biological, psychological, and environmental interactions and influences. In the Russian Federation heroin, trafficked from Central Asia, is readily available for use with dependence manifested as a chronic relapsing brain disease [2]. The clinical diagnosis of opioid dependence, according to the tenth revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10), is not based on the quantity of drug used, but the maladaptive patterns of drug use, as well as cognitive, behavioral, and physiological symptoms including any significant consequences related to drug use [3]. International treatment guidelines promote effective treatment programs that have multiple components offering an array of services and pharmacotherapies that address the cognitive, behavioral, physiological, and social aspects of opioid dependence [4]. Opioid treatment programs also need to address the medical comorbidities associated with injection drug use, most significantly Human Immunodeficiency Virus (HIV).

The World Health Organization (WHO) has identified a comprehensive set of interventions for HIV prevention, care, and treatment for injection drug users [5]. They include needle and syringe programs; drug dependence treatment; targeted information, education, and communication for people who use drugs; HIV testing and counseling; HIV care

and treatment; safe and effective condom use; detection and management of sexually transmitted infections; prevention and treatment of viral hepatitis; tuberculosis prevention, diagnosis, and treatment. In 2010, the Joint United Nations Program on HIV/AIDS also identified a *combination prevention* approach that relies on the evidence-informed, strategic, simultaneous use of complementary behavioral, biomedical, and structural prevention strategies [6].

1.1. Opioid Dependence and the HIV Epidemic in the Russian Federation. Because of the large amount of opioids trafficked from Central Asia through the Russian Federation, inexpensive heroin is available and readily accessible. Data from 2009 indicate that more than 550,000 people in the Russian Federation are officially registered as drug users [7] and 567,558 people are living with HIV infection [8]. Although the estimated number of people who inject drugs (PWIDs) varies among different international and national studies, drug use and HIV infection are significantly underreported [9]. *The World Drug Report 2010* estimates that approximately 1.6 million people in the Russian Federation use opioids [2], which represents 1 percent of the total Russian population. In some regions of the Russian Federation, it is estimated that the HIV prevalence in the opioid dependent populations can reach as high as 75% [2]. Official statistics for the Russian Federation indicate that from 1987 to 2008 approximately 80% of all HIV infections were associated with injection drug use and opioid dependence [10]. Thus, the Russian Federation has a serious dual epidemic of opioid dependence and HIV infection.

The federal health care system in the Russian Federation is a post-Soviet system that is publically owned and financed with the government managing resource allocation, and health care professionals are government employees [11]. As a centrally planned and managed system, medical services are free and directed from Moscow through government decrees called "prikaz." The health care system focuses on the treatment of prevailing acute diseases and gives priority to inpatient treatment of acute conditions rather than chronic conditions [11]. The focus on inpatient care has resulted in a vertical or "stove-piped" hospital-based medical specialty system of separate services delivered by subspecialty trained physicians [11]. Thus, patients who need narcology services (drug treatment services) are required to seek those services at a narcological hospital where the services are specifically and strictly related to addiction treatment. As a parallel system, the Russian government developed regional AIDS Centers to provide HIV-specific services for patients with HIV infection.

HIV prevention programs for PWID in the Russian Federation provide only limited services. Current HIV programs are focused mostly on treatment with limited funding for prevention. While Russian federal statistics demonstrate that HIV infection is a public health problem for PWID, government stakeholders have not recognized the importance of HIV prevention services for PWID in the context of larger efforts to limit the spread of HIV infection. These larger efforts must include an integrated program of HIV prevention that provides a continuum of care for opioid dependence to reduce HIV transmission and new incident infections.

2. Methods: Developing the Recommended Package of HIV Prevention Services for Injection Drug Users (RPS-IDUs)

PSI responded to the identified gap by developing a specific health care program utilizing the current federal system of care but comprising a full continuum of care to PWID. In 2010, PSI launched a new five-year program, HIV Prevention for At-Risk Populations in Russia, with funding from USAID. PSI is implementing this program in cooperation with GBCHealth, an international coalition of more than 200 member business companies and organizations. Based on epidemiological need, previous program experience and the regional political will, the cities of Saint Petersburg, Kazan (Republic of Tatarstan), Barnaul (Altay Krai), and Samara Oblast were selected as regional sites for program implementation. Primary target groups of this program are PWID and PWID subpopulations, including people who are engaged in providing sexual services, released prison inmates, men who have sex with men (MSM), and people with HIV infection and recovering PWID. In addition, the program works with sexual partners and families of PWID to provide needed services. Separate program activities (education on medical and nonmedical issues, sensitization on specific needs of key vulnerable populations) are designed for service providers who work at nongovernmental and public organizations, medical professionals and social workers, and official representatives of the healthcare system at regional and federal levels.

PSI assembled a group of government stakeholders, public health and medical experts, and NGO practitioners to develop a Recommended Package of Services for Injecting Drug Users (RPS-IDUs) as part of the USAID-funded program. The RPS-IDU is based on WHO/PEPFAR-recommended best practices, acculturated to the Russian context, and informed by the barriers faced by other programs implemented in Russia to date. The RPS-IDU is also based on research conducted in areas where dual HIV and opioid dependence epidemics coexist, which document that integrated or colocated health care services are most effective for PWID in accessing and remaining in care and treatment [12]. Accordingly, the RPS-IDU focuses on developing an integrated system of services provided by NGOs and government-funded facilities and incorporates evidence-based services that can be implemented and are acceptable to both patients and health care providers. To this end, partnerships were developed with the National Research Center on Addictions, the Federal AIDS Center, and experts from other federal and regional healthcare institutions.

General principles of the RPS-IDU model development at the regional level are illustrated in Figure 1. The model reflects a 4-stage healthcare service provision system that includes premedical care, primary healthcare (outpatient services), specialized (inpatient) services, and rehabilitation

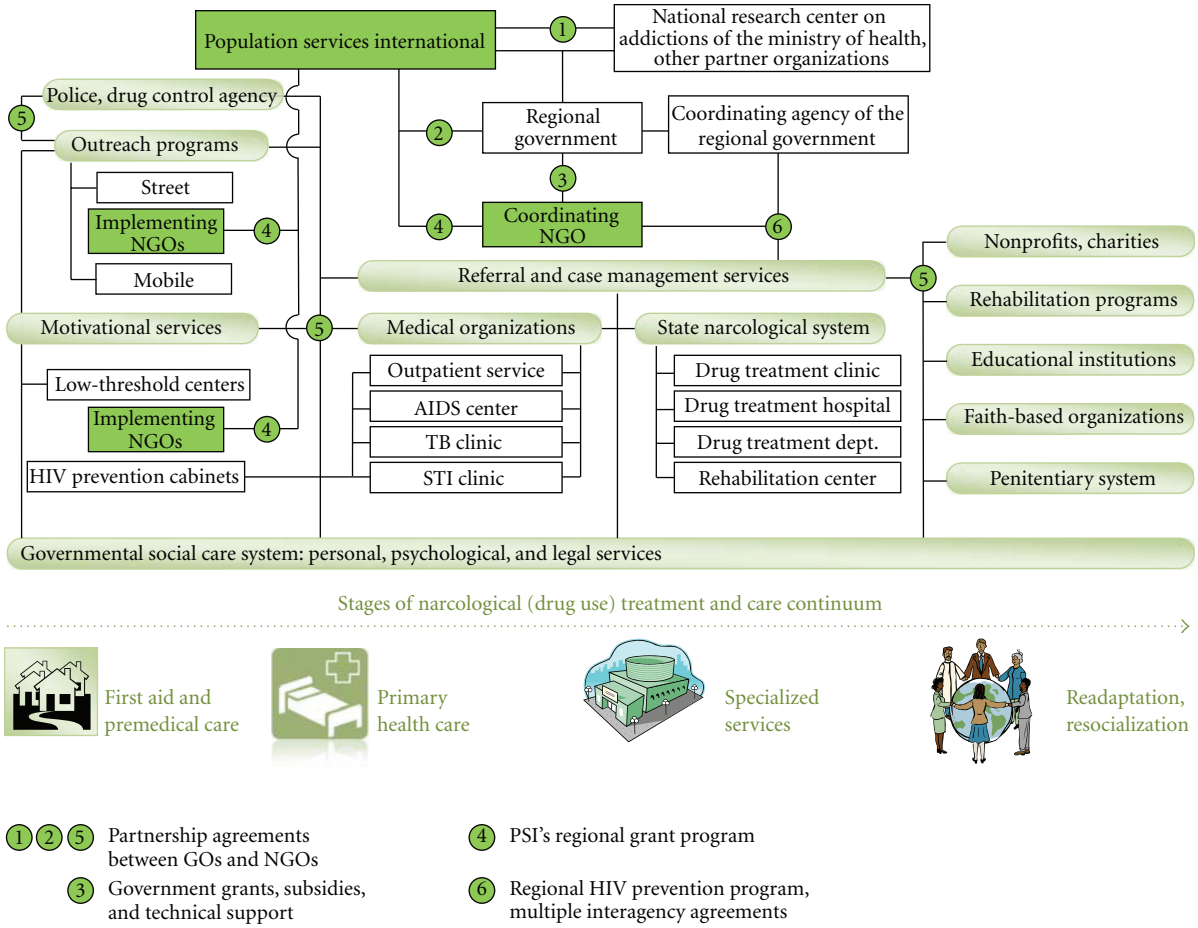

Figure 1: Implementation of the RPS-IDU Model at the regional level.

programs with the critically important readaptation and resocialization services that support patients recovering from drug dependence. The RPS-IDU model is supported through close collaboration between PSI and the National Research Center on Addictions (NRCAs) of the Ministry of Health and Social Development of the Russian Federation at the federal level. Government and nongovernment organizations at the regional level are carefully coordinated by a designated agency of the regional government.

In comparison with medical facilities like clinics and hospitals, premedical care for PWID in Russia is mostly supported through projects funded by international donors. This stage includes such services as street and mobile outreach, and low-threshold (drop-in) centers that reach out to PWID and offer information, basic hygiene education, and other assistance, all designed to increase motivation for further involvement with the program. In addition, some medical facilities can open prevention cabinets, a separate unit within their infrastructure, that do not require routine registration and ID to get medical services like HIV counseling and testing or STI testing and treatment. Through a system of grants, PSI supported initial collaboration between NGOs and state medical and social institutions to offer premedical services at this stage.

The RPS-IDU model has been developed and piloted in three Russian regions, including Kazan (Republic of Tatarstan), Samara Oblast, and Barnaul (Altay Krai). St. Petersburg played a separate role of a methodological hub to demonstrate a possible prototype of the RPS-IDU model to other regions. In each region, the pilot program is supported and monitored through a team of medical experts, government representatives, and NGOs.

3. Results: The Model RPS-IDU Program—A Case Study of Kazan, Republic of Tatarstan

Over the last decade, state-funded medical assistance for PWID in Kazan has undergone an extensive change from isolated individual projects to a comprehensive HIV prevention model. Under the leadership of the Antidrug Commission in the Republic of Tatarstan, a new HIV prevention program was developed through the cooperation between governmental and nongovernmental organizations. Donor-supported NGO participation was facilitated through the USAID-funded program HIV Prevention for At-Risk Populations in Russia. The program's goal is to maximize HIV prevention service coverage of PWID using the

WHO/PEPFAR-Recommended Package of HIV Prevention Services acculturated to the Russian context.

To pilot the RPS-IDU program in Kazan, a Regional Expert Working Group (REWG) comprising members of state institutions and local NGOs was formed in May 2011. The REWG with PSI support assessed the expertise and experience of civil society organizations located in Kazan in developing a collaborative model of HIV prevention service delivery with state institutions. The assessment also documented the current risky behaviors of PWID and their access to and utilization of medical services.

The REWG has created a regional HIV prevention model that defines and provides a range of services for PWID. Components of the model include the following: (1) established NGOs deliver outreach and HIV prevention services to PWID and their codependants, including referrals to state medical institutions; (2) TB, sexually transmitted infections (STIs) clinics, and AIDS center provide diagnostic and treatment services; (3) state social services, NGOs, and PLHIV activists collaboratively organize social support programs.

At the implementation level, the program works with the following partners in Kazan.

(1) Public organization: "*Prevention and Initiative*" of the Republic of Tatarstan plays a key coordinating role in organizing outreach and case management activities for PWID in Kazan. The organization provides stationary and mobile low-threshold services to PWID and leads the network of NGO partners in the region. With support from the United Nations Office on Drugs and Crime (UNODC) and local government, the organization opened the low-threshold center "Ostrov" ("Island") for PWID in May 2009. The center offers a range of low-threshold services, which means that clients do not need to show ID or referral slips, or abstain from drug use in order to receive services offered by the center. The center's skilled psychologists, health providers, and peer counselors provide a number of services, including substance abuse counseling, HIV counseling, referrals to medical and social services, and HIV case management. Clients of the center can also receive informational materials on HIV, STIs, rehabilitation clinics and medical services, and access to personal hygiene services. In 2011, *Prevention and Initiative* received a large government grant to support activities previously supported with donor funding, including funding from the HIV Prevention for At-Risk Populations in Russia program.

(2) Autonomous charitable nonprofit organization: "*New Century*" has been working on the prevention of HIV infection since 1998. The organization's priorities in HIV prevention include ensuring universal access to prevention, treatment, care, and support for such vulnerable populations as sex workers, men who have sex with men, PWID, and migrants. The organization is based on the Republican STI Clinic and maintains close contacts with various ministries and agencies. The organization is staffed with highly professional specialists who have academic backgrounds and affiliations, as well as a significant practical experience.

(3) Social rehabilitation center for youth: "*Wind Rose*" opened in 2002 to assist the social rehabilitation of drug users by providing 12-step Narcotics Anonymous rehabilitation. The Center was founded with support of the NGO "*Faith*," an organization of close relatives and parents of people who use drugs. Staff of the center include volunteer exusers who have successfully completed a full course of rehabilitation. The program is funded by the city of Kazan. The center provides a social and psychological support following drug treatment at the governmental narcological and rehabilitation institutions of Kazan and the region. Services include a forum where recovering drug users receive education in a drug-free environment on coping with relapse and developing sobriety skills. "*Wind Rose*" is an essential referral point for the HIV Prevention for At-Risk Populations in Russia program clients who have received medically assisted treatment at government drug treatment centers.

(4) Nongovernmental organization: *Social Bureau* "*Phoenix*" was established in 2011. The NGO uses case management to help at-risk populations adapt to a normal life within society. "*Phoenix*" also engages in the prevention of infectious diseases, including tuberculosis, STIs, HIV infection, and viral hepatitis. The organization primarily targets prison inmates at the pre- and postrelease stages, many of whom have a history of injecting drug use and are living with HIV. "*Phoenix*" partners with the Center for Social Adaptation for the Homeless and Unemployed of the Republican Ministry of Labor and Social Protection, which provides social, medical, economic, and legal services to homeless people and people in difficult life situations.

By May 2012, 3057 PWID in Kazan, or approximately 46% of the total estimated number of PWID population in Kazan (6,600), had received more than one service included into the RPS-IDU approach. Noting the unmet need, the government recently allocated more funding for NGO service programs [13]. The model comprehensive HIV prevention program for PWID in Kazan provides accessible, client-friendly, quality prevention services in collaboration with state institutions. Through increasing state support, civil society organizations can consolidate, optimize, and maximize the delivery of cost-effective HIV prevention services.

4. Discussion

Given the diversity of health and social problems that PWID and their sexual partners experience, combination prevention is the most effective approach for preventing HIV infection and other blood-borne and sexually transmitted infections in PWID, their sexual partners, and their communities [14]. This approach should include a variety of medical and social services that can readily adapt to changing needs and circumstances. It is also important that the services are carefully coordinated at the local level [14].

Program implementation to date has fostered a growing engagement of federal and regional government authorities in PWID-focused NGO activities and increased coordination between medical services and NGOs. In all regions, NGOs that implement the program in cooperation with PSI receive increased technical and financial support from

local administrations through contracts and subsidies. Both NGOs and government organizations have been promoted to establish intra- and interregional partnerships that support the sharing of experiences, best practices, and information; communication within partnerships; preparation and dissemination of educational materials. Additional visits are organized for managers of outreach and case management programs to St. Petersburg where the program supports a methodological hub to provide first-hand experience through on-site training programs. The heightened participation of the federal government promotes the service program's sustainability.

Collaboration between government and civil society to develop the RPS-IDU has resulted in critical buy-in for the provision of HIV prevention services to at-risk populations and has created effective linkages across regions, sectors, and medical fields. The implementation of the RPS-IDU in Russia provides a blueprint for programs for PWID in other countries with similar HIV prevention needs.

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References

[1] Thomas F. Kresina, R. Douglas Bruce, Sandrine Pirard, Kevin Mulvey, Ricardo Sanchez Huesca, and Robert Lubran, "International expansion of the use of pharmacotherapies for the treatment of opioid dependence," *Clinical and Experimental Pharmacology*, vol. 2, no. 2, pp. 2–14.

[2] United Nations Office on Drugs and Crime, *World Drug Report 2010*, United Nations Publications, New York, NY, USA, 2010.

[3] World Health Organization, *The International Statistical Classification of Diseases and Related Health Problems*, WHO Press, 10th edition, 2010.

[4] World Health Organization, *Guidelines for the Psychosocially Assisted Pharmacological Treatment of Opioid Dependence*, WHO Press, 2009.

[5] World Health Organization, *Priority Interventions. HIV/AIDS Prevention, Treatment and Care in the Health Sector*, World Health Organization HIV/AIDS Department, 2010.

[6] UNAIDS, *Combination HIV Prevention: Tailoring and Coordinating Biomedical, Behavioural and Structural Strategies To Reduce New HIV Infections*, A UNAIDS Discussion Paper, Geneva, Switzerland, 2010.

[7] V. V. . Kirzhanova and O. V. Sidoryuk, *Indicators of General and Primary Morbidity-Related Drug Disorders in the Russian Federation During 199-2009*, 2010.

[8] *Information Bulletin No 34 of the Federal Scientific-Methodological Center for the Prevention and Control of AIDS in the Russian Federation*, 2010.

[9] S. A. Koryakin and S. A. Tsarev, "Implementation of indirect evaluation methods to identify the hidden contingent of IDUs in chapaevsk of the samara region," *Journal of Addiction Problems (Voprosy Narkologii)*, vol. 1, pp. 43–45, 2012.

[10] *Information Bulletin no 33 of the Federal Scientific-Methodological Center for the Prevention and Control of AIDS in the Russian Federation*, 2009.

[11] J. Antoun, F. Phillips, and T. Johnson, "Post-Soviet transition: improving health services delivery and management," *Mount Sinai Journal of Medicine*, vol. 78, no. 3, pp. 436–448, 2011.

[12] T. F. Kresina, R. Lubran, and L. W. Cheever, "Substance abuse treatment utilizing medication assisted treatment as HIV prevention," in *HIV Prevention*, chapter 26, pp. 527–548, Intech Publishers, 2011.

[13] "Resolution of the cabinet of ministers of the republic of tatarstan No. 781," On Adoption of the Republican Targeted Program Support of Socially Oriented Non-Profit Organizations in the Republic of Tatarstan in 2011-2013, 2011, http://prav.tatarstan.ru/rus/docs/post/post1.htm?page=31&pub_id=95032.

[14] National Institute on Drug Abuse, *Principles of HIV Prevention in Drug-Using Populations*, NIH Publication No. 02-4733, A Research-Based Guide, 2002.

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Review Article

Substance Abuse Treatment, HIV/AIDS, and the Continuum of Response for People Who Inject Drugs

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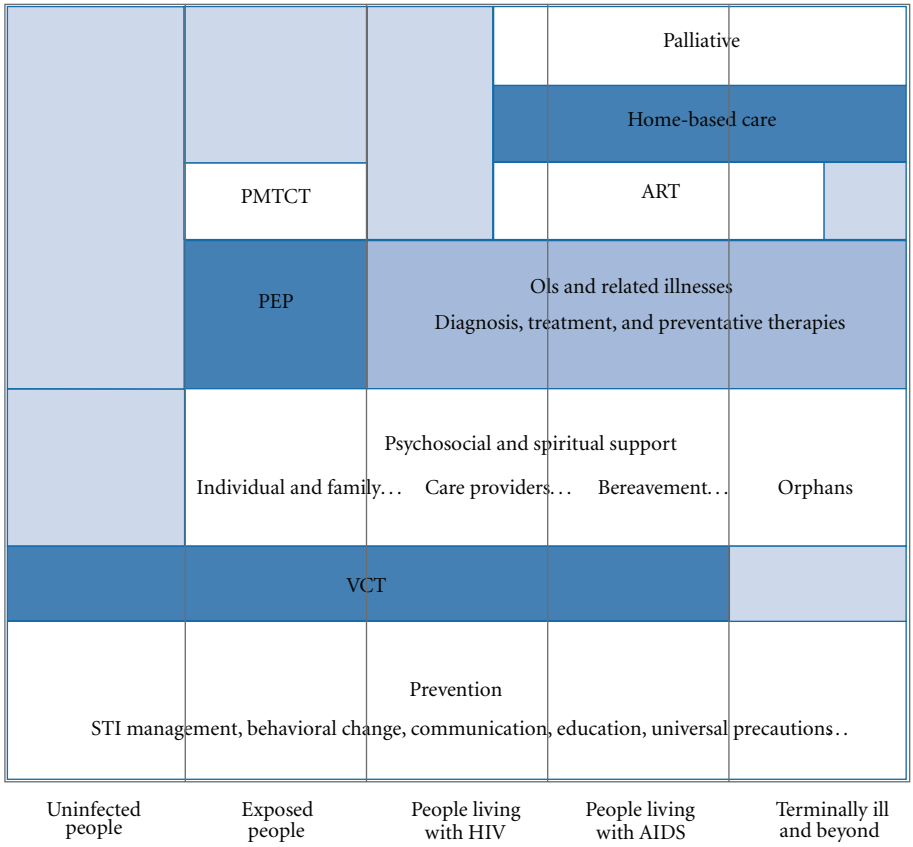
The continuum of response (CoR) to HIV/AIDS is a framework for implementation of HIV prevention, care, and treatment programs based on a national strategic plan for HIV/AIDS services. The CoR for people who inject drugs (PWID) is an important extension of the developed CoR to HIV/AIDS. The CoR-PWID employs stakeholders who together plan, develop, pilot, and provide a full range of services that address the various prevention, care/support, and treatment needs of people, families, and communities infected or affected by HIV/AIDS and injection drug use. The CoR-PWID comprises a broad range of services that include but are not limited to the World Health Organization priority interventions for HIV/AIDS prevention, treatment, and care in the health sector and the package of essential interventions for the prevention, treatment, and care of HIV for people who inject drugs. Implementation of these well-defined, essential prevention, care/support, and treatment services, in addition to locally defined needed services, in a coordinated fashion is important to clients, their families, and communities. The CoR-PWID is, therefore, a necessary framework essential for service development for countries that address HIV/AIDS in populations of PWID.

1. The CoR to HIV/AIDS

HIV/AIDS is a complex disease that results in complex needs from patients infected with the virus, their partners, extended family members, and communities [1]. The concept of a continuum of care to provide for the needs of patients, family members, and communities affected by HIV/AIDS was developed early in the epidemic [1]. A comprehensive HIV/AIDS care continuum framework was proposed and consisted of patient discharge planning and referrals among health facilities treating patients with HIV/AIDS and services that included voluntary counseling and testing, community-based services, blood transfusion services, self-help groups, and home care. The care continuum for HIV/AIDS was expanded to encompass the needs of care providers including home care providers [2]. The expansion proposed an international care agenda that included policy strategies that focused on the caregiver where a range of public, private, and no-governmental sectors would come together with the common purpose of insuring that households affected by HIV/AIDS are protected and supported to ensure survival. The CoR to HIV/AIDS builds on these previous models by developing a framework that strengthens national leadership while delivering improved broader health outcomes [3]. This new paradigm supports country ownership and enhances a sustainable national AIDS response to the epidemic. The paradigm has stakeholders planning and providing a full range of services to address the various prevention, care/support, and treatment needs of people, families, and communities infected or affected by HIV/AIDS. The goal is to maximize health outcomes through approaches that decrease HIV transmission, slow disease progression and improve the sense of wellbeing at the individual, family, and community levels. This goal is obtainable as shown by the CoR for HIV/AIDS developed in the United States through the Ryan White HIV/AIDS program. This program creates a true medical home for patients with HIV/AIDS through the support



Source: Van Praag E. Galen training—continuum of HIV care. International association for physicians in AIDS care (IAPAC), 2004.

Figure 1: Continuum for a comprehensive response to HIV/AIDS.

of a coordinated team of health care providers delivering high-quality medical care as well as psychological/psychiatric services, substance abuse treatment, adherence counseling, and social services [4]. Thus, the CoR for HIV/AIDS comprises well-defined essential prevention, care/support, and treatment services (shown in Figure 1), in addition to locally defined needed services. These services when provided in a coordinated fashion to clients, family members, and communities are highly effective [5]. Effective prevention, care/support, and treatment services included in the CoR for HIV/AIDS are identified based on (a) community needs and on epidemiologic data, (b) strategies defined locally, (c) assessed individual needs, and (d) the needs that change over time or life-span approaches.

At the individual level, the CoR results in the government orchestrating a health system that identifies populations at-risk and maintains them in appropriate programs that provide services to address identified needs through the lifespan. Prevention services are available for those at-risk for HIV infection and care and treatment services are provided if the individual becomes HIV infected. The CoR also provides for their non-HIV needs through the provision of social, legal, and other wrap around services insuring their ability to access HIV prevention, care, and treatment services.

At the family level, family engagement can facilitate HIV prevention, care, and treatment. The use of patient and family advisors results in improved health outcomes including decreased length of stay in inpatient facilities and higher patient satisfaction [6]. Family-centered care can improve access to and retention in care, particularly for women and children in maternity scenarios where collaborative care and health care integration are successful and sustainable practices [7].

At the community level, engagement of PWID and are HIV infected in the planning and delivery of services in the CoR can improve service delivery through the determination of need, prioritization of service, assessment of quality of services and elimination of barriers to accessing services. Alternatively, engagement of the community to address HIV/AIDS through public education and community mobilization on community health can result in adolescents increasing their knowledge base of health risks and communication on health issues and adults increasing their understanding of adolescent issues related to HIV/AIDS [7, 8].

Through the development of a CoR, countries can provide a comprehensive system of prevention, care, and support to meets the health needs of their people. As the US Global Health Initiative recognizes, the CoR is needed, not only for particular diseases such as HIV, but also for the whole range of public health issues including injection drug use.

Table 1: Listing of internationally accepted essential interventions for HIV prevention for people who use drugs.

(1) Needle and syringe programmes (NSP)/syringe service programs (SSP)
(2) Substance use disorder treatment, including medication-assisted treatment (MAT) and opioid substitution treatment (OST)
(3) HIV counselling and testing (HCT)
(4) Antiretroviral therapy (ART)
(5) Prevention and treatment of sexually transmitted infection (STI)
(6) Condom distribution programs for PWID and their sex partners
(7) Targeted information, education, and communication (IEC) for PWID and their sex partners
(8) Vaccination, diagnosis, and treatment of viral hepatitis infection
(9) Prevention, diagnosis, and treatment of tuberculosis

2. The CoR to HIV/AIDS for PWID

The CoR-PWID is a service platform for a national response to an HIV/AIDS epidemic. While there are national HIV/AIDS epidemics that are mainly limited to key populations such as injection drug users, for example the HIV/AIDS in Vietnam, diffusion of HIV infection from key populations to the general population through various social constructs has been documented [9]. Therefore, virtually every country can benefit from the development of a CoR-PWID as part of its national HIV/AIDS strategy. The combination prevention program included in the CoR-PWID improves access to the health system for PWID thereby improving their health outcomes. In addition, the CoR-PWID promotes the health integration of the prevention services as well as sustainability of the combination prevention services. The result is a set of combination prevention services that thoroughly and strategically address the risk of HIV transmission and acquisition for key populations. When fully developed and implemented, the CoR-PWID provides a continuum of linked prevention, care, and treatment services for people who inject drugs. Combination prevention programs for PWID are based on the premise that no single intervention is fully efficacious in the prevention of HIV transmission and its acquisition. Rather, they are the set of optimal biomedical, behavioral, and structural interventions, of high quality, implemented at a national scale and targeting key populations that impact the HIV epidemic for key populations.

Case Study. (A model for retention and continuity of care and treatment for opioid-dependent injection drug users.) A nongovernment organization (NGO) worked collaboratively with the National Government to develop and implement a model program of retention and continuity of care for opioid dependence and HIV infection. The model utilizes the National Detoxification Service, State AIDS Centers, NGO managed opioid treatment and rehabilitation centers, NGO outreach programs, and the community. The model program was developed and implemented as a pilot demonstration project to provide essential health services to injection drug users and retain them in care. The interventions developed and implemented comprised HIV testing and counseling, HIV/AIDS opioid dependence postgraduate curriculum for care providers, peer support groups, opioid detoxification, and treatment follow-up phone monitoring, women's opioid dependence support services and short messaging services (SMS) for targeting injection drug users. These services and interventions promoted the integration and utilization of HIV/AIDS health services and opioid treatment services to form an evidence-based health service delivery model providing essential services to PWID and people living with HIV/AIDS [10].

Combination prevention interventions, as shown in the case study above, comprise a broad range of services that include specific targeted interventions addressing both injection drug use and HIV infection. Such interventions are articulated in the WHO priority interventions for HIV/AIDS prevention, treatment and care in the health sector [11], and the WHO, UNODC, and UNAIDS the package of essential interventions for the prevention, treatment and care of HIV for people who inject drugs [12]. These well-defined essential prevention, care/support, and treatment services, in addition to locally defined services are important to clients, family members, and communities. These evidence-based interventions, shown in Table 1, require four important characteristics as part of their implementation in a CoR-PWID to maximize effectiveness. These interventions need to be (a) part of a public health policy, (b) human rights-based, (c) gender responsive, and (d) community owned. These essential interventions integrated into the set of priority interventions for HIV/AIDS prevention, care, and treatment in the health sector (Table 1) form the basis of a national framework for the set of interventions and service comprising the CoR-PWID.

As noted earlier, no single intervention will prevent or reverse the growing national HIV epidemics due to injection drug use and abuse. The greatest impact will be obtained when the interventions are provided through an integrated services platform in a comprehensive high-quality fashion that is scaled nationally. And in order to reach all of those seeking HIV prevention, care, and treatment services, health service platforms need to provide an enabling environment that establishes confidentiality. Also, programs need to develop patient-provider trusting relationships. Both community outreach and peer-to-peer services can promote full service utilization. If the national Ministries of Health embrace and support these health services and interventions

through a supportive legal and policy framework, the CoR-PWID will be validated as part of the national public health strategy to address the HIV/AIDS epidemic.

3. Substance Abuse Treatment as HIV Prevention and Part of the CoR-PWID

People who inject drugs face multiple health and social risks from injection practices as well as the lifestyle of drug use and abuse [13, 14]. Injection practices, which include unsterile injection practices, contaminated drug paraphernalia, and drug adulterants, enhance the risk of drug overdose, infections from bacterial, fungal, and protozoal pathogens and parenterally acquired viral infections, including HIV and hepatitis [15]. Lifestyle events, such as homelessness, poverty, mental illness, or family abandonment, as well as lifestyle behaviors, such as multiple sexual partners or criminal behavior, increase the risk of sexually transmitted infections and comorbidities. The medical cooccurring conditions are specifically prevalent in key populations, especially PWID. Estimates for the population of PWID are available for at least 130 countries with approximately 78% of the 13.2 million people who inject drugs living in developing or transitional countries [16].

Forty-one countries have reported a high prevalence (>5%) of HIV infection in key populations (PWID, sex workers, and men having sex with men). Globally, PWID now account for at least 10% of all new HIV infections which are estimated at 5 million per year [17]. In chronic HIV infection, AIDS has been reported as the leading cause of death in PWID [18]. Epidemiological data of HIV infection show that generalized HIV epidemics can result from diffusion transmission of HIV from key populations. Thus, it is important for countries and regions, as part of the CoR-PWID, to undertake surveillance studies to identify current drug use patterns and develop the best practices for the treatment of individuals who inject and abuse illicit drugs.

Drug injection can rapidly develop into drug dependence, a chronic, relapsing neurophysiological disease resulting from the prolonged physiological effects of drug(s) acting in the brain. The neurochemical abnormalities occurring in the brain that result from chronic use and drug injection are the underlying cause of many of the observed physical and behavioral aspects of abuse and dependence. The brain abnormalities associated with addiction are wide ranging, complex, and long lasting [19–21]. They can involve abnormal brain signaling pathways, psychological conditioning or stress, and social factors that result in drug cravings leading to a predisposition to relapse even months or years after drug(s) use cessation. Thus, substance abuse/dependence can be most effectively addressed in a multifaceted medical-based paradigm to address the complex changes in the brain along with other comorbidities. The medical-based paradigm comprises a comprehensive program of interventions delivered through the course of long-term treatment. Comprehensive treatment programs include behavioral, social rehabilitative components, and biological (pharmacological) components comprising a continuum of care, as shown in Table 2. Behavioral therapy interventions have been extensively researched and are critical components of the treatment of all drug addictions. Social rehabilitative components are also important as an integral element of a treatment environment and as a wrap-around service.

The use of medications, as part of comprehensive substance abuse treatment, is particularly important for PWID and who abuse opioids or who are opioid dependent [12]. Globally the most common medication used for the treatment of opioid dependence is methadone [22]. Methadone is an opioid agonist whose use in treatment and research is controlled by international conventions. The international conventions allow for differing levels of regulation for individual countries that utilize methadone. Thus, in a highly regulated and structured environment, as in the United States, methadone is dispensed daily at Opioid Treatment Programs (OTPs). These OTPs are increasingly providing wrap-around services to address important patient needs, enhance time in treatment, and promote recovery. Alternatively, methadone can be provided to patients in treatment through prescription or through specific regulated pharmacies.

An alternative medication to methadone is buprenorphine, a partial opioid agonist. Buprenorphine, while regulated, can be prescribed in a primary health care setting even in a highly regulated and structured environment. Thus, opioid dependence treatment can be accessed and provided similar to other illnesses with the result being reduced stigma/discrimination. As part of the CoR-PWID, both medications can be a component of a substance abuse treatment programs in an effort to address the reduced quality of life as well as reduced physical and mental functioning commonly found in drug injectors and drug abuse/dependence [23].

Naltrexone is a nonnarcotic prescription medication for use in relapse prevention to opioid use. Unlike methadone, there is no negative reinforcement (opioid withdrawal) upon discontinuation. Naltrexone is most effective when utilized subsequent to the medical detoxification from opioids. The effectiveness of naltrexone treatment depends upon patient motivation and a social support system that promotes medication adherence [24].

Depot-naltrexone (Vivitrol) addresses the reduced medication adherence of oral naltrexone through a monthly injectable formulation. Increased medication adherence was shown in a recent Phase 3 clinical trial that confirmed Vivitrol's safety and efficacy in the prevention of relapse to heroin use in a cohort of injection drug users [25]. Currently, studies are underway to determine the most efficacious service model(s) for the use of depot-naltrexone in the treatment of relapse prevention to heroin use and as part of the CoR for opioid users.

Until recently, the global availability and consumption of opioid agonists, such as methadone and buprenorphine, as well as opioid antagonists, such as naltrexone, have been below the levels needed for international research to demonstrate local efficacy and to develop local evidence-based best medical practices [26, 27]. In addition, the global

Table 2: Elements of the continuum of care for people who use drugs, abuse, or are drug dependent.

(1) Prevention of drug initiation
Individual targeted interventions through the lifespan
Family-targeted interventions
Community interventions
(2) Identification of substane use conditions
Screening for drug use
Case finding
Assessment and diagnosis
(3) Initiation and engagement in drug treatment
Brief intervention
Promoting engagement, case management/care navigators
Detoxification/withdrawal management
Assessment of social, comorbid medical conditions, and cooccurring disorders
(4) Long-term treatment of substance use illness
Psychosocial
Pharmacotherapy
Treatment of comorbid medical conditions and cooccurring disorders
Promotion of treatment engagement and social stability through legal, social, educational, financial support
(5) Primary care and posttreatment management of patient
Recovery
Medical home
Relapse prevention
Rehabilitation

availability and use of methadone has not been sufficient to implement the well-documented efficacy shown for the treatment of opioid dependence that has been developed by research over the last 40 years [27]. However, a strong research base in Western countries has resulted in the development of evidence-based medical practices using opioid agonists in maintenance treatment regimens and opioid antagonists in relapse prevention strategies. The recognition of these evidence-based medical treatment for opioid abuse and dependence has resulted in a substantial global increase in the medical use of opioid agonists and psychotropic medications to address opioid dependence [28–30]. This increase is particularly evident in the initiation of new pharmacotherapy programs in regions of Europe, North America, Africa, Asia, and Oceania. While in other regions of the world, the medical use of opioid agonists and psychotropic medications have not substantially increased; the implementation of pharmacotherapy programs have begun as part of the global effort to reduce HIV/AIDS. These HIV prevention programs have utilized medications as an element of programs that target injection drug users to reduce their risk of both acquiring and transmitting HIV infection. Thus, the recent international expansion of the use of pharmacotherapy for opioid dependence as a result of efforts to increase access and availability of evidence-based treatments for opioid dependence as well as efforts to reduce the spread of infectious diseases, such as HIV/AIDS, a life priority of PWID.

Addressing the life priorities of opioid users in the CoR-PWID is important to enhance the quality of life of the patient in treatment, promote treatment acceptance, and further develop the trusting patient-provider relationship. Life priorities for opioid users have been reported as concerns about HIV and treatment of infection with HIV, housing, money, and protection from violence [31]. The CoR-PWID with its integrated approach to services for HIV/AIDS and injection drug use is centrally positioned to address the life priorities of opioid users.

Substance abuse is a complex medical disorder composed of multiple physiologic, social, and behavioral problems often interrelated with psychological illness. As part of the CoR-PWID, health care providers need to screen people who inject drugs for psychological illness as well as associated trauma and abuse [32]. Although PWID may be self-medicating due to a history of trauma or abuse, an initial focus on the medical treatment of drug abuse is often necessary to create sufficient patient stability from which other treatments can begin. Patient stability is further increased with gender-based, trauma-informed care, and treatment coupled to both mental health services and substance abuse treatment, thereby enhancing the medical outcomes of treatment for other comorbidities [33]. An effective treatment strategy for PWID is to match a comprehensive treatment plan to the individual's particular substance abuse problems and needs. Desired treatment outcomes should (a) reduce

dependence on drugs of abuse, (b) reduce morbidity and mortality of and associated with drugs of abuse, and (c) maximize the patients' abilities to access services and achieve social integration.

4. HIV Prevention in the CoR-PWID: Integrating Medication-Assisted Treatment into HIV Prevention Services

Medication-assisted treatment or MAT is the use of medications coupled to behavioral therapies as part of a comprehensive substance abuse treatment program [34]. MAT has three main stages or phases of treatment: induction, or the introduction of medications into the patients treatment program; stabilization, or the determination of an appropriate dose of medication for patient stabilization; and maintenance, or long-term administration of the stabilizing dose. After long-term treatment the patient may elect to end MAT as part of their long-term treatment program. So an additional stage/phase can be the titer or ending of medication treatment. PWID and who are opioid dependent travel through the three stages of treatment, sometimes linearly and sometimes with oscillations between phases. The ultimate goal upon entering MAT is a good clinical outcome, which includes the recovery from opioid abuse and dependence and the social reintegration back into society. The individual in recovery is a participating in the CoR-PWID to the fullest extent as a functioning member of the community contributing to the social fiber and health of the community. Thus, a fundamental component of the CoR-PWID and a foundation of MAT are the obtainment of recovery from opioid abuse and dependence [34].

Established MAT programs can frequently be found as a stand-alone service with limited to none prevention services integrated into the treatment program. However, there are important CoR HIV prevention interventions for PWID and their integration into MAT programs is important as HIV prevention interventions. They are the provision of clean needles and syringes through syringe service programs and associated HIV testing and counseling programs. These HIV prevention interventions, when integrated into MAT programs, maximize the enrollment in MAT programs and thereby maximize HIV prevention efforts [35, 36]. Maximizing HIV prevention efforts targeting PWID and those dependent on opioids are critical to prevent HIV infection in key populations.

Integrating drug abuse treatment and early HIV prevention interventions, particularly HIV testing and counseling, are important as CoR-PWID components of the newly emerging Seek, Test, Treat and Retain strategy [37, 38]. This is an engagement and retention strategy that outreach workers can employ with PWID to reduce their risk for HIV infection. Outreach workers can be employed to seek out PWID, establish their HIV status through HIV testing, counsel sexual risk reduction, and thereby address HIV risk behaviors with a subsequent emphasis on treatment for their substance use disorder.

As noted earlier, there is not significant integration of HIV testing and counseling in MAT as part of the CoR-PWID. In the USA, while approximately 90% of opioid treatment programs provide some form of federally mandated HIV/AIDS education, only 74% of opioid treatment programs offered HIV testing [39]. These services appear underutilized in that approximately one-in-three persons receiving substance abuse treatment also received HIV testing and counselling [40]. Globally, although substantial efforts are being made to increase the availability of HIV testing, key populations remain underserved with regard to HIV prevention services. It is estimated that only 10% of persons at-risk for HIV infection receive HIV testing. Thus, strategies such as opt-out testing, home-based testing, door-to-door testing, and providing dedicated HIV testings counselors at point-of-service locations are being utilized as part of the CoR-PWID. Studies have shown that key populations prefer point-of-service HIV testing, however, this intervention requires additional measures to support HIV-positive individuals entering into HIV care and treatment [41].

5. HIV Transmission Prevention in CoR-PWID: Integration of MAT into HIV Care and Treatment

A significant factor in not reducing the global HIV epidemic is the lack of entrance into HIV care and treatment by key populations. These populations, which include PWID, encounter numerous barriers in accessing HIV care and treatment. In addition, once in treatment these individuals often suffer stigma and discrimination as they receive their needed medical care. The result is an increase in the prevalence of medical and psychiatric comorbidities for PWID, as well as social issues and high-risk behaviors. PWID also have the worse clinical outcomes with a higher mortality rate compared to the nondrug using populations infected with HIV [42].

The increased mortality rate noted in PWID is related to their late presentation for HIV care. Patients who present late for care and treatment of HIV/AIDS are at a higher risk of significant clinical complications and are thus more difficult to clinically manage. Late presentation for treatment of HIV/AIDS is a common scenario leading to death [43]. A recent study has documented a highly lethal neurological syndrome found in HIV-infected drug abusers [44]. Although rare, the newly described syndrome is highly lethal with a mean survival time of 21 days after diagnosis. The authors suggest that access and initiation of antiretroviral therapy may provide a better outcome for these patients. In addition, substance abuse treatment, particularly MAT, which has been shown to enhance the health status and quality of life of PWID, as well as reduce mortality, would be an important adjunct to antiretroviral treatment for these patients. Thus, as noted earlier, integrating both MAT with antiretroviral treatment in a HIV primary care setting is important to optimize the CoR-PWID.

How MAT can be integrated in HIV primary care programs depends on the country's regulatory framework. In the United States, medications except methadone, can be prescribed to patients in a HIV primary care or outpatient HIV clinical care setting. The federal regulations in the United States require methadone to be dispenses in OTPs. However, in this setting studies have shown that HIV care and antiretroviral treatment can be effectively prescribed either as directly observed therapy or as routine care. Other countries, such as Australia, have less stringent federal regulations for prescribing controlled medications and all medications comprising MAT can be provided in a primary care setting. In either case, the important aspect of providing integrated MAT and HIV primary care is the single location/clinic. In that case, the patient can receive all the needed services to support their recovery from drug dependence as well as care and treatment for HIV infection.

6. Conclusion

The CoR-PWID is an essential tool in the HIV prevention toolbox of national HIV/AIDS prevention, care, and treatment strategies that address concentrated HIV epidemics related to injection drug use. Implementation at a national level of these well-defined, essential prevention, care/support, and treatment services, in particular MAT for opioid dependence, is fundamental for the CoR-PWID. The addition of these services to locally defined services results in the prevention of incident infections and HIV transmission, through the development of important health services for people living with HIV, their families, and communities.

References

[1] E. Van Praag, "Shared responsibility between all affected by HIV / AIDS. "Comprehensive care across a continuum"," *Aids Asia*, vol. 2, no. 4, pp. 10–15, 1995.

[2] J. Ogden, S. Esim, and C. Grown, "Expanding the care continuum for HIV/AIDS: bringing carers into focus," *Health Policy and Planning*, vol. 21, no. 5, pp. 333–342, 2006.

[3] E. Goosby, D. Von Zinkernagel, C. Holmes, D. Haroz, and T. Walsh, "Raising the bar: PEPFAR and new paradigms for global health," *Journal of Acquired Immune Deficiency Syndromes*, vol. vol 60, supplement 3, pp. S158–S162, 2012.

[4] M. Saag, "Viva no difference," *Clinical Infectious Diseases*, vol. 55, no. 9, pp. 1252–1254, 2012.

[5] R. D. Moore, J. Keruly, and J. D. Bartlett, "HIV/AIDS: improvement in the health of HIV-infected persons in care: reducing disparities," *Clinical Infectious Diseases*, vol. 55, pp. 1242–1251, 2012.

[6] N. Warren, "Involving patient and family advisors in the patient and family-centered care model," *MEDSURG Nursing*, vol. 21, no. 4, pp. 233–239, 2012.

[7] M. D. Avery, O. Montgomery, and E. Brandl-Salutz, "Essential components of successful collaborative maternity care models: the ACOG-ACNM project," *Obstetrics & Gynecology Clinics of North America*, vol. 39, no. 3, pp. 423–434, 2012.

[8] M. Carlson, R. T. Brennan, and F. Earls, "enhancing adolescent self-efficacy and collective efficacy through public engagement around HIV/AIDS competence: a multilevel, cluster randomized controlled trial," *Social Science & Medicine*, vol. 75, no. 6, pp. 1078–1087, 2012.

[9] B. Rachlis, K. C. Brouwer, E. J. Mills, M. Hayes, T. Kerr, and R. S. Hogg, "Migration and transmission of blood-borne infections among injection drug users: understanding the epidemiologic bridge," *Drug and Alcohol Dependence*, vol. 90, no. 2-3, pp. 107–119, 2007.

[10] E. Dmitrieva, S. A. Frolov, T. F. Kresina, and W. Slater, "A model for retention and continuity of care and treatment for opioid dependent injection drug users in the Russian Federation," *Health*, vol. 4, pp. 457–463, 2012.

[11] World Health Organization, *Essential Prevention and Care Interventions for Adults and Adolescents Living with HIV in Resource-Limited Settings*, WHO Press, Geneva, Switzerland, 2008.

[12] World Health Organization, *WHO,UNODC, UNAIDS Technical Guide for Countries to Set Targets for Universal Access to HIV Prevention, Treatment and Care for Injection Drug Users*, WHO Press, Geneva, Switzerland, 2009.

[13] K. S. Kaushik, K. Kapila, and A. K. Praharaj, "Shooting up: the interface of microbial infections and drug abuse," *Journal of Medical Microbiology*, vol. 60, no. 4, pp. 408–422, 2011.

[14] S. Hillis, L. Zapata, C. L. Robbins et al., "HIV seroprevalence among orphaned and homeless youth: no place like home," *Journal of Acquired Immune Deficiency Syndromes*, vol. 26, no. 1, pp. 105–110, 2012.

[15] G. L. Reynolds, D. G. Fisher, and L. E. Napper, "Assessment of risky injection practices associated with hepatitis B, hepatitis C, and human immunodeficiency virus and using the blood-borne virus transmission risk assessment questionnaire," *Journal of Addictive Diseases*, vol. 31, no. 1, pp. 80–88, 2012.

[16] C. Aceijas, G. V. Stimson, M. Hickman, and T. Rhodes, "Global overview of injecting drug use and HIV infection among injecting drug users," *Journal of Acquired Immune Deficiency Syndromes*, vol. 18, no. 17, pp. 2295–2303, 2004.

[17] IHRDP (International Harm Reduction Development Program), "*Harm reduction developments 2005: countries with injection-driven HIV epidemics*," Open Society Institute, New York, NY, USA, 2006, http://www.soros.org/initiatives/health/focus/ihrd/articles_publications/publications/ihrdreport_20060417/ihrd_ar.pdf.

[18] J. Chin, *The AIDS Pandemic: The Collision of Epidemiology with Political Correctness*, Radcliffe, Oxford, UK, 2007.

[19] K. Goodkin, "Evolution of neuro-AIDS during the HAART era," *Journal of Neuro-AIDS*, vol. 2, no. 3, pp. 1–17, 2002.

[20] R. Ellis, D. Langford, and E. Masliah, "HIV and antiretroviral therapy in the brain: neuronal injury and repair," *Nature Reviews Neuroscience*, vol. 8, no. 1, pp. 33–44, 2007.

[21] G. Chana, I. P. Everall, L. Crews et al., "Cognitive deficits and degeneration of interneurons in HIV+ methamphetamine users," *Neurology*, vol. 67, no. 8, pp. 1486–1489, 2006.

[22] M. J. Kreek, L. Borg, E. Ducat, and B. Ray, "Pharmacotherapy in the treatment of addiction: methadone," *Journal of Addictive Diseases*, vol. 29, pp. 200–216, 2010.

[23] P. Millson, L. Challacombe, P. J. Villeneuve et al., "Determinants of health-related quality of life of opiate users at entry to low-threshold methadone programs," *European Addiction Research*, vol. 12, no. 2, pp. 74–82, 2006.

[24] D. R. Gastfriend, "Intramuscular extended-release naltrexone: current evidence," *Annals of the New York Academy of Sciences*, vol. 1216, pp. 144–166, 2011.

[25] E. Krupitsky, E. Zvartau, and G. Woody, "Use of naltrexone to treat opioid addiction in a country in which methadone and

buprenorphine are not available," *Current Psychiatry Reports*, vol. 12, no. 5, pp. 448–453, 2010.

[26] International Narcotics Control Board, "Report of the International Narcotics Control Board on the Availability of Controlled Drugs: Ensuring Adequate Access for Medical and Scientific Purposes," United Nations Publication, New York, NY, USA, 2011, http://www.ondcp.org/.

[27] M. J. Kreek, L. Borg, E. Ducat, and B. Ray, "Pharmacotherapy in the treatment of addiction: methadone," *Journal of Addictive Diseases*, vol. 29, no. 2, pp. 209–216, 2010.

[28] B. M. Mathers, L. Degenhardt, H. Ali et al., "HIV prevention, treatment, and care services for people who inject drugs: a systematic review of global, regional, and national coverage," *The Lancet*, vol. 375, no. 9719, pp. 1014–1028, 2010.

[29] B. M. Mathers, L. Degenhardt, B. Phillips et al., "Global epidemiology of injecting drug use and HIV among people who inject drugs: a systematic review," *The Lancet*, vol. 372, no. 9651, pp. 1733–1745, 2008.

[30] T. F. Kresina, R. D. Bruce, and S. Pirard, "International expansion of the use of pharmacotherapies for the treatment of opioid dependence," *Clinical & Experimental Pharmacology*. In press, http://www.omicsonline.org/ArchiveCPECR/articleinpressCPECR.php.

[31] Y. Mizuno, D. Purcell, T. M. Borkowski, and K. Knight, "The life priorities of HIV-seropositive injection drug users: findings from a community-based sample," *AIDS and Behavior*, vol. 7, no. 4, pp. 395–403, 2003.

[32] M. A. Schuckit, "Comorbidity between substance use disorders and psychiatric conditions," *Addiction*, vol. 101, no. 1, pp. 76–88, 2006.

[33] A. R. Gilbert, J. P. morrissey, and M. E. Domino, "Service utilization patterns as predictors of response to trauma-informed intergated treatment for women with co-ocurring disorders," *Journal of Dual Diagnosis*, vol. 7, no. 3, Article ID 11729, 2011.

[34] Substance Abuse and Mental Health Services Adminsitation (SAMHSA), "Medication-assistd treatment for opioid addiction in opioid treatment progams: a treatment improvment protocol," Treatment Improvement Protocol, 2006, http://www.ncbi.nlm.nih.gov/books/NBK64164/.

[35] M. Kidorf, V. L. King, K. Neufeld, J. Peirce, K. Kolodner, and R. K. Brooner, "Improving substance abuse treatment enrollment in community syringe exchangers," *Addiction*, vol. 104, no. 5, pp. 786–795, 2009.

[36] J. J. Lloyd, E. P. Ricketts, S. A. Strathdee et al., "Social contextual factors associated with entry into opiate agonist treatment among injection drug users," *American Journal of Drug and Alcohol Abuse*, vol. 31, no. 4, pp. 555–570, 2005.

[37] N. D. Crawford and D. Vlahov, "Progress in HIV reduction and prevention among injection and noninjection drug users," *Journal of Acquired Immune Deficiency Syndromes*, vol. 55, no. 2, pp. S84–S87, 2010.

[38] A. Taege, "Seek and treat: HIV update 2011," *Cleveland Clinic Journal of Medicine*, vol. 78, no. 2, pp. 95–100, 2011.

[39] T. F. Kresina, C. Maxwell, M. W. Parrino, and R. Lubran, "Testing and counseling for hepatitis B, hepatitis C, and HIV infections in opioid treatment programs (OTP's). Summary results from two surveys," in *Proceedings of the CDC HCV Prevention Conference*, Washington, DC, USA, 2005.

[40] H. A. Pollack and T. D'Aunno, "HIV testing and counseling in the nation's outpatient substance abuse treatment system, 1995-2005," *Journal of Substance Abuse Treatment*, vol. 38, no. 4, pp. 307–316, 2010.

[41] S. Keller, J. Jones, and E. Erbelding, "Choice of rapid HIV testing and entrance into care in Baltimore City sexually transmitted infections clinics," *AIDS Patient Care and STDs*, vol. 25, no. 4, pp. 237–243, 2011.

[42] F. L. Altice, A. Kamarulzaman, V. V. Soriano, M. Schechter, and G. H. Friedland, "Treatment of medical, psychiatric, and substance-use comorbidities in people infected with HIV who use drugs," *The Lancet*, vol. 376, no. 9738, pp. 367–387, 2010.

[43] S. Moreno, A. Mocroft, and A. D. Monforte, "Medical and societal consequences of late presentation," *Antiviral Therapy*, vol. 15, no. 1, pp. 9–15, 2010.

[44] S. D. Newsome, E. Johnson, C. Pardo, J. C. McArthur, and A. Nath, "Fulminant encephalopathy with basal ganglia hyperintensities in HIV-infected drug users," *Neurology*, vol. 76, no. 9, pp. 787–794, 2011.

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Review Article

Methadone Maintenance Therapy in Vietnam: An Overview and Scaling-Up Plan

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Vietnam is among the countries with the highest rate of HIV transmission through injecting drug users. HIV prevalence among injecting drug users is 20% and up to 50% in many provinces. An estimated number of drug users in the country by the end of 2011 were 171,000 in which the most common is heroin (85%). Detoxification at home, community, and in rehabilitation centers have been the main modalities for managing heroin addiction until Methadone Maintenance Treatment (MMT) was piloted in 2008. Recent reports have demonstrated positive treatment outcomes. Incidence of HIV was found remarkably low among patients on MMT. Treatment has significantly improved the quality of life as well as stability for society. The government has granted the Ministry of Health (MoH) to expand Methadone treatment to at least 30 provinces to provide treatment for more than 80,000 drug users by 2015. The Vietnam Administration for HIV/AIDS Control (VAAC) and MOH have outlined the role and responsibility of key departments at the central and local levels in implementing and maintaining MMT treatment. This paper will describe the achievements of the MMT pilot program and the scaling-up plan as well as strategies to ensure quality and sustainability and to overcome the challenges in the coming years.

1. Introduction

As the end of May 2012, Vietnam had 171,000 registered drug users, in which 85% is Heroine users [1]. Drug use prevention and treatment has been a top priority of the Party and Government. Both supply and demand reduction programs have yielded the encouraging results. However, the achievements are just the first step, and there are many shortcomings and problems ahead. The relapse rate and number of drug-related crimes remain high.

Vietnam is among the countries with the highest rate of HIV transmission through drug injection [2]. The prevalence of HIV among injecting-drug users is 20% and cases attributable to drug injection account for 60%. The current rate of HIV in IDUs has reduced but remained high in some localities, namely, Dien Bien (56%), Quang Ninh (56%), Hai Phong (48%) and Ho Chi Minh (46%), Dong Nai and Nghe An (24%), Hanoi (21%), and Lao Cai (22%) [3].

Methadone has been proved as an effective medication for opioid dependence [4]. Methadone together with psychosocial therapies and support of the family and community has helped improve the health of drug users, reduce the crimes and rate of HIV transmission and other blood-borne diseases [5].

The guidance for implementation of the Law on HIV/AIDS stipulates Methadone is one of the measures to prevent HIV transmission among injecting drug users [6–8]. Per Ministry of Health's guideline on Opioid Dependence Treatment, Methadone serves three main purposes [9]: reduce the harms caused by using opioids, including HIV, hepatitis B, hepatitis C resulting from needle sharing, death from overdose and related criminal activities; reduce the illicit drug use and injection; and improve the quality of life of the addict. Per operation guidance, only registered addicts who are selected by the provincial selection committee are entitled for MMT treatment.

Hai Phong and Ho Chi Minh have been the two cities selected for the MMT pilot since 2008 [10]. Based on the results of the pilot project, the Government has allowed the expansion of the program to other cities. Hanoi was the third city in the country to provide MMT treatment for patients since the end of 2009. As of 30 June 2012, the national program has provided treatment for nearly 10,000 patients in 12 cities and provinces.

2. Data and Methods

We use available reports and documents to describe the implementation process and results of the program over the last four years. We refer to current policies which have important impacts on the MMT treatment program. We summarize the scaling-up plan and solutions for the anticipated challenges. We also refer to articles, reports, and guidance archived on MMT programs in other settings for discussion.

3. Results and the Scaling-Up Plan

After three years of implementation, Methadone treatment program in Vietnam has received strong supports from the Party, Government, and Ministries at all levels. Table 1 shows the number of patients and treatment clinics of 11 among 63 provinces and cities up to 30 June 2012. The most mature clinics started induction for patients in April 2008. The total of 44 MMT clinics has been providing Methadone treatment for 9,611 patients. Besides taking Methadone every day, patients benefit from variety of auxiliary services including counseling, accessing clean syringes and needles, condom, peer education, group and family meetings, HIV counseling testing, referral to Antiretro Viral Treatment (ARV), and other treatments when needed.

Independent studies and evaluations have showed positive achievements and have been a foundation to expansion of the pilot program. From the beginning, an ongoing cohort of 965 patients in Hai Phong and Ho Chi Minh City (HCMC) has been followed up and data available have been analyzed at third, sixth, and ninth month. The median age for the study population was 30 years (range from 16.6 to 58), the majority were males (95%). Most patients were living with their parents or siblings at the time of treatment initiation (84%), 37% living with spouse and children, and less than 10% staying with relatives or friends. Most patients were at low educational level, with less than 56% completed secondary education. Just over 27% were able to perform basic tasks and only 11% were employed at the time of the study, usually by the family business. Twenty-one percent (205) of patients were HIV, positive, and 16% (33) of them were on ARV by the ninth month on MMT.

After nine months, retention in the MMT treatment program was 90% [11]. The number dropped was mainly those were arrested due involvement in drug dealing and those dying of AIDS. The rate of patients failed to take Methadone once at least within 5 days or more is low (1%). The main causes of this adherence deficiency are the work

Table 1: Number of patients on MMT from August 2008 to June 2012.

Number	Province	Date operated	Clinic name	Number of patients on treatment
1	Hai Phong	4/2008	Le Chan	545
		4/2008	Thuy Nguyen	401
		8/2008	Ngo Quyen	293
		4/2011	Hai an	224
		6/2011	An Duong	317
		6/2011	An Lao	221
		7/2011	Hong Bang	196
		7/2011	Kien An	286
		3/2012	Duong Kinh	50
		6/2012	An Hung	20
			Subtotal	2553
2	Ho Chi Minh	5/2008	District 4	276
		5/2008	District 6	284
		5/2008	Binh Thanh	278
		1/2011	Thu Duc	141
		3/2011	District 8	278
			Subtotal	1257
3	Hanoi	12/2009	Tu Liem	247
		7/2010	Long Bien	239
		2/2011	Son Tay	109
		10/2010	Ha Dong	210
		11/2011	Hai Ba Trung	182
		5/2012	Dong Da	42
			Subtotal	1029
4	Can Tho	6/2010	Cai Rang	242
		6/2010	Ninh Kieu	240
		11/2011	O Mon	92
			Subtotal	574
5	Da Nang	9/2010	Clinic 1	129
		7/2011	Clinic 2	93
			Subtotal	222
6	Hai Duong	11/2010	Hai Duong City	268
		11/2010	Chi Linh	161
		10/2011	Kim Thanh	91
		7/2011	Kinh Mon	191
			Subtotal	711
7	Dien Bien	3/2011	Thanh Xuong	295
		10/2011	Noong Bua	240
		10/2011	Muong Ang	154
		3/2011	Tuan Giao	215
			Subtotal	904
8	Nam Dinh	3/2011	Nam Dinh	235
		7/2011	Giao Thuy	230
		7/2011	Xuan Truong	249
			Subtotal	714
9	Thanh hoa	5/2011	Thanh Hoa City	387

Table 1: Continued.

Number	Province	Date operated	Clinic name	Number of patients on treatment
			Subtotal	387
10	Thai Nguyen	10/2011	Dai Tu	262
		10/2011	Dong Hy	263
		11/2011	Pho Yen	248
		10/2011	Trung Thanh	147
		11/2011	Tuc Duyen	146
			Subtotal	1066
11	Quang Ninh	11/2011	Cam Pha	194
			Subtotal	194
Total number of clinics = 44				9,611

condition and distance from home that do not favor the patients to visit clinic on a daily basis. Prescribed MMT dose varies among patients. The lowest and highest daily doses are 5 mg and 470 mg, respectively, with an average of 109 mg per day. Dose also differs between patients on ARV treatment (150 mg) and not on ARV (100 mg).

Risk behaviors among patients under treatment have been reduced significantly. After 9 months, among patients who continued to use drug, only 56% of injected compared with 87% did before treatment. Only one patient reported sharing needle while 11%–30% before treatment. Almost (96%) of patients reported consistently use of condoms when having sex with sex workers. One new HIV seroconverted case found among 760 negative patients after nine months. This rate is much lower than the estimated HIV incidence among drug users before having the MMT pilot [12]. Testing result also showed that 9 and 72 patients had hepatitis B and hepatitis C, respectively. However, the confirmation of the result could not exclude the impact of the window period.

Quality of life of the patient has improved significantly. A study using the Kessler Psychological Distress Scale (K10)'s scale [13] showed the improvement in both physical and mental health. Before treatment, 80% of patients had a score greater than 15, the level of anxiety or depressive disorders and this rate dropped to 10% after nine months of treatment [14]. According to reports by the local police, the program has showed remarkably impact on the community's security where the clinic operated [15]. Meanwhile, the program has involved the local police to ensure patients adhere to the regulations set by the treatment program. It has been seen that conflicts within family and neighborhood have reduced to below 1% compared with 41% reported before addicts commenced the treatment [14]. Treatment has helped patients and their families save a remarkable amount of money previously used for buying drug, detoxification, and healthcare. Tran B showed cost-effectiveness of the treatment program in both medical and social aspects in the context of HIV/AIDS prevention, care, and treatment programs [16, 17]. At the same time, a rapid evaluation in Hai Phong has demonstrated that the investment in Methadone program significantly reduced costs compared to the compulsory detoxification model [18].

Monitoring and evaluation of technical activities have been carried out routinely. From the start of the pilot, MoH approved a protocol to evaluate the treatment effectiveness. Results have been publicized and shared periodically and widely among staff, patients, and policy makers. At the same time it has collaborated with different agencies and organizations to step by step finalize tools based upon national and international treatment standards. At the provincial level, upon having a consensus for implementation of MMT program, the People Council and People Committee has granted Department of Health, Labor and Public Security authorities and responsibilities to implement specific activities at all levels. The Department of Health has been the contact point to provide direction, coordination, and implementation of the program.

All activities have been closely coordinated by MoH through a national MMT technical working group. The group comprised of leaders and officers from VAAC, medical and social academic institutions, mental health hospitals, local and international donors, and organizations. Group members brought the technical support needs for VAAC to build and coordinate monthly technical support plans to each clinic. The United States President Emergency for AIDS Relief or PEPFAR has been the major donor for HIV/AIDS prevention, care, and treatment, including for the Methadone program. The United Kingdom's Department for International Department (DFID), World Bank, and Global Fund have supported facilities, staff and running costs and recently medication. The central and local governments have planned for an increase in the level of investment for HIV/AIDS services, including MMT to supplement the decline in the international funding. It has been clear that MOH and the international donors have been working in a principle of one national strategy and transparency to increase the impact of resources.

After reviewing the results of the pilot program, the government approved the expansion plan proposed by the MOH. Hanoi was the third city in the country has been approved to provide MMT treatment since the end of 2009. By then, nine provinces have proposed and had permission to implement the program. The target of 67 MMT clinics is set to provide treatment for 15,600 patients in 13 provinces by the end of 2012. MOH expected around 80,000 patients will be treated in 245 clinics by 2015. Total expenses estimated for the 2011-2012 period is USD 8.5 million. Methadone production domestically has been considered to use for the 2010–2015 period. It is estimated that the total amount of Methadone needed for this period is 1,724,990 liters with a concentration of 10 mg per mL, including 118,078 liters for 2010–2012 period.

MoH has directed relevant departments and worked with various ministries in the development of the Decree on Methadone maintenance treatment. This creates needed framework and terms for increasing access, expanding program, ensuring the sustainability and quality. It also helps increase the autonomy of provinces in implementing the program while following the standards and regulations set by the central government. Ultimately, the provincial departments of health will regularly inspect and supervise

the implementation. Expenses for building or renovating clinics as well as hiring staff will be borne by provinces.

While efforts have been spent for ensuring quality of treatment, significant movement in policies has been recognized regarding the promotion of community-based treatment. For the last five years, the government has expressed a desire to develop effective and friendly drug management modalities [6]. Accordingly, it proscribed opening of new compulsory detoxification centers and at the same time requested Ministry of Labor Invalids and Social Affairs (MOLISA) to develop a renovation project on drug treatment [19]. The ministry saw a number of opportunities for Vietnam in evolving community-based treatment services for drug users as well as HIV/AIDS. The first fee to pay MMT model managed by the Hai Phong Department of Labor Invalids and Social Affairs was approved to operate in 2011. Patients have received services similar to the clinics run by the Ministry of Health and agreed to pay less than half a dollar for the clinic to cover the operating expenses.

The recently approved plan to develop social work [20] has been the paramount foundation for having continuum of services for drug treatment and HIV/AIDS. Budgeted for over one hundred million dollars using almost central and local resources, MOLISA is assigned to lead this plan. Among restructuring human resources and building capacity for social work professionals, at least ten community-based centers will be established. HIV and drug treatment among other services will be provided in these centers.

4. Discussion

Medicated Assisted Therapy using Methadone has been applied around the world for many decades. Mattick et al. summarized epidemiologic research that shows the effectiveness of Methadone treatment. For Vietnam, it is not an exception that the program has brought benefits for patients and communities and has helped prevent HIV transmission. Methadone helps reduce the long term effects of opioid use and assists patient gradually return to a normal life. The program has integrated ancillary services that are critical in achieving the treatment outcomes [21]. Sufficient dose could have been associated with better retention rate [22]. The drastic direction and guidance from the Party and Government combined with the technical and financial assistances from donors are central to the successes of the program.

There are many challenges ahead in the expansion and maintenance of the program. The need for treatment is huge but the program capacity is limited. This creates an enormous pressure on the treatment facility and staff as well as the healthcare system. The proportion of patients treated by the end of 2012 is only 9% those need treatment, a low coverage index set by WHO [23]. The professional knowledge and skills on addiction treatment are limited. Most of the staff has no prior experience in general medicine and addiction in order to examine and communicate with patients comprehensively. Addiction treatment, particularly MMT is still the new field in Vietnam so the assistance for capacity building is always critical. While in-service training has been well implemented, integrating preservice training into course work for medical and social professionals could help sustain capacity for the field.

Although the two epidemics are interrelated, the policies on drug and HIV/AIDS prevention and treatment are not yet harmonized to maximize the advantages of services. The current addiction management modalities with limited evidence [24, 25] are the barriers to the treatment access. The role of local police is important in the overall drug control program; however, the decision on who should be on treatment should be determined using the standardized diagnosis. More information on the nature of addiction and recovery is needed to encourage access to treatment services. Yet the negative perceptions of community on drug users and regulations on drug rehabilitation make patients hesitant and fear to participate in any community-based treatment services, including MMT. They are often at risk of being sent to compulsory treatment if considered being bad users [26].

Nevertheless, significant progress has been made to facilitate the expansion. The recently released Law on Handling of Administrative Sanctions is the important legal framework to promote drug treatment in the community. In addition, treatment planning will include medical and drug dependence professionals in filing the case. Therefore, preparation for treatment services in the community, including MMT is urgently needed. Second, the government has aimed to strengthen the National Committee on Drug, HIV, and Prostitution from the central to local governments. This is an important strategy to promote collaboration and coordination of programs. Significant central and local budget has been approved for national target programs for the period 2012–2015. The allocation of budget shows the commitment of the government toward sustaining the achievements and ensuring the quality of services. Finally, there is a consensus from the national committee, ministries, provinces, and donors in harmonizing the resources. This is important in maximizing the use of resources in order to expand the available evidence-based practices.

5. Conclusion

For the past five years, the Government of Vietnam has given direction to maintain, sustain, and expand the MMT program after the successful pilot. MMT is among the key components of the HIV/AIDS program that the government has committed to allocate resources. Special attention has been paid to human and financial resources in the context of the decline in external funding. MOH, relevant ministries, institutions, and international partners have been working well together to plan, implement, and monitor MMT program at all levels. The national renovation plan on the compulsory rehabilitation modality is an important driving motivation for drug treatment. The current barriers to the treatment access will be resolved as a result of the expansion of the MMT program. The systematic integration of the Methadone treatment into primary health care and existing services, such as HIV/AIDS and mental health will be cost efficient. The consensus among all is the foundation to ensure the sustainability of the program. Close collaboration and coordination in the implementation of the MMT program

will continue to yield safe and secured services for patient, clinic staff, and the community. These will help maximize the use of resources for scaling-up and ensuring quality of treatment.

Conflict of Interests

All authors declare no conflict of interests.

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References

[1] Ministry of Public Security, Vietnam National Report on Situation of Illicit Drugs in 2011 and the first 6 months on 2012.

[2] UNICEF, Young People and HIV/AIDS, A UNICEF Factsheet, 2002.

[3] Government of Vietnam, Declaration of Commitment on HIV and AIDS (UNGASS) Report, 2012.

[4] DHHS/The Substance Abuse and Mental Health Services Administration, Medication assisted treatment (MAT), 2009.

[5] NIDA, Methadone research web guide, 2006, http://international.drugabuse.gov/educational-opportunities/certificate-programs/methadone-research-web-guide.

[6] Government of Vietnam, Decision 1001/QD-TTg on National Strategy on Drug Control, 2011.

[7] Government of Vietnam, Decision 108/ND-CP detailing the law on HIV/AIDS, 2007.

[8] Government of Vietnam, Guideline on the Implementation of HIV/AIDS Law, 2007.

[9] Ministry of Health, *Guidelines on Methadone Substitution Therapy for the Treatment of Opioid Dependence*, Medical Publishing House, 2011.

[10] Ministry of Health, Decision 5073/QD-BYT on Piloting Methadone Maintenance Treatment in Hai Phong and Ho Chi Minh City, 2007.

[11] T. L. Nguyen, D. M. Pham, T. M. T. Nguyen et al., "Summary of the major findings from an evaluation of the pilot methadone maitenance therapy program in Vietnam," *Journal of Practice Medicine, Vietnam Ministry of Health*, vol. 742-743, pp. 332–334, 2010, (The collection of Research on HIV/AIDS, 2006–2010).

[12] D. C. Des Jarlais, R. Kling, T. M. Hammett et al., "Reducing HIV infection among new injecting drug users in the China-Vietnam Cross Border Project," *AIDS*, vol. 21, no. 8, pp. S109–S114, 2007.

[13] R. Kessler and D. Mroczek, The Kessler Psychological Distress Scale (K10), 1994.

[14] T. H. Nguyen et al., "Impact of methadone on mental health, quality of life and social integration of injecting drug users in Vietnam," *Journal of Practice Medicine, Vietnam Ministry of Health*, vol. 742-743, 2010, (The collection of Research on HIV/AIDS, 2006–2010).

[15] Ministry of Health, A report on the Methadone Maintenance Treatment Program to the Deputy Prime Minister, 2011.

[16] B. Tran, A. Duong, and L. Nguyen, "Cost Effectiveness of opioid substitution therapy using methadone on HIV prevention, care and treatment in Vietnam," *Journal of Practice Medicine, Vietnam Ministry of Health*, vol. 742-743, 2010, (The collection of Research on HIV/AIDS, 2006–2010).

[17] B. X. Tran, A. Ohinmaa, A. T. Duong et al., "Cost-effectiveness of methadone maintenance treatment for HIV-positive drug users in Vietnam," *AIDS Care*, vol. 24, no. 3, pp. 283–290, 2012.

[18] K. Hoang et al., *Methadone Maintenance Treatment Program in Hai Phong, Vietnam*, AATOD, Las Vegas, Nev, USA, 2011.

[19] Government of Vietnam, Conclusion 84/TB-VPCP on Drug, HIV/AIDS and Prostitution Control of 2011 and Direction for 2012, 2012.

[20] Government of Vietnam, Decision 32/2010/QDTTG on the Development of Social Work in Vietnam, 2010–2020, 2010.

[21] DHHS/The Substance Abuse and Mental Health Services Administration, Medication-Asisted Treatment for Opioid Addiction, Facts for Family and Friend, 2009.

[22] Y. P. Bao, Z. M. Liu, D. H. Epstein, C. Du, J. Shi, and L. Lu, "A meta-analysis of retention in methadone maintenance by dose and dosing strategy," *American Journal of Drug and Alcohol Abuse*, vol. 35, no. 1, pp. 28–33, 2009.

[23] WHO, WHO, UNODC, UNAIDS technical guide for countries to set targets for universal access to HIV prevention, treatment and care for Injecting Drug Users, 2009, https://www.unodc.org/documents/hiv-aids/idu_target_setting_guide.pdf.

[24] K. A. Urbanoski, "Coerced addiction treatment: client perspectives and the implications of their neglect," *Harm Reduction Journal*, vol. 7, article 13, 2010.

[25] S. Glasner-Edwards and R. Rawson, "Evidence-based practices in addiction treatment: review and recommendations for public policy," *Health Policy*, vol. 97, no. 2-3, pp. 93–104, 2010.

[26] M. Jardine, V. A. T. Nguyen, and T. H. Khuat, "Case study: methadone maintenance treatment in Hanoi, Vietnam," *Harm Reduction Journal*, vol. 9 article 26, 2012.

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Research Article

Feasibility and Acceptability of Screening and Brief Interventions to Address Alcohol and Other Drug Use among Patients Presenting for Emergency Services in Cape Town, South Africa

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Despite evidence from high income countries, it is not known whether screening and brief interventions (SBI) for alcohol and other drug (AOD) use are feasible to implement in low and middle income countries. This paper describes the feasibility and acceptability of a peer-led SBI for AOD-using patients presenting with injuries at emergency services in Cape Town, South Africa. Data were extracted from program records on the number of eligible patients screened and the number of program refusals. A questionnaire examined preliminary responses to the intervention for 30 patients who had completed the program and 10 emergency personnel. Peer counselors were also interviewed to identify barriers to implementation. Of the 1458 patients screened, 21% (305) met inclusion criteria, of which 74% (225) were enrolled in the intervention. Of the 30 patients interviewed, most (83%) found the program useful. Emergency personnel were supportive of the program but felt that visibility and reach could improve. Peer counselors identified the need for better integration of the program into emergency services and for additional training and support. In conclusion, with limited additional resources, peer-led SBIs for AOD use are feasible to conduct in South African emergency services and are acceptable to patients and emergency personnel.

1. Introduction

South Africa has high rates of alcohol and other drug (AOD)-related problems, with these problems being particularly prevalent in the Western Cape Province of the country. For example, findings from a recent nationally representative survey indicate that the lifetime prevalence for any AOD use disorder (defined by DSM-IV criteria for abuse or dependence) was 20.3% in this province, which far exceeds the national average of 13.3% [1]. Furthermore, according to several nationally representative surveys, the Western Cape has one of the highest prevalence rates of hazardous and harmful alcohol use in the country [2, 3].

These high levels of problematic AOD use are a major concern for public health in the province, especially given evidence that AOD use is strongly associated with interpersonal violence and injury [4–8], which is the second leading cause of life years lost in the province after HIV/AIDS [9]. Evidence from earlier studies suggests that AOD use is associated with interpersonal violence and injury in several ways. First, AOD use leads to disinhibition which can trigger aggressive behavior and violence [10–12]. Second, people who are intoxicated are more likely to become victims of violence; mainly because AOD use impairs cognition and decision making which may impact one's ability to identify and avoid potentially dangerous situations [10, 13, 14]. In addition, victims of violence and injury have an increased likelihood of using AODs to cope with the experience of victimization and injury [9, 13–16].

This association between AOD use and risk for violence and injury suggests that screening and brief interventions (SBI) to reduce AOD use may be useful for preventing AOD-related violence and injury in the province [17]. As close to half of the individuals presenting with injuries at

emergency rooms in the province have been using AODs [6–8], these settings are potentially good locations for identifying individuals (through screening) at risk for AOD-related problems who would not normally seek treatment and for conducting brief interventions to reduce their AOD use and risk for future AOD-related injuries.

However, there are several limitations to current knowledge on SBI for AOD use that need to be considered prior to implementing these interventions in South African emergency rooms. First, while there is substantial evidence that SBI is effective for reducing problematic alcohol use among patients attending general health care services [18–20], corresponding research on the effectiveness of SBI for illicit drug use is sparse [21]. Although a handful of studies from high income countries report that SBI results in significant short-term reductions in illicit drug use [22–25], the body of evidence is still too small to make definitive statements about their effectiveness. Second, most of the studies showing that SBI is effective for reducing alcohol and illicit drug use were situated in primary health care settings and evidence for the effectiveness of SBI when delivered in emergency departments is equivocal [26–28]. For example, although nine of the 14 studies included in a systematic review of BIs conducted among patients presenting with injuries in emergency rooms demonstrated positive reductions in alcohol consumption, five of the 14 studies did not find significant differences in alcohol intake across the compared conditions [26]. In addition, a meta-analysis of 13 studies found that BIs conducted among patients attending emergency care did not result in significant reductions in alcohol intake but did result in diminished odds of alcohol-related injuries [27]. While study heterogeneity in terms of design, selection of screeners, and outcome measures may account for these findings, more research is needed before conclusions about the general effectiveness of BI in emergency room settings can be drawn [28].

Third, most studies of SBI for AOD use within emergency departments originate from high income countries and little is known about the feasibility or effectiveness of SBI for AOD problems in low and middle income country (LMIC) contexts, such as South Africa. This is cause for concern as studies conducted in high-income countries report culture- and country-specific barriers that affect patients' responses to SBI and the process of implementing SBI in emergency care [28, 29]. Although studies conducted within South African general health services suggest that there are likely to be barriers to SBI implementation that include physician reluctance to raise questions about AOD use (due to concerns about patient responses to the question) [30], little is known about barriers to implementation within the context of emergency care and how these barriers impact SBI outcomes. These limitations are problematic as they potentially impede the development of culturally appropriate interventions to reduce AOD use among patients attending emergency rooms.

Finally, there has been little research on whether SBI programs for AOD problems conducted in emergency care settings are feasible to implement in countries such as South Africa where health care resources are limited [5]. In high-income countries (which have relatively well-resourced health systems) nurses and physicians are generally responsible for delivering SBI [28]; however, LMICs often have chronic shortages of health personnel and are unlikely to support SBI programs that increase the work burden of scarce health professionals [31]. Task-shifting SBI from health professionals to peer counselors has been proposed as one strategy for overcoming these resource limitations in LMICs [31]. While peer-led AOD interventions have been successfully implemented in community settings [32], there are few published studies examining the effectiveness of peer-delivered SBI programs for AOD use within emergency rooms.

This paper begins to address these gaps by reporting findings from a process evaluation of an on-going peer-led screening and brief motivational intervention program for AOD problems (Project STRIVE) conducted in emergency room settings in Cape Town (the capital city of the Western Cape), South Africa. More specifically, this paper aims to describe (i) the feasibility of screening and conducting brief interventions for AOD problems among patients presenting with injuries at emergency room settings in Cape Town, (ii) patients' and emergency room personnel's responses to the peer counselor-led screening and brief AOD intervention program, and (iii) peer counselors' perceptions of barriers and facilitators to conducting SBI for AOD use within emergency room settings.

2. Method and Materials

2.1. Study Sites. This on-going pilot program is being implemented at three 24-hour emergency room services in two large impoverished communities in the Cape Town metropole. These public emergency room services were purposively selected by the Western Cape Department of Health as sites for the program because of the high proportions of alcohol-related homicides in these areas and the large numbers of patients treated for AOD-related injuries [6]. Patients presenting for these emergency room services are first triaged by a nurse into one of the following categories of problem severity: (1) red comprising patients who are physiologically unstable and may require resuscitation; (2) orange consisting of serious cases with potentially unstable physiology or threatening pathology; (3) yellow consisting of physiologically stable patients; and (4) green comprising patients with minor injuries or illnesses [33]. Due to the high trauma case load seen at these services and the shortage of nurses and doctors in emergency services [34], patients in the green and yellow triage categories often wait for several hours before being attended to.

2.2. Program Description. At each selected study site, peer counsellors approach patients for screening after they have been triaged and while they wait to be seen by the attending doctor. The triage nurses also refer patients who they think may be suitable candidates for the program to be screened. Patients are screened and recruited during varying times

during the day and during at least one 12-hour night shift on the weekend (7pm–7am) reflecting the busiest periods of the selected emergency services. Due to the pilot nature of this intervention program and the triage system within emergency services it is not possible to screen all patients who present for care. Therefore, the counselors do not approach those patients with overt exclusions (such as those younger than 18 years of age or mothers seeking care for their children) for screening.

More specifically, counselors approach patients as they wait for care by introducing the intervention program and providing an overview of the goals of the program and potential benefits to the patient. Counselors also explain to potential participants that screening positive for AOD use will not jeopardize their access to health services or compromise the quality of care received. Patients are then asked to provide consent to be screened for eligibility to participate in the intervention program.

To be eligible for the intervention program, participants must be at least 18 years of age, present with an injury, and screened at moderate or high risk for AOD-related problems using the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST, [35]). The ASSIST was originally developed to detect and manage AOD use in primary and general medical care settings and as such categorizes people into low, moderate, or high risk for AOD-related problems. Low risk indicates that the participant is at low risk for health and other problems from their current pattern of AOD use (with scores of 0–10 for alcohol and 0–3 for illicit drugs). Moderate risk indicates that the person is at risk for health and other problems from their current pattern of AOD use, with scores of 11–26 for alcohol and 4–26 for illicit drugs. Scores >26 indicate that the participant is at high risk of experiencing severe problems as a result of their current pattern of use and is likely to be dependent [35].

As low risk users are not eligible for the intervention, they are thanked for their time and encouraged to maintain low risk usage. Eligible moderate and high risk users are asked for consent to participate in an AOD risk reduction program. Those patients who consent then complete an interviewer-administered baseline questionnaire. This questionnaire covers item domains pertaining to AOD use, injury as well as other health risks (such as depression and interpersonal violence) and takes approximately 45 minutes to be completed. Immediately after the baseline assessment, participants are provided with a peer counselor-delivered ASSIST-linked brief motivational intervention [25].

This manual-guided brief intervention is a short, one-session, intervention delivered in an individual format during which time the peer counselor (i) raises the subject of AOD use; (ii) provides structured feedback about the risks associated with their current pattern of AOD use by reviewing the patient's ASSIST scores for all substances used (and not just their primary drug of choice) and where possible connecting their AOD use to their injury; (iii) gives the patient concrete advice about the need to change his/her current pattern of use to reduce their health and injury risks; and (iv) enhances motivation and readiness to change through the use of motivational interviewing techniques such as the use of reflective listening, open-ended questions, eliciting change talk, and affirming positive steps to change [25]. The duration of this brief intervention is approximately 30 minutes and the intervention is conducted in a private room within the emergency services. In addition to this brief intervention, patients who screen at high risk for AOD-related problems are referred to specialist AOD treatment facilities for further treatment.

All of the peer counselors who conducted the brief intervention have a bachelors-level education and originate from the communities served by the selected emergency services. These peer counselors completed a 3-day training in motivational interviewing (with proficiency testing through role-playing and case examples) provided by a motivational interviewing-certified trainer and also received 3 half-day booster trainings to limit intervention drift and ensure that the motivational interviewing skills were being applied appropriately. In addition to the intervention training, peer counsellors received 16 hours of training in (i) alcohol and illicit drugs and the risks associated with AOD use, (ii) using and scoring the ASSIST, (iii) ethics, (iv) the intervention program procedures, and (v) the process of referring patients for specialized care. To ensure intervention fidelity, peer counselors are required to participate in biweekly supervision and debriefing sessions.

Participants are followed up 3 months subsequent to the intervention during which time the baseline questionnaire is readministered and a feedback questionnaire about the services is completed. In order to limit a socially desirable response set, the follow-up assessment and feedback questionnaire are not administered by the peer counsellor who delivered the initial intervention. As this program was developed with the intention of being integrated into existing health services, participants receive an incentive for participating in the initial baseline assessment and in the evaluation of the program. Specifically, participants are given a grocery store voucher valued at ZAR 30 (about USD 4) for completing the baseline measures and after completion of the final assessment.

At no point this screening and brief intervention program is allowed to interrupt patient flow in emergency services. Therefore, if the patient is called to see the emergency doctor while being screened or during the course of the intervention, the counselor halts the intervention and makes arrangements with the patient to resume the program at a later point in time after the patient has received emergency care.

2.3. Process Evaluation Design and Procedures. This process evaluation employed a mixed methods design comprising four components: (i) a quantitative part that examined patient throughput to assess the feasibility of screening and recruiting patients for an emergency room intervention, quantitative aspects that assessed (ii) patients' and (iii) emergency personnel's preliminary responses to the intervention, and (iv) a qualitative aspect that examined peer counselors' perceptions of barriers and facilitators to deliverg and scale up AOD interventions in emergency room settings.

For the first part, data were extracted from program records on the number of patients screened, the number of eligible patients relative to the total number of patients screened, and the number of patients who agreed to participate in the program relative to the number of eligible patients. For patients who refused to participate in the program, reasons for not wanting to participate were recorded.

For the second part of the evaluation, a semistructured intervention feedback questionnaire was used to examine preliminary responses to the intervention. While this questionnaire is administered to all patients after they complete their three-month follow-up interview, here we report only on findings from the first 30 patients. The questionnaire included items pertaining to the usefulness and impact of the program for identifying problematic AOD use patterns and reducing AOD use. Patients also were asked about their willingness to attend additional intervention sessions as an indicator of the acceptability of the intervention.

Similarly, for the third part of the evaluation, a semi-structured questionnaire was administered to emergency personnel from each site to examine their preliminary responses to the SBI program. Fifteen emergency room personnel were approached to participate in these interviews. Of the 15 personnel approached, three were not aware of the services offered and therefore declined to participate in the interviews and two declined to participate due to time constraints. The questionnaire that was administered to the remaining 10 emergency room personnel included items pertaining to their perceptions about the usefulness of the peer counselors and SBI program, areas in which peer counselors could have improved, factors that would have encouraged emergency personnel to refer patients to the SBI program more frequently, and perceptions about whether the program helped or hindered services within the emergency department.

For the final aspect of the evaluation, an open-ended semi-structured interview schedule was used to elicit possible factors that hindered or supported the implementation and execution of the screening and brief AOD intervention program within the context of emergency services. All five peer counselors, responsible for the delivery of the screening and intervention program, were interviewed by an experienced interviewer. These in-depth interviews were audiotaped and transcribed verbatim before the textual data were analysed using qualitative techniques.

Specifically, the qualitative data analysis for this study was conducted using the framework approach (familiarization, identifying a thematic framework, indexing, charting, mapping, and interpretation of the data). Initially, interview transcriptions were read for emergent themes, which were then coded. Care was taken to ensure the codes accurately captured the respondent's meaning. A second researcher independently coded the interviews to ensure validity of the categories. We used NVivo 9.0, a qualitative software program for data analysis.

Ethics approval for the evaluation was provided by the Research Ethics Committee from the University of Cape Town's Faculty of Health Sciences.

3. Results

3.1. The Feasibility of Screening and Recruiting Patients for an Emergency Room Intervention. In the first three months of the program, a total of 1458 patients presenting for emergency services were screened for possible AOD use. Of these patients, 270 (18.5%) were screened during the early shift (7am to 1pm), 650 (44.5%) during the afternoon shift (1pm to 7pm), and 538 (36.8%) during the night shift (7pm to 7am). Patients at South African emergency rooms are triaged according to injury severity and in most instances patients with severe injuries requiring immediate medical intervention were not able to be screened. Of the patients who were screened, 20.9% ($N = 305$) were considered at moderate to high risk for an AOD use disorder thus meeting criteria for participation in the intervention study. Of these 305 patients, 225 (73.8%) participants were willing to participate in the intervention program. Among the 83 eligible patients who refused the intervention, the two most frequently reported reasons for not wanting to participate were that they were experiencing too much pain and that they felt they did not have an AOD problem. Although the 83 participants who qualified for but refused the intervention had significantly lower scores on the ASSIST ($M = 15.9$, SD = 9.4) than the 225 participants who qualified for and were willing to participate in the intervention ($M = 18.2$, SD = 7.4; $t = -2.34$, $P = 0.02$), the mean ASSIST scores of both groups were both within the "moderate risk" category.

3.2. Patients' Preliminary Responses to the SBI Program. Of the 30 patients who have participated in the three-month follow-up interview to date, the majority were women ($n = 18$; 60%), with an average age of 29 years old (SD = 13). Most participants were single ($n = 22$; 73.3%), unemployed ($n = 22$; 73.3%) and did not complete high school ($n = 20$; 66.7%). Fourteen (46.7%) of these patients presented themselves to the emergency department as a result of a violent assault, and 18 (60%) reported that they were under the influence of AODs when they presented at the emergency services. Twenty-six of the 30 participants (86.7%) reported alcohol as their primary substance of abuse, 3 (10.0%) reported problems associated with cannabis use, and 1 (0.03%) reported problems associated with methamphetamine.

When asked for feedback about the screening and intervention program, 22 (73.3%) of the 30 participants felt that the screening tool was useful in helping them to understand the level of risk associated with their current pattern of AOD use and that the educational information provided during the structured feedback helped them understand the positive and negatives of using their drug of choice. Regarding whether or not the intervention provided actually helped participants cut down or stop using AODs, only 1 participant (3.3%) felt it was "not useful," 13.3% ($n = 4$) thought it was "somewhat useful" and the majority ($n = 25$, 83.3%) reported it was "useful." In addition, 43.3% ($n = 13$) of participants wished that they could have had more than one session with the counselor in order to further address their AOD use.

When these 30 participants were asked about their willingness to attend additional counseling sessions, 25 participants (83.3%) reported that they would be willing to return to the clinic for one, 20 participants (66.7%) for two, 14 (46.7%) for three, and 11 (36.7)% for four additional counseling sessions.

3.3. Emergency Room Personnel's Preliminary Responses to the SBI Program. Of the 10 emergency room personnel who participated in this aspect of the evaluation, most ($n = 8$) were female and were on average 34 years old (range = 26–53 years). While the vast majority had nursing qualifications ($n = 8$), two participants responsible for the management of these emergency room services were also interviewed.

While only five of the ten respondents had referred patients for screening who they thought might benefit from the SBI program, all of the respondents felt that the SBI program was useful and that the peer counselors were helping trauma patients with AOD problems. When asked for examples of how the program was useful to and valued by patients, several respondents described how some patients returned to the emergency room looking for the peer counselors after completion of the SBI program. In addition, all of the respondents felt that the SBI program did not interfere with their workflow in the emergency room, nor did the presence of the peer counselors and the SBI program add to their workload.

Although all of the respondents were in favor of the continuation of this pilot SBI program for AOD use, they did identify areas in which the SBI program could be enhanced. Six of the ten respondents recommended expanding the reach of the program. Specifically they felt that the program should be expanded to enable 24-hour availability of a peer counselor at the emergency room so that all patients who could potentially benefit from SBI for AOD use were able to access this service. In addition, two of the ten respondents recommended improving the visibility of the program and peer counselors to emergency personnel and also to patients as a means of encouraging the uptake of these services. Specifically these respondents suggested that the marketing of the program could be improved through the use of posters and program fliers. Finally two of the ten respondents recommended expanding the content of the BI to address other major psychosocial issues that intersect with AOD use (such as depression and gender-based violence) and affect patients who present with injuries at emergency rooms.

3.4. Peer Counselors' Perceptions of Barriers and Facilitators to Deliver SBIs for AOD Use in Emergency Rooms. Peer counselors identified several factors that need to be considered when scaling up the implementation of AOD interventions in emergency room settings. These relate mainly to barriers within the structural and cultural context of the emergency room setting, patient-level barriers, and counselor-level factors.

3.4.1. Barriers within the Structural and Cultural Context of the Emergency Room Setting. All of the counselors felt that the emergency room personnel were not adequately informed about the program by the health facility's management team. Three of the five respondents felt that they had to explain the program and its objectives numerous times to ensure that emergency room personnel were aware of the services being offered to patients. One counselor gave an example of this poor communication:

> *"On my first day when the management was here, everything was good, but when they left, then everything started to be a little bit difficult—because the staff didn't understand the purpose why we're here as the counselors. We had to introduce ourselves over and ourselves over and over. But after a few days we started getting used to the system they started understanding why we're here. But still there were a little bit of difficulties."*

Although counselors reported that most emergency room personnel expressed the importance of an AOD intervention for at-risk patients, support and buy-in for the program differed between the intervention sites. Following the first two months of implementing the intervention, two of the three sites reported that almost all emergency room personnel were open to worked with the counselors to identify and refer at-risk patients. However at one of the sites, few personnel were open to collaborate with counselors to ensure the success of the program. The following comments reflect this poor support for the program:

> *"You made it sound very nice and organised and all of that, you know, in the beginning—but when we got here it's not at all like that. It's still not like that. You know, we still have to go into trauma and say again who we are, what we're doing here. So far there's only been two sisters ever since we started that sent people our way; the others just do not. I do not know what it is but they just do not."*

> *"We do have problems with referrals from the trauma room to us. We have to walk around and approach people. There was confusion because the doctors, patients, trauma patients, dentist patients, are sitting at the same spot—so it's difficult to differentiate between who's who. And, ja, but overall I won't say it was a nice part, but it has ups and downs; and as a person I have grown because I had to like problem solve, every day had its own problems, and then you had to deal with it as it came."*

A third structural difficulty was the lack of private space within the emergency room where brief interventions could be delivered in a confidential manner. This was a major hurdle to the delivery of the intervention in two of the three sites. Several attempts were made to find a permanent solution to this challenge, but clinic priorities and a general lack of space in the facilities made this an impossible problem to permanently solve within the current parameters of these emergency room services. This was encapsulated in the words of one counselor:

> *"The first month was hectic because we did not have office space. I think it was the second month where we started to have some space and eased into the process; a process that I do not think is established as such."*

3.4.2. Patient-Level Barriers. The main patient-level barrier to delivering the screening and intervention program relates to the characteristics of the patients presenting for emergency services. All of the counselors reported concerns about approaching patients who were severely injured, very intoxicated, or had been waiting a long time to be seen by emergency personnel for screening and possible participation in the intervention. These concerns were particularly salient during weekend shifts when emergency services were inundated with aggressive and intoxicated patients. To illustrate, one counselor noted that

> *"It's just so hard to even approach a person who is so aggressive and violent that he is yelling at everyone he sees, demands to be seen yesterday, and looks like he was just in a gang fight and probably is still drunk or still on tik."*

Patient reluctance to disclose AOD use was another patient-level barrier to delivering the program as planned. Although in some cases, the counselors felt that the patients were comfortable disclosing their AOD use, there were times where it was obvious that the patient was withholding information. Some patients also struggled to understand why they were being asked about their AOD use when they were presenting with an injury that required medical attention. This is the conveyed through the following statement:

> *"We had quite a few youngsters and female girls—you can see they are, you know, you can smell that they've been drinking and they will say they've been drinking the whole Friday and Saturday—and now they come whatever the incident is. And then you ask, 'Were you drinking at the time?' and they say 'No.' But I don't know if they think you're going to charge them or you're with the cops or something."*

3.4.3. Counselor-Level Factors. An important counselor-level factor that needs to be considered when scaling up this intervention program is the personal safety of counselors. Three of the five counselors expressed that they were apprehensive about their personal safety (due to working with perpetrators of violent acts) during training for the project. However these concerns about safety seem dependent on the length of time working in the emergency units. Five months after the program was initiated, none of the counselors reported being overly concerned about their safety within the health facilities due to the strict regulations employed to ensure staff safety. This is highlighted below:

> *"The safety, I will never complain, I never say anything about the safety, like being in danger. I always feel safe because there are securities at the gate and there's always a security next to the doors there. The security station is right across from our office that we are using."*

However some counselors were still concerned about their safety outside of these facilities, which were located in high-crime areas. Two of the counselors expressed concern over travelling to and from the emergency unit, particularly for their overnight shifts. As one counselor stated

> *"Travelling sometimes is not that safe, especially if you're using public transport because you need to take a taxi at around about half six, but at summer it was fine because it was not dark. But now it's winter, it's a little bit dark to walk over the bridge and come to the hospital. But in the hospital it's quite safe."*

A second counselor-level factor that needs to be considered when scaling up this intervention program is the adequacy of training for peer counselors in terms of equipping them to cope with injured patients. Specifically, all the counselors felt they were not completely equipped (even after extensive training) to deal with the traumatic nature of working in an emergency room setting. Over time, the corrective measures taken to address this (such as biweekly supervision and debriefing meetings) and peer support helped them feel more comfortable dealing with the patients that present for emergency services. This is illustrated below:

> *"...now I think I'm getting used to it. At first I felt traumatised by seeing such volumes of blood. So that was a shock. Yes. But now I think I'm used to it. Especially on weekends when we do our nightshifts on weekends—the first nightshift on weekend—you see that the floor is white—it was red covered with blood and you could even smell the blood."*

When asked about the appropriateness and duration of the training, all counselors felt that the training (in conjunction with booster training, role plays and rehearsal opportunities provided to counselors) was more than sufficient to teach them the basic principles of motivational interviewing. They also felt that the skills and information they gained through this intensive training helped them deal with issues in their everyday lives. The following comments illustrate these personal benefits:

> *"To be honest, the training has it benefited me in different ways. Starting from the first day that I worked as a counselor here in Khayelitsha, even I've changed my own behavior, so it has helped me a lot as a person. I'm no longer walking out at night, at seven o'clock I'm indoors. At home everything just changed, I'm relating too much to my family—so everything is easy for me than it was before—understanding the different problems that people face, so I tend to take mine as minor problems."*

> *"I think personally I have grown since I've started doing this. You see people opening up, and you see people opening up even in areas that you never thought that they would be willing to open up to a stranger, but they do. And, you know, each client, each case is different from the other. And when you sit back and review in your mind whatever session you had, there's an experience to take with you and grow and learn, so I think I'm growing."*

4. Discussion

This paper is among the first to examine the feasibility and acceptability of conducting SBI for AOD use within emergency room settings in an LMIC context. More specifically, findings from this study show that, with the addition of minimal resources, such interventions are feasible to conduct in LMICs among populations with low levels of formal education and high levels of unemployment, are acceptable to patients, and have promising outcomes.

First, findings indicate that it is not only feasible to screen large numbers of people presenting for emergency services in Cape Town, South Africa, for possible inclusion in an AOD risk reduction intervention, but that such an intervention program is needed among this population. More specifically, the need for an AOD risk reduction intervention was high among the patients screened, with over a fifth of patients screened meeting criteria for moderate to high risk AOD use. Nonetheless, this is probably an underestimation of the magnitude of the AOD intervention need since the peer counselors were reluctant to approach overtly intoxicated patients who were acting aggressively and because some patients were hesitant to disclose their AOD use. In addition, counselors were unable to screen patients with severe injuries requiring immediate medical intervention for possible inclusion in the program. It is likely that these patients were disproportionately affected by AOD use, especially as earlier studies reported positive associations between AOD use and risk of serious injury [4–8]. Despite this, our findings clearly show that screening for AOD use in emergency services in Cape Town yields a significant number of patients who could benefit from an AOD risk reduction intervention. In addition, we found that a high proportion (close to three-quarters) of these eligible patients were willing to participate in a brief intervention to reduce their AOD use, thus demonstrating the feasibility of recruiting patients from emergency room settings to participate in brief AOD interventions. Taken together, these findings demonstrate that it is feasible to conduct SBI for AOD use within emergency rooms in Cape Town, South Africa.

Second, our findings demonstrate that a brief motivational intervention to reduce AOD use has high levels of acceptability and utility to patients presenting for emergency services in Cape Town, South Africa. The vast majority of patients who provided feedback about the intervention reported that the intervention was useful for helping them understand the risks associated with their AOD use and for helping them reduce their AOD use. Further evidence of the acceptability of this intervention is that the vast majority of patients interviewed were willing to return to the health facility to attend at least one additional counseling session and expressed a desire for additional counseling sessions. Emergency room personnel also noted that patients seemed to value the program. The high levels of acceptability and perceived utility of this brief motivational intervention suggest that it would be worthwhile testing the effectiveness of this intervention in a future randomised controlled trial.

Third, our findings demonstrate that SBI for AOD use can be implemented in emergency room settings in an LMIC with low levels of investment in additional health resources and with little disruption to health care delivery. Specifically, this SBI program was entirely peer counselor driven and therefore required little additional investment in costly (and scarce) health care personnel. It also did not require existing emergency room personnel to take on additional responsibilities of screening for AOD use. In fact, one of the aspects of the program that emergency personnel liked was that it did not add to their existing workload. According to emergency personnel, peer counselors were also able to blend into existing emergency services and provide SBI without disrupting patient or work flow. Taken together, these findings suggest that task-shifting responsibility for SBIs from emergency room personnel to peer counselors may be a viable solution to some of the commonly cited barriers to implementing SBIs for AOD use in emergency room settings, particularly thehigh workload of health care professionals, and limited resources for implementing additional AOD intervention services in emergency care [28].

While our findings provide preliminary evidence that such a peer-led intervention holds promise for facilitating changes in AOD use, we learned some valuable lessons that need to be considered when scaling up the implementation of AOD interventions and research in emergency room settings. First, more effort needs to be taken to ensure that peer counselors are fully integrated into the emergency room team. Better integration of peer counselors into emergency services would potentially address many of the structural and contextual barriers (such as poor communication and lack of referrals from emergency personnel) that may have negatively impacted on the implementation of the intervention. Second, we learned that peer counselors need extensive training and on-going support (via debriefing and regular supervision) to help them cope with patients who are perceived to be dangerous and with working in emergency room settings which are often traumatic for people without health training. Future efforts to scale up this intervention therefore would benefit from providing peer counselors with on-going support and supervision to help them cope with working in this challenging environment. While the provision of additional training and support to peer counselors will have cost implications for the programme, a peer counselor-driven AOD intervention is still likely to be less expensive to implement than a program delivered by health professionals. To substantiate this claim, cost-effectiveness studies that compare the cost benefits of

AOD interventions delivered by peer counselors and health professionals are required.

While both patients and emergency room personnel thought that this pilot SBI program was useful and should be continued, findings from this study should be considered in the light of several limitations. First, given the pilot nature of the program, we were unable to conduct universal screening within the selected emergency rooms and therefore could not assess the prevalence of problematic AOD use within these settings. Future studies should consider implementing universal screening so that all patients who may potentially benefit from SBI for AOD use are able to access this service. Secondly, we did not record the number of patients present in the emergency room during screening hours and therefore were unable to assess the reach of the SBI. Although assessing reach or service coverage was beyond the scope of this small feasibility study, future studies should collect this information so that the potential impact of this SBI program can be properly evaluated. Third, we did not record the number of patients who were approached but refused to be screened and as a result we were unable to assess the degree to which screening for AOD use within emergency care was acceptable to patients. Finally, findings about the patient responses to the intervention should be interpreted with caution given the very small sample size and the lack of a control group.

5. Conclusion

Despite some limitations, results from this study suggest that it is feasible to conduct SBIs to reduce AOD use among patients presenting for emergency services in an LMIC such as South Africa with minimal additional health resources. Although larger studies are needed to test the effectiveness of SBI for reducing AOD use and preventing future AOD-related injuries, findings from this study suggest that a peer-led SBI program for AOD use is feasible to implement in emergency care and is acceptable to both patients and emergency service providers. Findings also provide valuable insight into how best to address potential barriers to the implementation of SBIs at the process, counselor and patient levels, thereby increasing the likelihood of an effective randomized controlled trial.

Conflict of Interests

The authors declare that no competing interests exist.

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References

[1] A. A. Herman, D. J. Stein, S. Seedat, S. G. Heeringa, H. Moomal, and D. R. Williams, "The South African Stress and Health (SASH) study: 12-month and lifetime prevalence of common mental disorders," *South African Medical Journal*, vol. 99, no. 5, pp. 339–344, 2009.

[2] K. Peltzer, A. Davids, and P. Njuho, "Alcohol use and problem drinking in South Africa: findings from a national population-based survey," *African Journal of Psychiatry*, vol. 14, no. 1, pp. 30–37, 2011.

[3] National Department of Health, Medical Research Council, OrcMacro et al., "South African Demographic and Health Survey 2003," Pretoria, South Africa: Department of Health, 2007, http://www.mrc.ac.za/bod/sadhs.htm.

[4] R. Matzopoulos, "Alcohol and injuries- a clear link," *Southern African Journal of Epidemiology and Infection*, vol. 20, pp. 114–115, 2005.

[5] M. Seedat, A. Van Niekerk, R. Jewkes, S. Suffla, and K. Ratele, "Violence and injuries in South Africa: prioritising an agenda for prevention," *The Lancet*, vol. 374, no. 9694, pp. 1011–1022, 2009.

[6] I. Govender, R. Matzopoulos, P. Makanga, and J. Corrigall, "Piloting a trauma surveillance tool for primary healthcare emergency centres," *South African Medical Journal*, vol. 102, no. 5, pp. 371–385, 2012.

[7] A. Plüddemann, C. D. H. Parry, H. Donson, and A. Sukhai, "Alcohol use and trauma in Cape Town, Durban and Port Elizabeth, South Africa: 1999–2001," *Injury Control and Safety Promotion*, vol. 11, no. 4, pp. 265–267, 2004.

[8] D. J. Stein, D. Boshoff, H. Abrahams et al., "Patients presenting with fresh trauma after interpersonal violence. Part I. Alcohol and substance abuse," *South African Medical Journal*, vol. 87, no. 8, pp. 996–998, 1997.

[9] R. Norman, D. Bradshaw, M. Schneider et al., "Estimating the burden of disease attributable to interpersonal violence in South Africa in 2000," *South African Medical Journal*, vol. 97, no. 8, pp. 653–656, 2007.

[10] S. Mathews, N. Abrahams, R. Jewkes, L. J. Martin, and C. Lombard, "Alcohol use and its role in female homicides in the Western Cape, South Africa," *Journal of Studies on Alcohol and Drugs*, vol. 70, no. 3, pp. 321–327, 2009.

[11] R. Jewkes, J. Levin, and L. Penn-Kekana, "Risk factors for domestic violence: findings from a South African cross-sectional study," *Social Science and Medicine*, vol. 55, no. 9, pp. 1603–1617, 2002.

[12] N. Abrahams, R. Jewkes, R. Laubscher, and M. Hoffman, "Intimate partner violence: prevalence and risk factors for men in Cape Town, South Africa," *Violence and Victims*, vol. 21, no. 2, pp. 247–264, 2006.

[13] N. K. Morojele and J. S. Brook, "Substance use and multiple victimisation among adolescents in South Africa," *Addictive Behaviors*, vol. 31, no. 7, pp. 1163–1176, 2006.

[14] K. J. Sikkema, M. H. Watt, C. S. Meade et al., "Mental health and HIV sexual risk behavior among patrons of alcohol serving venues in Cape Town, South Africa," *Journal of Acquired Immune Deficiency Syndromes*, vol. 57, no. 3, pp. 230–237, 2011.

[15] M. J. O'Connor, M. Tomlinson, I. M. LeRoux, J. Stewart, E. Greco, and M. J. Rotheram-Borus, "Predictors of alcohol use prior to pregnancy recognition among township women in Cape Town, South Africa," *Social Science & Medicine*, vol. 72, no. 1, pp. 83–90, 2011.

[16] D. Kaminer, A. Grimsrud, L. Myer, D. J. Stein, and D. R. Williams, "Risk for post-traumatic stress disorder associated with different forms of interpersonal violence in South Africa," *Social Science & Medicine*, vol. 67, no. 10, pp. 1589–1595, 2008.

[17] R. Matzopoulos, B. Bowman, S. Mathews, and J. Myers, "Applying upstream interventions for interpersonal violence prevention: an uphill struggle in low- to middle-income contexts," *Health Policy*, vol. 97, no. 1, pp. 62–70, 2010.

[18] A. Moyer, J. W. Finney, C. E. Swearingen, and P. Vergun, "Brief interventions for alcohol problems: a meta-analytic review of controlled investigations in treatment-seeking and non-treatment-seeking populations," *Addiction*, vol. 97, no. 3, pp. 279–292, 2002.

[19] E. I. Vasilaki, S. G. Hosier, and W. M. Cox, "The efficacy of motivational interviewing as a brief intervention for excessive drinking: a meta-analytic review," *Alcohol and Alcoholism*, vol. 41, no. 3, pp. 328–335, 2006.

[20] E. F. Kaner, F. Beyer, H. O. Dickinson et al., "Effectiveness of brief alcohol interventions in primary care populations," *Cochrane Database of Systematic Reviews*, vol. 18, no. 2, Article ID CD004148, 2007.

[21] E. Charbonney, A. McFarlan, B. Haas, L. Gentilello, and N. Ahmed, "Alcohol, drugs and trauma: consequences, screening and intervention in 2009," *Trauma*, vol. 12, no. 1, pp. 5–12, 2010.

[22] J. Bernstein, E. Bernstein, K. Tassiopoulos, T. Heeren, S. Levenson, and R. Hingson, "Brief motivational intervention at a clinic visit reduces cocaine and heroin use," *Drug and Alcohol Dependence*, vol. 77, no. 1, pp. 49–59, 2005.

[23] A. Zahradnik, C. Otto, B. Crackau et al., "Randomized controlled trial of a brief intervention for problematic prescription drug use in non-treatment-seeking patients," *Addiction*, vol. 104, no. 1, pp. 109–117, 2009.

[24] B. K. Madras, W. M. Compton, D. Avula, T. Stegbauer, J. B. Stein, and H. W. Clark, "Screening, brief interventions, referral to treatment (SBIRT) for illicit drug and alcohol use at multiple healthcare sites: comparison at intake and 6 months later," *Drug and Alcohol Dependence*, vol. 99, no. 1–3, pp. 280–295, 2009.

[25] World Health Organization, "The effectiveness of a brief intervention for illicit drugs linked to the alcohol, smoking, and substance involvement screening test (ASSIST) in primary health care settings: a technical report of phase III findings of the WHO ASSIST Randomized control trial," 2008, http://www.who.int/substance_abuse/activities/assist_technicalreport_phase3_final.pdf.

[26] P. Nilsen, J. Baird, M. J. Mello et al., "A systematic review of emergency care brief alcohol interventions for injury patients," *Journal of Substance Abuse Treatment*, vol. 35, no. 2, pp. 184–201, 2008.

[27] A. Havard, A. Shakeshaft, and R. Sanson-Fisher, "Systematic review and meta-analyses of strategies targeting alcohol problems in emergency departments: interventions reduce alcohol-related injuries," *Addiction*, vol. 103, no. 3, pp. 368–376, 2008.

[28] M. Forsythe and G. A. Lee, "The evidence for implementing alcohol screening and intervention in the emergency department- time to act," *International Emergency Medicine*, vol. 20, no. 3, pp. 167–172, 2012.

[29] C. A. Field, R. Caetano, T. R. Harris, R. Frankowski, and B. Roudsari, "Ethnic differences in drinking outcomes following a brief alcohol intervention in the trauma care setting," *Addiction*, vol. 105, no. 1, pp. 62–73, 2010.

[30] F. A. Koopman, C. D. H. Parry, B. Myers, and G. Reagon, "Addressing alcohol problems in primary care settings: a study of general medical practitioners in Cape Town, South Africa," *Scandinavian Journal of Public Health*, vol. 36, no. 3, pp. 298–302, 2008.

[31] I. Petersen, C. Lund, A. Bhana, A. J. Flisher, and The Mental Health and Poverty Research Programme Consortium, "A task shifting approach to primary mental health care for adults in South Africa: human resource requirements and costs for rural settings," *Health Policy Plan*, vol. 27, no. 1, pp. 42–51, 2012.

[32] B. D. Smith and I. T. Manfredo, "Frontline counselors in organizational contexts: a study of treatment practices in community settings," *Journal of Substance Abuse Treatment*, vol. 41, no. 2, pp. 124–136, 2011.

[33] S. B. Gottschalk, D. Wood, S. Devries, L. A. Wallis, and S. Bruijns, "The cape triage score: a new triage system South Africa. Proposal from the cape triage group," *Emergency Medicine Journal*, vol. 23, no. 2, pp. 149–153, 2006.

[34] R. G. Matzopoulos, M. Prinsloo, A. Butchart, M. M. Peden, and C. J. Lombard, "Estimating the South African trauma caseload," *International Journal of Injury Control and Safety Promotion*, vol. 13, no. 1, pp. 49–51, 2006.

[35] WHO Assist Working Group, "The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST): development, reliability and feasibility," *Addiction*, vol. 97, no. 9, pp. 1183–1194, 2002.

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Review Article

Sexual Health and Men Who Have Sex with Men in Vietnam: An Integrated Approach to Preventive Health Care

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Background. While HIV infection among men who have sex with men (MSM) in Vietnam has received increasing attention, most studies focus on HIV knowledge and established risk factors such as injection drug use. This paper proposes to address HIV risk among MSM from an integrated approach to preventive care that takes into account syndemic conditions such as substance use, mental health, and stigma, the latter of which prevents MSM from accessing health services. *Method*. Current studies related to MSM in Vietnam from 2000 onwards, gathered from peer-reviewed as well as non-peer-reviewed sources, were examined. *Results*. HIV and STI prevalence among MSM varied significantly by location, and yet HIV prevalence has increased significantly over the past few years. Most studies have focused on sexual risk behaviors, paying little attention to the broad spectrum of sexual health, including noninjecting drug use, heavy alcohol consumption, high rates of mental health distress and anxiety, and stigma. *Conclusion*. Future research and interventions targeting MSM in Vietnam should address their vulnerability to HIV from an integrated approach that pays attention to both sexual health and syndemic conditions.

1. Introduction

Research studies have shown that men who have sex with men (MSM) have unique health-care needs and that interventions focusing on this group should address these needs [1, 2]. MSM have been significantly affected by HIV epidemics all over the world. Research on MSM has found that the epidemics are reemerging in many wealthy countries and that many developing countries are paying more attention to the HIV epidemic among MSM [3]. A critical study on MSM in developing countries showed that the possibility of MSM being HIV infected was much higher than that of the general population [4]. In Asia, an association between HIV infection and drug use, including both injection and noninjection use, has been found [5]. However, non-injection drug use has been an increasingly important risk factor for HIV infection among MSM, whereas injecting drug use is thought to have a limited impact on the spread of HIV among this group [6]. Recreational drug use, especially the use of ecstasy and methamphetamines and alcohol use, is becoming increasingly common and is an important factors contributing to unprotected receptive anal intercourse [5, 7, 8]. The impact of substance use and myriad syndemic conditions has resulted in an alarming increase in HIV infection in Southeast Asia [9].

There are a number of studies on HIV infection among MSM in Vietnam, yet comprehensive understanding about sexual health, club drug use, and other syndemic conditions, such as mental health and stigma among MSM and how they relate to HIV vulnerability, is still not available. This study aims to identify gaps in understanding these issues in order to provide evidence supporting the call for an integrated approach to addressing HIV vulnerability and to improve preventive interventions targeting this at-risk group. The paper approaches this task by using two theoretical perspectives: the sexual heath model suggested by Robinson et al. [10, 11] and syndemic theory.

The sexual heath model comprises 10 essential components of healthy human sexuality, such as talking about sex, culture and sexual identity, sexual anatomy and functioning,

sexual health care and safer sex, challenges to sexual health, body image, masturbation and fantasy, positive sexuality, intimacy and relationships, and spirituality [10]. Many of these aspects are believed to influence an individual's ability to effectively reduce their HIV risk. The model assumes that people who are sexually healthy (i.e., those who are "sexually literate, comfortable, and competent") are more likely to make healthy sexual choices, including choices related to HIV and sexual risk behavior [10]. On the other hand, syndemic theory refers to the concentration within a specific group of multiple cooccurring conditions that interact with and reinforce each other, ultimately giving rise to other health problems [12].

2. Method

The study reviewed the literature related to sexual health, substance abuse, and mental health among men who have sex with men in Vietnam from 2000 onwards. Literature included both articles published in peer-reviewed journals such as *Journal of Acquired Immune Deficiency Syndromes, AIDS and Behavior, AIDS Education and Prevention, Sexual Health, Culture,* and *Health and Sexuality,* as well as published research reports from institutions in Vietnam such as the Ministry of Health, Vietnam Administration of HIV/AIDS Control (VAAC), National Institute of Hygiene and Epidemiology (NIHE), Family Health International Vietnam, and United Nations Office on Drugs and Crime (UNODC) Vietnam. Key words and terms included men who have sex with men, MSM, gay men, homosexual men, HIV, sexually transmitted diseases (STDs), sexual transmitted infections (STIs), sexual health, sexual behavior, substance abuse, substance use, drug use, drug abuse, alcohol use, alcohol abuse, mental health, mental disorders, stigma, and Vietnam. As the number of extant studies designed only for MSM was limited, studies that have MSM as a subgroup and contain information about their sexual health, substance use, and mental health were also included. Articles and reports that were not in English were excluded to reduce misunderstanding due to translation.

3. Results and Discussion

A total of 16 articles and reports addressing HIV/STI risk, sexual health, and substance use relating to MSM in Vietnam were identified and reviewed. Five articles were excluded, of which one was a duplication, three did not have information on MSM as a subgroup of their samples, and one was a review. Eventually, 11 studies were further reviewed; information about the articles is shown in Table 1. In only five studies were all of participants MSM. In the other studies, MSM constituted a subgroup of the research populations.

3.1. Dominant Focus on HIV and STI Risks. There were six articles investigating the prevalence of HIV among MSM in Vietnam. HIV prevalence rates among MSM varied among the cities studied and even varied by survey for individual cities. For instance, a study in 2005 found that HIV prevalence among 295 MSM in rural settings in Khanh Hoa province was 0% [13]. Another study in 2004 showed that HIV prevalence among MSM in Ho Chi Minh City (HCMC) was 8% [14], but the HIV/STIs Integrated Biological and Behavioral Surveillance (IBBS) in 2006 revealed that the figure for MSM in HCMC was 5.3% [15]. However, it is obvious that the HIV infection among MSM was increasingly significantly during that time. For instance, HIV prevalence in Hanoi increased from 9.4% in 2006 to 17.4% in 2009, while the figures for HCMC were 5.3% and 16.7%, respectively [15, 16]. Besides Hanoi and HCMC, HIV prevalence in some other large cities was also observed: for Hai Phong it was 15% for MSM trading sex for money and 17% for those who were not sex traders, whereas for the city of Can Tho, the figure was 9% and 5%, respectively [16]. The increased HIV acquisition in Vietnam is in accordance with the HIV epidemic trend among MSM in Asia [16].

STI prevalence was investigated in four studies focusing on syphilis, chlamydia, gonorrhea, and/or HPV. According to findings from the IBBS surveys [16], for every five MSM in HCMC, one was infected with at least one of three sexually transmitted infections (syphilis, chlamydia, or gonorrhea). The figure for Hanoi was 19% of MSM trading sex for money and 13% of MSM having sex without receiving money. In comparison to 2006, the picture of STIs was the opposite for Hanoi and HCMC. The prevalence in Hanoi decreased in both groups, those having sex for money and those without receiving money, whereas in HCM, it increased in both groups.

Studies have shown that MSM in Vietnam have been at increased risk for HIV infection [14, 17], and that HIV infection has been associated with number of sex partners and selling sex [14, 18]. Nguyen et al. [14] found that MSM with more than five male sex partners (OR = 2.43; 95% CI, 1.14–5.17) and selling sex (OR = 8.61, 95% CI, 1.20–61.6) had a higher chance of HIV infection, whereas Colby [18] showed that, on average, HIV-negative MSM had about 9 sexual partners in the past year, whereas HIV-positive MSM had 14 partners.

Together with HIV acquisition, the association between STIs and sexual behavior is a concern in research on MSM. The IBBS survey [16] showed that except for the city of Can Tho, where STI prevalence was 5% for MSM who did not receive money for sex and 9% for MSM receiving money for sex, the STI prevalences in other cities were all above 10%. High prevalence of STIs could be explained by unsafe sex. The IBBS 2009 report also revealed that the proportion of MSM who use condom was low, under 50% in all cities, whereas the proportion of condom use among MSM in HCMC reduced when comparing to that in 2006 [16]. In another study, 33% of MSM reported unprotected anal intercourse (UAI) within the past month, with 21% reporting UAI with male clients [18]. Unprotected anal intercourse may not be the only risk factor; research also indicates that anal STIs can also be transmitted via sexual partners' fingers or tongue [19].

The proportion of consistent use of lubricants for anal sex was low in the studies reviewed. Nguyen et al. [14] reported that only 44% of MSM always used lubricant during anal sex in the past 6 months. According to the study, saliva

Table 1: Research studies on men who have sex with men (MSM) included in this paper.

Study number	Authors publish year	Year	Location	Participants	Sample size
1	Colby 2010 [18]	2010	Ho Chi Minh City	MSWs* (are MSM)	300 (300)
2	Nguyen et al, 2008 [14]	2004	Ho Chi Minh City	MSM	600
3	CREATA 2012 [21]	2009 2011	Hanoi Ho Chi Minh City Nha Trang	MSWs (are MSM)	710
4	Colby 2003 [17]	2001	Ho Chi Minh City	MSM	219
5	UNODC 2012 [31]	2010 2011		Risk groups (incl. MSM)	1352 (270)
6	NIHE and FHI [15]	2006	Hanoi Ho Chi Minh City	Risk groups (incl. MSM)	(790)
7	MOH and NIHE [16]	2009	Hanoi, Haiphong Ho Chi Minh City Cantho	Risk groups (incl. MSM)	(1596)
8	Colby et al. 2008 [13]	2005	Khanh Hoa	MSM	295
9	Vu et al. 2012 [29]	2009	Hanoi, Ho Chi Minh City	MSM, MSWs, transgender, (stakeholders)	115 (9)
10	Vu et al. 2008 [41]	2004	Ho Chi Minh City	MSM (key informants)	90 (16)
11	Ngo et al. 2009 [22]	2007 2008	Hanoi, Ho Chi Minh City	Young men and MSM	NA

*"MSWs" stands for "male sex workers."

was the most frequently used lubricant, accounting for 53% of MSM, whereas other lubricants were antibiotic ointment, skin lotion, and lubricants (water soluble and nonsoluble). Although there was no research on the effect of using saliva as a lubricant in Vietnam, the use of saliva could result in infection by a salivary pathogen such as the herpes virus, hepatitis B virus, and cytomegalovirus [20].

As research showed that MSM, especially MSM selling sex, were an HIV bridge group who might have unprotected sex with individuals who are at low risk of HIV exposure [14], current studies also explored HIV risk among male sex workers (MSWs) [18, 21]. MSWs reported that they had about 10 male sex partners during the past 30 days, and that they did not always use condoms when having anal sex. About 30% of MSWs in Hanoi, 25% in HCMC, and 55% in Nha Trang reported having unprotected anal intercourse [21].

3.2. Lack of Attention to Sexual Health and Syndemic Conditions. Sexual health is defined as a state of physical, emotional, mental, and social well-being concerning sexuality, as opposed to only referring to the absence of disease, dysfunction, or infirmity [10]. It entails considering sexuality and sexual relationships in a positive and respectful manner, and the possibility of safe as well as pleasurable sexual experiences [11]. The sexual health model suggested by Robinson et al. [10] is a broad approach to HIV prevention.

Sexual orientation has received more attention in current studies than in the past. Though public opinion regarding MSM is more open in Vietnam at this time [22], the proportion of MSM who do not disclose their sexual orientation and consider themselves as "bong kin" (the Vietnamese term of "bong kin" refers to men who do not want to be identified as same-sex attracted men and exhibit their masculinity appearance), a nontransvestite, or homosexual, is still very high. For instance, 66% of MSM in HCMC considered themselves as homosexual [17] and up to 77% of them were non-transvestites [14]. A challenging issue in studying male homosexual identities is that there is no common agreement or an official guide on categorizing sexual orientations, making comparisons among studies impossible.

Studies of cooccurring psychosocial problems, or psychosocial "syndemics," have found that mental health problems among MSM are associated with HIV risk, and that there is an additive risk with each psychological problem with respect to sexual risk-taking behavior in MSM [23]. As MSM suffer a greater number of psychological problems, their risk for engaging in sexual risk behaviors grows, as does their risk for HIV infection [23]. Mustanski et al. [24] found synergistic effects of multiple psychological risk factors on sexual risk taking in young HIV-negative MSM. Recent research suggests that this phenomenon may also extend to HIV-infected MSM. In a sample of 380 HIV-infected MSM, those with one to three syndemic indicators (childhood sexual abuse, PTSD, anxiety disorders, depression, polysubstance use, alcohol abuse) had a greater than twofold increase in the likelihood of exhibiting sexual transmission risk behavior, whereas those with four or more syndemic indicators experienced a fourfold increase in such behavior [25].

In Vietnam, substance abuse, especially involving alcohol and amphetamines, and mental health problems are common among MSWs and are associated with unsafe sex [18]. Analysis of six syndemic conditions (alcohol use, amphetamine use, suicide risk, low self-esteem, PTSD score, childhood sexual abuse) and unprotected anal intercourse (UAI) showed that when the number of syndemic conditions was high, the possibility of UAI was high; the percentages of those having four, five, or all six conditions also reporting UAI were 50%, 67%, and 100%, respectively [18].

The following are various conditions that call for broader attention.

3.2.1. Use of a Broad Range of Drugs. A paper reporting the presentation of Grant Colfax, M.D., (San Francisco Department of Public Health) showed that prevalence of substance use among MSM continues to be high and that there is an association between noninjection drug use with HIV risk [26]. Some theories explaining this association are that altered mental states lead to reductions in condom use, and enhanced desire/pleasure and decreased pain lead to more partners, longer sex, and tissue damage/blood contact [26]. A review of studies on the association between club drugs and HIV risks proposes that such drugs result in a number of impacts on the human body, such as changed mental state, decreased experience of pain, and enhanced sexual function. This leads to reduced condom use, tissue damage or increased bleeding, and an increased number of sexual partners, all of which increase the risk of STI/HIV infection [27].

In Vietnam, there is a strong association between drug injection and HIV infection among men who have sex with men [14, 15, 28]. There is also an association between using drugs and selling sex [29]. However, knowledge about substance use and its association with risk behaviors for HIV and other health problems among MSM in Vietnam is limited to data collected from cross-sectional and opportunistic samples [17]. Notably, while injection drug use among MSM seems to be unchanged, HIV infection among this population sharply increased in Hanoi and HCMC from 2005 to 2009 [15, 28]. It is suggested that new dynamics of HIV risk may occur among MSM and that drug use may be associated with those changes, which requires further investigation.

Drug use among MSM, particularly non-injection drug use, has become more common. In 2001, fewer than 2% of MSM in HCMC admitted to using intravenous drugs [17]. Another study in HCMC in 2004 reported that 6% of the MSM had "ever used drugs," both injection and non-injection, of whom 66% had used heroin, 4% opium, 4% amphetamine, and 25% tranquilizers [14]. The results of IBBS surveys in 2006 and 2009 showed that the proportion of MSM who had ever used drugs increased from 22.8% in Hanoi and 21.0% in HCMC in 2006 to 31.8% and 25.3% in 2009, respectively. However, the proportion of those who had ever injected drugs remained stable (9.2% in Hanoi and 3.8% in HCMC in 2006 and 6.0% and 8.0% in 2009, resp.) [15, 16].

Currently, research on substance use among MSM has paid more attention to non-injection drugs, or so-called "club drugs." A subsample of men selling sex, as part of a larger study of young heroin users in Hanoi in 2002, was analyzed. In addition to heroin, many men selling sex reported the use of other types of drugs in the past 30 days: 13% used marijuana, 13% used amphetamine/methamphetamine, 8% used ecstasy (MDMA), 6.3% used opium, and 3.8% used morphine [30]. Research in HCMC in 2010 revealed that 27% of MSM reported ecstasy use, whereas only 2% reported injecting heroin use [17]. Research showed that, partly due to the misconception that the use of club drugs such as ecstasy and "ice" (methamphetamine) would help them quit heroin, drug use was shifting from heroin to club drugs as well as polydrug use [29].

In 2012, a report on amphetamine-type stimulants (ATSs) in Vietnam was published [31]. It included information about knowledge and use of ATSs among MSM. According to the report, the percentage of MSM who had heard of methamphetamine, ice, and ecstasy was 36%, 70% and 96%, respectively. Knowledge of the effects of ATSs was low with regard to depression (51%), decreased appetite (72%), violent or uncontrolled behavior (71%), and increased chance of sexual risk behavior (75%). MSM on average knew 11 people in their social network who used ATSs. The percentage of ATSs use was 11% for methamphetamine, 82% for ecstasy, and 57% for ice. Frequency of use of ecstasy was 10% for several times per week, 17% for once per week, 46% for several times per month, and 28% for once or twice in last 90 days. Frequency of use of ice was 21% for several times per week, 21% for once per week, 44% for several times per month, and 15% for once or twice in the last 90 days.

It is documented that unsafe sex is associated with drug use [29]. Some MSM combine drugs; for example, ketamine or marijuana is combined with ecstasy to enhance sexual pleasure. Moreover, MSM fail to use condoms during sex due to loss of control under the influence of drugs. MSM would consciously use a condom when having sex while not drunk, but did not think of using a condom while high on ecstasy or ice. Condom use among MSM may be limited during group sex when drugs are involved. In addition, there is a clear link between drug use and sex work; drugs are used as a tool for sex work, specifically to enhance sexual performance and to increase sexual confidence with male clients. Selling sex for drugs may be the most desperate option and is the most risky situation due to it leading to accepting unprotected sex by all means to have drugs [29]. However, a limitation of studies on MSM is that they do not show a statistically significant association between non-injection drug use and risk behavior for HIV infection.

3.2.2. Heavy Alcohol Use . The link between alcohol use and risky sexual behavior is investigated in a number of studies. Whereas one study found that alcohol use is a factor related to unprotected sexual behavior [32], another study found little evidence for a direct connection between alcohol use and risky sex [33]. On the other hand, several studies suggested that outcome expectancies and sensation seeking might play a role in predicting both unsafe sex and alcohol use. A study on HIV-positive MSM stated that alcohol use plays a role in three basic sexual scripts, namely, "routine," "spontaneous," and "taboo," which have their own sources of risk for unsafe sex [34]. Sexual scripts are the narrative ways in which people organize their beliefs and expectations regarding sexual behaviors [34]. In routine sexual scripts, participants drank alcohol in a planned and conscious manner, and used it "as a social lubricant and as a prerequisite for sex." In spontaneous sexual scripts, people "ascribed their sexual activities or their partner-selection choices to the effects of alcohol." On

the other hand, in taboo scripts, participants "engaged in sexual behavior and/or thoughts that they felt were socially stigmatized" while under the influence of alcohol [34].

In a study in Ho Chi Minh City, the percentage of alcohol drinking among MSWs was high (66%), of which 19% of them drank heavily (weekly binges) [18]. Another study showed a high prevalence of alcohol use at the last sexual encounter with Vietnamese clients: 41%, 34%, and 64% for Hanoi, HCMC, and Nha Trang, respectively. The prevalence of alcohol use at last sexual encounter with non-Vietnamese clients was 21%, 20%, and 50% [21].

3.2.3. Burden of Mental Health Disorders. Studies worldwide have found that MSM are disproportionally affected by mental health problems [35] and that sexual minorities, MSM included, are at increased risk for depressive, anxiety, and substance use disorders [36–38]. In Vietnam, a current study of MSM showed that their knowledge about the mental health effects of ATSs is limited [31]. While MSM believed that the use of ATSs could lead to hallucinations, the majority of them did not seem to think that the use of ATSs could lead to short- or long-term feelings of depression. This finding was more pronounced regarding the use of ecstasy than for ice. MSM were more likely to think that using ice could lead to feelings of depression, although this perception was still under 50%. Another study on MSWs revealed a high prevalence of mental health disorders [21]. Percentages of significant psychological distress ($\geq$16) among MSM were 61% in Hanoi, 49% in HCMC, and 71% in Nha Trang, while the figures for moderate-to-high anxiety were 17%, 11%, and 30%, respectively. The study also suggested a possible association among alcohol use, drug use, and sexual risk. The fact that data on mental health disorders is limited reflects the lack of research on mental health among MSM in Vietnam.

3.2.4. Persisting Stigma and Limited Access to Services. Historical and cultural norms may prove to be significant obstacles to any HIV/AIDS prevention efforts aimed at MSM in Vietnam. Stigma related to homophobia has been fueled by misconceptions of homosexuality [39]. Criminalization of homosexuality can exacerbate HIV epidemics [40]. In Vietnam, fear and misperceptions about the risks and routes of HIV transmission were considered as principle causes of stigma and discrimination among people living with HIV/AIDS [39]. Discrimination in health care settings was common. Manifestations included nonverbal actions, such as being ignored or stared at with disapproving facial expressions, and being treated with an unfriendly attitude. Verbal abuse and routine service refusal were also observed. MSM felt that they faced double stigmatization due to their homosexuality and their HIV infection. Many MSM said that the only way to cope with the discrimination they faced from neighbors was to ignore it [41, 42].

A study in Ho Chi Minh City showed that the percentage of MSWs who had access to services increased significantly from 2009 to 2010. For instance, the percentage of MSWs receiving condoms increased from 45% to 74%, lubricant from 30% to 71%, HIV brochures for MSM from 25% to 67%, and HIV tests from 37% to 50%. However, the proportion of MSWs receiving all four services was still low, accounting for only 34%. In 2010, only 36% of MSWs received STI exams, whereas 68% met with peer educators [18]. Moreover, MSWs rarely disclosed their sexual contacts with men to health care staff due to stigma and self-stigma, which led to ineffective engagement with health services [21].

4. Conclusion

Although this study was conducted in a rigorous manner, it still has some limitations. As the number of quantitative studies, as well as the size of samples, was limited, data were not sufficient for a meta-analysis, reducing the power and generalization of the results. The use of qualitative studies partly compensated for this drawback, yet solid arguments were not always gathered. Lastly, although statistics reported in government reports were largely not peer-reviewed, in the context of the limited number of studies on MSM, using these reports was a reasonable choice.

This paper shows that a limited number of studies have addressed a number of major aspects related to the broad syndemic of health problems among men who have sex with men in Vietnam. And yet, knowledge on various health risks among MSM in Vietnam was incomplete, while the relationship among sexual health, drug, and alcohol use, and health-related problems was multifaceted. Among various health risks, HIV and STIs, as well as drug use, have received more attention, while other conditions, such as alcohol use, mental health, and stigma, have received much less attention. Despite this lack of knowledge, enough evidence exists to support the call for an integrated approach to addressing HIV infection among this group. Future research should focus on the sexual health model [10] and syndemic conditions that prevent MSM from achieving better health. Further research also should focus on these syndemic conditions to provide evidence for better preventive initiatives.

Conflict of Interests

The authors declare that there is no conflict of interests.

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References

[1] K. H. Mayer, J. B. Bradford, H. J. Makadon, R. Stall, H. Goldhammer, and S. Landers, "Sexual and gender minority health: What we know and what needs to be done," *American Journal of Public Health*, vol. 98, no. 6, pp. 989–995, 2008.

[2] K. H. Mayer, L. G. Bekker, R. Stall, A. E. Grulich, G. Colfax, and J. R. Lama, "Comprehensive clinical care for men who have sex with men: an integrated approach," *The Lancet*, vol. 380, no. 9839, pp. 378–387, 2012.

[3] P. S. Sullivan, A. Carballo-Diéguez, T. Coates et al., "Successes and challenges of HIV prevention in men who have sex with men," *The Lancet*, vol. 380, pp. 388–399, 2012.

[4] S. Baral, F. Sifakis, F. Cleghorn, and C. Beyrer, "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*, vol. 4, no. 12, pp. 1901–1911, 2007.

[5] R. Stall and D. W. Purcell, "Intertwining epidemics: a review of research on substance use among men who have sex with men and its connection to the AIDS epidemic," *AIDS and Behavior*, vol. 4, no. 2, pp. 181–192, 2000.

[6] F. van Griensven and J. W. de Lind van Wijngaarden, "A review of the epidemiology of HIV infection and prevention responses among MSM in Asia," *AIDS*, vol. 24, supplement 3, pp. S30–S40, 2010.

[7] K. Stuart, "Asia Internet men who have sex with men sex survey," Preliminary Report, Fridae, Singapore, 2010.

[8] S. H. Lim, T. E. Guadamuz, C. Wei, R. Chan, and S. Koe, "Factors associated with unprotected receptive anal intercourse with internal ejaculation among men who have sex with men in a large internet sample from Asia," *AIDS and Behavior*, vol. 16, no. 7, pp. 1979–1987, 2012.

[9] K. Kulsudjarit, "Drug problem in southeast and southwest Asia," *Annals of the New York Academy of Sciences*, vol. 1025, pp. 446–457, 2004.

[10] B. E. Robinson, W. O. Bockting, B. R. S. Rosser, M. Miner, and E. Coleman, "The sexual health model: application of a sexological approach to HIV prevention," *Health Education Research*, vol. 17, no. 1, pp. 43–57, 2002.

[11] E. Coleman, "What is sexual health? Articulating a sexual health approach to HIV prevention for men who have sex with men," *AIDS and Behavior*, vol. 15, supplement 1, pp. S18–S24, 2011.

[12] M. Singer and S. Clair, "Syndemics and public health: reconceptualizing disease in bio-social context," *Medical Anthropology Quarterly*, vol. 17, no. 4, pp. 423–441, 2003.

[13] D. Colby, T. T. Minh, and T. T. Toan, "Down on the farm: homosexual behavior, HIV risk and HIV prevalence in rural communities in Khanh Hoa province, Vietnam," *Sexually Transmitted Infections*, vol. 84, pp. 439–443, 2008.

[14] T. A. Nguyen, H. T. Nguyen, G. T. Le, and R. Detels, "Prevalence and risk factors associated with HIV infection among men having sex with men in Ho Chi Minh City, Vietnam," *AIDS and Behavior*, vol. 12, no. 3, pp. 476–482, 2008.

[15] National Institute of Hygiene and Epidemiology and Family Health International, *Results of Integrated Biological and Behavioral Surveillance (IBBS) in Vietnam 2005-2006*, Medical Publishing House, Hanoi, Vietnam, 2006.

[16] Ministry of Health and National Institute of Hygiene and Epidemiology (MOH and NIHE), *National Integrated HIV Bio-Behavioral Surveillance*, Family Health International, Hanoi, Vietnam, 2009.

[17] D. J. Colby, "HIV knowledge and risk factors among men who have sex with men in Ho Chi Minh City, Vietnam," *Journal of Acquired Immune Deficiency Syndromes*, vol. 32, no. 1, pp. 80–85, 2003.

[18] D. J. Colby, "Results of research on MSW in Ho Chi Minh City," Ho Chi Minh City, Vietnam, 2010.

[19] F. Jin, G. P. Prestage, L. Mao et al., "Incidence and risk factors for urethral and anal gonorrhoea and chlamydia in a cohort of HIV-negative homosexual men: the health in men study," *Sexually Transmitted Infections*, vol. 83, no. 2, pp. 113–119, 2007.

[20] L. M. Butler, D. H. Osmond, A. G. Jones, and J. N. Martin, "Use of saliva as a lubricant in anal sexual practices among homosexual men," *Journal of Acquired Immune Deficiency Syndromes*, vol. 50, no. 2, pp. 162–167, 2009.

[21] CREATA, "Behavioral and Clinical indicators of HIV risk among men who sell sex in three cities in Vietnam," in *Proceedings of The 1st Research Seminar on LGBT Health*, Ho Chi Minh City, Vietnam, 2012.

[22] D. A. Ngo, M. W. Ross, H. Phan, E. A. Ratliff, T. Trinh, and L. Sherburne, "Male homosexual identities, relationships, and practices among young men WHO have sex with men in Vietnam: implications for HIV prevention," *AIDS Education and Prevention*, vol. 21, no. 3, pp. 251–265, 2009.

[23] R. Stall, T. C. Mills, J. Williamson et al., "Association of co-occurring psychosocial health problems and increased vulnerability to HIV/AIDS among urban men who have sex with men," *American Journal of Public Health*, vol. 93, no. 6, pp. 939–942, 2003.

[24] B. Mustanski, R. Garofalo, A. Herrick, and G. Donenberg, "Psychosocial health problems increase risk for HIV among urban young men who have sex with men: Preliminary evidence of a syndemic in need of attention," *Annals of Behavioral Medicine*, vol. 34, no. 1, pp. 37–45, 2007.

[25] C. O'Cleirigh, M. Mimiaga, S. A. Safren, R. Stall, and K. H. Mayer, "Synergistic effects of psychosocial and substance use problems on increased sexual transmission risk among HIV-infected men who have sex with men," in *Proceedings of the XVIII International AIDS Conference*, Vienna, Austria, 2010.

[26] H. Goldhammer and K. H. Mayer, "Focusing on sexual health promotion to enhance preventive behaviors among gay men and other men who have sex with men: report from a state-of-the-art conference," *AIDS and Behavior*, vol. 15, pp. S1–S8, 2011.

[27] L. N. Drumright, T. L. Patterson, and S. A. Strathdee, "Club drugs as causal risk factors for HIV acquisition among men who have sex with men: a review," *Substance Use and Misuse*, vol. 41, no. 10–12, pp. 1551–1601, 2006.

[28] V. H. Tran, "Preliminary results of integrated biological and behavioral surveillance (IBBS) in Vietnam 2009-2010," in *The 4th National Scientific Conference on HIV/AIDS*, Hanoi, Vietnam, 2010.

[29] N. B. Vu, K. P. Mulvey, S. Baldwin, and S. T. Nguyen, "HIV risk among drug-using men who have sex with men, men selling sex, and transgender individuals in Vietnam," *Culture, Health & Sexuality*, vol. 14, no. 2, pp. 167–180, 2012.

[30] M. C. Clatts, M. G. Le, L. A. Goldsamt, and H. Yi, "Male sex work and HIV risk among young heroin users in Hanoi, Vietnam," *Sexual Health*, vol. 4, no. 4, pp. 261–267, 2007.

[31] UNODC Vietnam, *Amphetamine-Type Stimulants in Vietnam*, UNODC Vietnam Country Office, Hanoi, Vietnam, 2012.

[32] D. W. Purcell, J. T. Parsons, P. N. Halkitis, Y. Mizuno, and W. J. Woods, "Substance use and sexual transmission risk behavior of HIV-positive men who have sex with men," *Journal of Substance Abuse*, vol. 13, no. 1-2, pp. 185–200, 2001.

[33] L. S. Weinhardt and M. P. Carey, "Does alcohol lead to sexual risk behavior? findings from event-level research," *Annual Review of Sex Research*, vol. 11, pp. 125–157, 2000.

[34] J. T. Parsons, K. J. Vicioso, J. C. Punzalan, P. N. Halkitis, A. Kutnick, and M. M. Velasquez, "The impact of alcohol use on the sexual scripts of HIV-positive men who have sex with men," *Journal of Sex Research*, vol. 41, no. 2, pp. 160–172, 2004.

[35] S. A. Safren, A. J. Blashill, and C. M. O'Cleirigh, "Promoting the sexual health of MSM in the context of comorbid mental

health problems," *AIDS and Behavior*, vol. 15, pp. S30–S34, 2011.

[36] S. D. Cochran and V. M. Mays, "Relation between psychiatric syndromes and behaviorally defined sexual orientation in a sample of the US population," *American Journal of Epidemiology*, vol. 151, no. 5, pp. 516–523, 2000.

[37] T. G. M. Sandfort, R. de Graaf, R. V. Bijl, and P. Schnabel, "Same-sex sexual behavior and psychiatric disorders: findings from the Netherlands mental health survey and incidence study (NEMESIS)," *Archives of General Psychiatry*, vol. 58, no. 1, pp. 85–91, 2001.

[38] S. D. Cochran, J. G. Sullivan, and V. M. Mays, "Prevalence of mental disorders, psychological distress, and mental health services use among lesbian, gay, and bisexual adults in the United States," *Journal of Consulting and Clinical Psychology*, vol. 71, no. 1, pp. 53–61, 2003.

[39] Institute for Social Development Studies (ISDS), *Understanding and Reducing Stigma Related to Men Who Have Sex With Men and HIV*, Women Publishing House, Hanoi, Vietnam, 2010.

[40] "The Global Forum on MSM and HIV. Social discrimination against men who have sex with men (MSM)," http://www.msmgf.org/files/msmgf//Advocacy/Policy_Briefs/Stigma_EN_hi.pdf.

[41] B. N. Vu, P. Girault, B. V. Do, D. Colby, and L. T. B. Tran, "Male sexuality in Vietnam: the case of male-to-male sex," *Sexual Health*, vol. 5, no. 1, pp. 83–88, 2008.

[42] M. D. A. Thi, D. B. Brickley, D. T. N. Vinh et al., "A qualitative study of stigma and discrimination against people living with HIV in Ho Chi Minh City, Vietnam," *AIDS and Behavior*, vol. 12, no. 1, pp. S63–S70, 2008.

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Review Article

Developing Effective Health Interventions for Women Who Inject Drugs: Key Areas and Recommendations for Program Development and Policy

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Women who inject drugs face multiple gender-specific health risks and barriers to healthcare access. These gendered factors may contribute to elevated rates of HIV for this population. Though few countries systematically collect gender-disaggregated data related to injecting drug use, evidence indicates that there are large populations of women who inject drugs and who are in need of improved health services, including HIV prevention. Research on the effectiveness of interventions specifically tailored for women who inject drugs, along with the experience of programs working with this subpopulation, suggests that HIV risk practices need to be addressed within the larger context of women's lives. Multifaceted interventions that address relationship dynamics, housing, employment, and the needs of children may have more success in reducing risky practices than interventions that focus exclusively on injecting practices and condom use. Improved sexual and reproductive healthcare for women who use drugs is an area in need of development and should be better integrated into basic harm reduction programs.

1. Introduction

There are significant differences in the health status and risk practices of female injecting drug users (IDUs) as compared to male IDU. A recent comprehensive review by the Reference Group to the United Nations (UN) on HIV and injecting drug use found that compared to their male counterparts, women who inject drugs experience significantly higher mortality rates, increased likelihood of injection-related problems, faster progression from first drug use to dependence, higher levels of risky injection and/or sexual risk behaviors, and higher rates of HIV [1]. Similarly, a systematic review of studies from 14 countries found a significantly higher prevalence of HIV among female IDU than among male IDU in settings with high HIV prevalence [2], and a review of studies in nine European Union countries found that the average HIV prevalence was more than 50% higher among female IDU than among their male counterparts [3].

Research on women who inject drugs comes mainly from North America, Western Europe, and Australia. Although there is a growing body of research on female IDU in low- and middle-income countries, to date there has been no systematic analysis of the prevalence of injecting drug use among women internationally, and data on women as a percentage of people who inject drugs is sparse. In the global data holdings on injection drug use and HIV maintained by the Reference Group to the UN on HIV and injection drug use, none of the countries that report injecting drug use have data disaggregated by gender. The Reference Group's global

Table 1: Women as percentage of all IDU in selected countries.

Country/territory	Women as an estimated percentage of all IDU [unless otherwise noted, all estimates are from [4]]	Total estimated IDU population [all estimates are from [5]]	HIV prevalence among IDU (%) [all estimates are from [5]]
Cambodia	10%	1900	24.1
Canada	33% [6]	286,987	5.8
China	20%	2,350,000	6.4
Estonia	9% [3]	13,800	54.3–89.9
Georgia	10%	40,000	3.9
Indonesia	11%	105,784	36
Kenya	11%	49,167	18.3
Kyrgyzstan	10%	25,000	14.6
Malaysia	10%	170,000	8.7
Russian Federation	30%	1,815,000	37.15
South Africa	27%	67,000	19.4
Ukraine	26%	296,000	21.5
Vietnam	18%	158,414	13.4

data holdings also show that countries that provide HIV prevention, treatment, care, and support services for people who inject drugs generally fail to disaggregate data based on gender. This makes it difficult to assess disparities in access to services or the degree to which available services respond effectively to women's needs. This is cause for concern, as estimates suggest that women are a sizable minority of people who inject drugs in several settings with large populations of IDU, including Russia, China, and Ukraine (see Table 1).

Existing evidence on the experiences of women IDU globally suggests that in many settings this population faces limited access to some health services, including reproductive health care, prevention of mother-to-child transmission of HIV (PMTCT), and drug treatment [1, 10, 11]. In some settings, particularly in culturally conservative regions such as Central Asia or the Caucasus, the social stigma attached to women's injecting drug use and to HIV and sexually transmitted infections (STIs) can be a formidable barrier to access to harm reduction services such as needle and syringe programs (NSPs), opioid substitution treatment (OST), HIV treatment, sexual and reproductive health care, and other medical services (see Text Box 1). For example, women IDU in Central Asia have reported being afraid to visit a service site because neighbors might see them there and thus find out that they use drugs or are HIV-positive, which could have devastating social consequences [10, 11].

Because women are a minority of the IDU population, they are not always included in relevant health programs. In some countries, for example, antiretroviral treatment (ART) and OST are available in men's prisons, but not in women's [10, 12, 13]. Many harm reduction programs do not respond to the specific needs of women, such as reproductive health care, and provide only a basic package of injecting supplies, condoms, and gender-neutral health information [11]. At the same time, women who use drugs may be excluded from women's shelters and other special services for at-risk women [5, 11, 13] or have reduced access to PMTCT because of their status as drug users [14]. In summary, women who use drugs are often forgotten by services for drug users due to their sex and neglected by services for high-risk women and people with HIV due to their drug use.

Drawing on existing research, this article will analyze key areas in which the experience of female IDU differs from that of male IDU. It will then discuss potential strategies to help better address these areas in HIV prevention services.

1.1. Injecting Drug Use and Sexual Relationships. Multiple studies have found that women who inject drugs have greater overlap between sexual and injection social networks than men do, and that they are more likely than their male counterparts to have a sexual partner who injects drugs [1, 5]. This may reflect the greater social isolation of women IDU due to the particular stigma of women's drug use, as well as the fact that women are a minority of the IDU population [15, 16]. Overlap of sexual and injection networks may increase women's risk of acquiring HIV through sexual transmission as well as through unsafe drug injecting. For example, a woman who does not herself share injecting equipment could be exposed to HIV by a sexual partner who does. Some couples share injecting equipment as a gesture of trust or intimacy [17]. Female IDU are more likely than male IDU to be dependent on a sexual partner for help acquiring drugs and injecting [1]. Being injected by someone else has been found to be an independent predictor of HIV incident infection, meaning that dependence increases women's HIV risk [18].

Relationship dynamics can make it difficult for women to access harm reduction services, enter and complete drug treatment (if desired), and practice safer drug use and safer sex [1]. Partners may forbid women to visit health services out of jealousy, or due to social stigma [13]. If a woman

A harm reduction approach to HIV programming

"Harm reduction" refers to policies, programs, and practices that aim primarily to reduce the adverse health, social, and economic consequences associated with the use of legal and illegal psychoactive drugs [7]. A harm reduction approach to HIV programming includes a set of nine key biomedical interventions endorsed by The World Health Organization (WHO), the Joint United Nations Program on HIV/AIDS (UNAIDS), and the United Nations Office on Drugs and Crime (UNODC) [8]. These include the following

(1) Needle and syringe programmes (NSPs).
(2) Opioid substitution therapy (OST) and other drug dependence treatment.
(3) HIV counselling and testing (VCT).
(4) Antiretroviral therapy (ART).
(5) Prevention and treatment of sexually transmitted infections (STIs).
(6) Condom programmes for people who inject drugs and their sexual partners.
(7) Targeted information, education, and communication (IEC) for people who inject drugs and their sexual partners.
(8) Vaccination, diagnosis, and treatment of viral hepatitis.
(9) Prevention, diagnosis, and treatment of tuberculosis (TB).

Some advocates have suggested that a comprehensive package representing a harm reduction approach reaches beyond biomedical interventions to include community-oriented programs such as livelihood development and access to justice/legal services, as well as an expanded list of clinical services including sexual and reproductive health and prevention of mother to child transmission (PMTCT) services [9].

Box 1

wishes to enter drug treatment but her partner does not, he may oppose her decision. Even if he is not opposed, his continued drug use may make it difficult for her to stop or reduce her own.

Intimate partner violence (IPV) is more commonly reported among women who use drugs than among women in the general population. Some studies have estimated that the prevalence of physical and sexual IPV is three to five times higher among women who use drugs as compared to community-based samples of nondrug-using women [1, 19, 20]. (Some of the research discussed here applies to the broader category of women who use drugs, rather than being specific to women IDU. Given that women IDU are a subcategory of women who use drugs, often experiencing severe levels of drug dependence and greater health risks and social marginalization, it is reasonable to assume that women IDU share many of the problems faced by the larger group of women who use drugs.) Problematic drug use among women is often associated with a history of sexual and physical abuse [20–23]. (EMCDDA defines "problem" drug use as "injecting drug use or long duration or regular use of opioids, cocaine and/or amphetamines." Definitions of "problem," "hard," or "heavy" drug use can vary, but generally fit this basic description.) Some evidence suggests that women may be more likely to engage in substance use as a way of self-medicating for mental health issues, such as depression, anxiety, and posttraumatic stress disorder, that are often the result of trauma, abuse, and violence [24–26]. Because it can impair a woman's freedom of choice [27, 28], contribute to self-destructive behaviors [29, 30], and cause instability in a woman's living situation and further dependence on her partner [31], IPV can reduce a woman's ability to practice safer sex and safer drug-injecting practices [20, 31]. Drug use and IPV often co-occur as part of a cyclical pattern in which the stress and trauma caused by IPV contributes to women's continued drug use, and the activities and behaviors associated with drug use further increase the risk for IPV [32]. A history of violence can also be an obstacle to healthcare access. For example, it may make women feel uncomfortable in a support group, where the majority of participants are men, or when receiving pelvic exams [33]. Where a history of trauma contributes to problem drug use or risky behaviors, it is important that harm reduction and drug treatment programs take this into account, and that staff are trained in how to address these issues appropriately [34].

Although evidence in this area is particularly limited, some research indicates that a significant portion of women IDU have sex with women, and that there is a high prevalence of risky sexual and drug use practices among IDU women who have sex with women (WSW). The stigma and discrimination faced by WSW may contribute to increased levels of drug use, and many WSW have sex with men as well as women, sometimes in transactional situations [35–38].

1.2. Injecting Drug Use and Sex Work. There is significant overlap between women's injecting drug use and engagement in sex work (the performance of sexual services for a payment negotiated in advance), especially sex work that takes place on the street (rather than through a brothel which usually offers some measure of physical security). Participation in sex work has been associated with syringe sharing and inconsistent condom use, as well as other risks posed by the dangerous circumstances in which sex work often takes place [1]. Sex workers often risk losing work if their clients or employers find out that they inject drugs, which can

deter sex workers from seeking harm reduction services when needed [11]. Sex workers who trade sex for drugs or who work to support a drug habit often work in higher risk situations (e.g., on a highway, where they are alone and very vulnerable to violence, including rape) and may be less likely to use condoms, in part because the pain of drug withdrawal presents a more immediate threat than HIV or STIs [39]. Research has shown that women IDU who engage in sex work have higher HIV prevalence than their IDU peers who do not sell sex [40]. Punitive policy and legal environments often prevent this population from accessing essential HIV prevention services, and exacerbate the vulnerabilities and risks that they face [41].

1.3. Women and Drug Treatment. As compared to men, there appear to be a number of differences in women's motivations to enter and complete OST and other types of drug treatment and in the personal dynamics that play a part in treatment success [1]. Many women cite pregnancy as a central reason for treatment entry, though punitive policies that separate drug-using women from their children can deter pregnant women and mothers from entering drug treatment [1]. A partner's entry into treatment is another key factor that can facilitate treatment entry for women [1]. OST and certain other types of drug treatment have been found to be especially effective in helping women reduce their drug use, while detoxification alone is significantly less successful for female IDU than for their male counterparts [1].

1.4. Sexual and Reproductive Health and Pregnancy. While harm reduction programs usually include condom distribution and HIV/STI testing (and sometimes treatment), many do not address other aspects of sexual and reproductive health—despite the fact that many women IDU experience unplanned pregnancies [10, 11, 13, 42]. Some women do not realize they are pregnant until relatively late, making it more difficult for them to access appropriate prenatal care, drug treatment (if desired), and other support, or to terminate their pregnancies safely if they so choose [10, 11, 13, 43].

Faced with high levels of stigma and discrimination, often combined with poverty, unstable housing, and other problems, women who inject drugs often have reduced access to prenatal care [10, 11, 13]. In some cases, laws and healthcare practices are directly responsible for this reduced access. In some parts of the United States, laws that criminalize drug use during pregnancy are powerful disincentives for women to get prenatal care and speak openly with their doctors about the best course of treatment, including drug treatment options [44, 45]. In Russia and Ukraine, drug addiction in itself is statutory grounds for abortion and termination of parental rights—this can apply even when a woman has begun drug treatment, since she is still listed on the government registry of drug addicts [46, 47]. Pregnant women who use drugs (including women with HIV) have reported heavy pressure from doctors to have abortions, sometimes late in the pregnancy; doctors have been reported to tell reluctant women that their baby is certain to have severe birth defects, such as missing limbs [46–48]. Doctors also pressure women to give up custody of their newborns and humiliate and intimidate them; this is an obvious reason for women to avoid healthcare during pregnancy [46, 47]. Reduced access to prenatal care can lead to reduced levels of PMTCT among women IDU living with HIV. A 10-year study in Western and Central Europe of ART during pregnancy found that a history of injecting drug use was associated with the risk of not receiving ART and with being diagnosed with HIV late in pregnancy [14].

The World Health Organization (WHO), United Nations Office on Drugs and Crime (UNODC), and the Joint United Nations Program on HIV/AIDS (UNAIDS) comprehensive harm reduction package for the prevention, treatment, and care of HIV among people who use drugs does not include contraceptive methods (other than condoms), pregnancy tests, pre- and postnatal care; or links between harm reduction, drug treatment, and prevention of vertical transmission of HIV [49]. Adding these to the package could help women who inject drugs to better manage their sexual and reproductive health, thus preventing unplanned pregnancies and improving pregnancy outcomes, including through improved access to prevention of vertical transmission of HIV.

Many pregnant women who are dependent on opiates may wish to begin OST or other forms of drug treatment. Prompt, easy access to these services is essential in improving outcomes for women and their children. While there has been some scale-up of OST worldwide [5], information and protocols on OST provision during pregnancy and postpartum (including during stays in maternity hospitals) do not exist in many countries, and OST is sometimes entirely unavailable for pregnant women or women in delivery, whether because doctors believe it is unsafe, or because of regulatory obstacles [10, 11, 13, 34, 46, 47]. This risks treatment interruptions and makes it more difficult for women to access the "treatment of choice" during pregnancy [34]. Long waits in some countries to enter OST and other drug treatment programs, and the complete unavailability of OST in some countries (notably Russia), threaten the health of all IDUs and are especially troubling in the case of pregnant women.

1.5. Women, Injecting Drug Use, and Prisons. An increasing number of women worldwide are being incarcerated for drug-related offences; many of these women are drug users in need of healthcare [50–55]. A recent study found that more than one in four female prisoners in Europe and Central Asia had been convicted of a drug offence [56]. The number of women incarcerated for drug-related offences in Russia is more than double the total number of female prisoners in all EU countries combined [56]. In Tajikistan, up to 70% of all female prisoners have been incarcerated for drug-related crimes [56]. The dual criminalization of sex work and drug possession puts sex workers who use drugs at especially high risk of police harassment, extortion, sexual coercion, and arrest [51].

In multiple settings, rates of injecting drug use and problematic drug use have been found to be higher among

incarcerated women than among their male counterparts [57]. In some settings, HIV prevalence is higher among women prisoners than among men [58]. Because of financial constraints and logistical or bureaucratic obstacles, however, programs sometimes prioritize male prisoners, operating only in men's prisons and leaving women without essential care [10, 12, 13]. For example, a 2008 survey of women's access to OST in prisons found that in the Republic of Georgia, methadone was available in some men's prisons but not in women's prisons [13]. Four years later this is still the case, with methadone detoxification available in two pretrial detention facilities for men, but in no women's facilities [59]. In Kyrgyzstan, though methadone programs were planned for women's prisons, funding cuts have meant that they are still unavailable; OST is available only in men's prisons [10]. Work is needed to ensure that all prisoners, regardless of sex, have uninterrupted access to necessary health services (including NSP, OST, and ART) while incarcerated, including during pretrial detention.

1.6. Housing and Other Aspects of Social Stability. A strong association has been established between unstable housing and HIV risk [60]. Homeless women may trade sex for shelter, a situation that can make them extremely vulnerable on many levels. In general, poverty can lead women to trade sex for drugs, food, or other necessities; in such situations, concerns about HIV can be less urgent than immediate survival [35, 60–62]. A recent study analyzing the effects of multiple dimensions of social instability—including housing, employment, and incarceration—on the HIV risk practices of low-income women in Baltimore, USA found that increased social stability was associated with decreased HIV risk practices related to sexual practices and drug use. Rather than acting incrementally and independently, the various dimensions of social stability were found to be "cumulatively and synergistically linked to HIV risk behavior" for the women studied. The study found that homelessness was the only indicator that was consistently associated with every one of the HIV-related outcomes, confirming that housing plays a crucial role in HIV risk for women [63].

Given the central role that social stability plays in the HIV risk practices of women drug users, an effective HIV prevention strategy for this group needs to address housing, employment, legal status, and other factors underpinning social stability. Women do not make decisions about safer sex or drug use in a void; their decisions are shaped by their living situations, relationships, and economic positions. An increasing number of researchers have found that health interventions are more effective when they take into account the broader context of women's behavior, rather than limiting themselves to the distribution of basic supplies and information.

2. Designing Health Services That Respond to the Needs of Women Who Inject Drugs

To date, there has been limited research on the efficacy of interventions specific to women who inject drugs [64]. This is partly because gender-sensitive services often mix multiple approaches, are tailored to the individual, and are relatively long-term interventions that strive to address HIV risk practices in the specific context of women's lives. Services that combine structural, biomedical, and behavioral interventions can be more difficult to evaluate through randomized controlled trials (RCTs) measuring HIV incidence [65]. Even simpler services, such as NSP, need to achieve considerable coverage before they can have a substantial impact on HIV incidence or prevalence [66]. In some cases, lack of evidence of impact may reflect external limitations such as a cap on the number of syringes provided daily, rather than a problem with the intervention design [65].

To date, HIV risk reduction interventions among women IDU have been more successful in reducing drug-related risks than unsafe sexual behaviors, likely because of structural factors, gender power imbalances within society that have a strong effect on sexual relationships, and women's sense of self-efficacy and independence [64, 67, 68]. This points to a need for interventions that increase women's self-efficacy and autonomy as well as their awareness of the importance of safer sex, and that address gender inequities and inequalities.

To date, several interventions designed for women IDU have shown evidence of success (for further examples see [69]).

(i) A woman-focused intervention in an inpatient detoxification program in St. Petersburg, Russia, found that in comparison with the control group (which received nutritional counseling), women receiving the HIV-focused intervention reported a lower frequency of partner intoxication during their last sex act and a lower average number of unprotected vaginal sex acts with their main IDU sexual partner. Both groups reported lower levels of injection frequency. The two-session intervention consisted of educational activities, skill-building demonstrations, guided practice, and roleplaying, covering topics including drug use and relationships, physical and sexual abuse, rape and violence prevention, ways of discussing and negotiating safer sex, and developing a personalized action plan to help women reduce alcohol and drug use and HIV risk and avoid sexual and physical violence [70].

(ii) In Baltimore, USA, the JEWEL intervention combined HIV prevention education and skills building with economic enhancement to reduce HIV risk among drug-using women (IDU and non-IDU) who traded sex for drugs or money. The HIV component aimed to increase women's knowledge about HIV, STIs, and drugs, improve their risk reduction knowledge and skills, and enhance self-efficacy and negotiation and communication skills to support safer sex. The economic component taught women how to make and sell jewelry, giving women practical skills while aiming to increase their self-efficacy in relation to licit employment. Self-reports three months after the intervention showed significant reductions in the exchange of drugs or money for sex,

the median number of sex trade partners per month, daily drug use and daily crack use, the amount of money spent on drugs daily, and injecting drug use. There was also a small increase in the percentage of women reporting that they never shared needles (from 86.7% to 93.7%). Income from the jewelry sale was associated with a reduction in the number of sex trade partners at followup. The study suggested that exposing women to the possibility of gaining legal employment supports positive behavior change [71].

(iii) In 2005, Family Health International Bangladesh established drug treatment services especially for women, leading to increasing numbers of women accessing treatment. Because OST was not available, treatment consisted of clonidine-assisted detoxification followed by three months of inpatient or outpatient care and followup. Women received HIV risk reduction counseling and voluntary counseling and testing, screening and treatment of STIs, overdose prevention education, and information on Hepatitis B and C. Counseling services were based on cognitive behavioral therapy and client-centered approaches. The services were free of charge, targeting homeless women with a history of drug-related harms. They were provided by specially trained female staff members and included childcare, prenatal care, and vocational rehabilitation. Treatment for male drug-using partners was offered to reduce barriers to treatment and poor treatment outcomes. A study of the program found that participation in the program was significantly associated with correct use of condoms, use of condoms during the last sex act, HIV testing, and correct assessment of risk [72].

(iv) One review analyzed studies of alcohol and drug treatment programs for women that included childcare, prenatal care, women-only programs, supplemental services and workshops that address women-focused topics, mental health programming, and comprehensive programming. These components were positively associated with better treatment outcomes, reduced mental health symptoms, improved birth outcomes, employment, improved self-reported health status, and HIV risk reduction. One randomized study of pregnant methadone clinic patients who received prenatal care, therapeutic child care during visits, and relapse prevention support found improved outcomes at delivery and a threefold increase in the number of prenatal visits [73].

(v) A qualitative metasynthesis of studies of US and Canadian integrated drug treatment programs for pregnant or parenting women and their children found that programs that combined medical and social support increased women's sense of self and personal agency, increased women's engagement with the program staff and sense of giving and receiving support, increased women's reported openness about feelings, improved women's ability to recognize patterns of destructive behaviors, and helped women set goals. These psychosocial processes were reported to play a role in women's recovery and contribute to favorable outcomes. The motivating presence of children during treatment was also found to support women in their recovery. Perceived outcomes of programs included improved maternal and child wellbeing and enhanced parenting capacity [74].

In addition to the interventions described above, organizations in many parts of the world have provided HIV prevention and other health and social services for women who inject drugs. While most of these services have not been yet the subject of formal research, reports from the programs suggest that they have been useful in increasing the number of women IDU accessing health services and in more effectively addressing women's health and social needs [11, 41, 75].

Specialized programs for women drug users can take a variety of forms, from the very simple to the more sophisticated. On one end of the spectrum are basic additions to standard harm reduction packages (e.g., women's hygiene supplies, female condoms, pregnancy tests, woman-specific information materials, and diapers/baby supplies). Programs may designate special times for women to visit a center, have a staff member available to watch children while their mothers receive counseling or other services, or open women-only support groups. They can work to ensure a gender balance in their staff, train staff on gender issues, and address gender-specific needs. Many programs have found it useful to establish relationships with "trusted" gynecologists and other specialists who are familiar with drug use issues and who provide women with supportive, nonjudgmental care. Where possible, it is also desirable to give primary care providers and women's clinic staff basic training on drug use and HIV, so that they can identify possible cases and offer friendly referrals to nonjudgmental care [76].

These kinds of additions may be the most realistic option in settings, where harm reduction funding is very limited.

In the middle of the spectrum are new services based on an existing service site. Examples include counseling to respond to intimate partner violence and other trauma; parenting classes and work with women's children; mobile NSP, OST, and basic medical services for women unable to visit fixed service sites; legal aid to help women resolve problems with documents, housing, and access to social benefits [11, 38, 67]; economic empowerment efforts [71]; the provision of sexual and reproductive healthcare, including PMTCT [11, 43, 75]. These added services may be beyond the means of some programs, but can go a long way toward addressing the range of factors—including relationships, long distances to service sites, and legal and financial problems—that affect HIV risk behaviors.

Multidisciplinary case management, which weaves many kinds of services together, can help patients navigate the often complicated and intimidating network of medical and social services [77]. Case management is a way of working with a woman in context, addressing the range of problems she faces rather than isolating a single issue, such as safe injecting or HIV prevention.

At the upper end of the spectrum are stand-alone facilities for women IDU, which are more often seen in upper-income countries (see, e.g., [77, 78]). These can include special facilities and programs for pregnant and parenting women with a history of substance abuse and separate inpatient drug treatment/rehabilitation facilities for women. One important service is short-term/transitional housing for homeless women and their children. In many countries, women's shelters are closed to women with a history of drug use, or even to women with HIV. Programs in places like St. Petersburg have reported the positive results of short-term "crisis" housing for women IDU and their children [5].

The strict rules applied to OST programs are problematic for many patients, but may pose special difficulties for women with small children. A long trip to and from an OST clinic every day, with very limited hours, may be an insurmountable barrier for someone responsible for caring for a family (and, in many cases, working a job as well). Where possible, it is desirable to make OST available in multiple settings (e.g., from neighborhood pharmacies), to have flexible clinic hours, and to allow take-home doses when possible. Clinical protocols on OST should be established for maternity hospitals and similar settings in order to avoid treatment interruptions.

Women who use drugs should always be involved in the design and implementation of these programs, to ensure that programs are effective, appropriate, and respectful of human rights [79, 80].

Health service provision to people who use drugs, including drug-using women, is heavily affected by policy. Punitive policing practices, criminalization of possession of drugs and drug paraphernalia, and policies that restrict NSPs and OST have been shown to exacerbate drug-related risks and harms and drive people who inject drugs away from prevention and care services [81–85]. For instance, policies penalizing drug use during pregnancy or while parenting discourage women from seeking needed care, including drug treatment [44, 45]. It is essential that accessible treatment services be supported by policies that encourage women to seek treatment, rather than threatening them with jail time. Because women who use drugs often have insufficient access to sexual and reproductive healthcare, it is important that governments provide low-cost, accessible, nonjudgmental sexual and reproductive health care for high-risk women, including women who use drugs. Overall, it is essential to recognize and challenge national and international laws, policies, and practices that create risky drug-using environments and contribute to drug-related harms, in order to ensure the maximum impact of effective interventions [86, 87].

3. Conclusion

There is a clear need for more systematic collection of data on women who inject drugs globally. However, evidence indicates that this group faces a heightened risk of HIV as well as other harms and special barriers in accessing health care. Existing research and the experience of providers implementing gender-sensitive harm reduction and drug treatment programs indicate the importance of a multidisciplinary approach that addresses HIV risk practices in the context of women's relationships and social status. Sexual and reproductive health services, as well as the special needs of women with small children or with a history of IPV or other trauma, should be better incorporated into harm reduction and drug treatment services. Women prisoners often have unequal access to healthcare, and this discrimination should be remedied. Interventions should be developed to better respond to the specific needs of women who inject drugs, and governments should take these needs into account and formulate policy accordingly.

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References

[1] A. Roberts, B. Mathers, and Degenhardt on Behalf of the Reference Group to the United Nations on HIV and Injecting Drug Use, *Women Who Inject Drugs: A Review of Their Risks, Experiences and Needs*, National Drug and Alcohol Research Centre (NDARC), University of New South Wales, Sydney, Australia, 2010.

[2] D. C. Des Jarlais, J. P. Feelemyer, S. N. Modi, K. Arasteh, and H. Hagan, "Are females who inject drugs at higher risk for HIV infection than males who inject drugs: an international systematic review of high seroprevalence areas," *Drug and Alcohol Dependence*, vol. 124, no. 1-2, pp. 95–107, 2012.

[3] European Monitoring Centre for Drugs and Drug Addiction, *Annual Report 2006: The State of the Drugs Problem in Europe*, European Monitoring Centre for Drugs and Drug Addiction, Lisbon, Portugal, 2012.

[4] R. H. Needle and L. Zhao, *HIV Prevention Among Injecting Drug Users: Strengthening U.S. Support for Core Interventions*, CSIS Global Health Policy Center, Washington, DC, USA, 2010.

[5] C. Stoicescu, Ed., *The Global State of Harm Reduction 2012: Towards an Integrated Response*, Harm Reduction International, London, UK, 2012.

[6] Canadian Centre on Substance Abuse, "Injection drug users overview".

[7] Harm Reduction International, What is Harm Reduction: a position statement, Harm Reduction International, London, UK, 2012, http://www.ihra.net/what-is-harm-reduction.

[8] WHO, UNODC, and UNAIDS, *Technical Guide for Countries to Set Targets for Universal Access to HIV Prevention, Treatment and Care for Injecting Drug Users*, World Health Organization, Geneva, Switzerland, 2009.

[9] H. I. V. International /AIDS Alliance, *Good Practice Guide: HIV and Drug Use: Community Responses to Injecting Drug Use and HIV*, International HIV/AIDS Alliance, Hove, UK, 2010.

[10] A. Shapoval and S. Pinkham, "Women and harm reduction in central Asia," Tech. Rep., Abt Associates, 2011, Quality Health Care Project in the Central Asian Republics.

[11] S. Pinkham and K. Malinowska-Sempruch, *Women, Harm Reduction, and HIV*, International Harm Reduction Development Program of the Open Society Institute, New York, NY, USA, 2007.

[12] H. Fair, "International review of women's prisons," *Prison Service Journal*, no. 184, pp. 3–8, 2009.

[13] K. Burns, *Women, Harm Reduction, and HIV: Key Findings from Azerbaijan, Georgia, Kyrgyzstan, Russia, and Ukraine*, International Harm Reduction Development Program of the Open Society Institute, New York, NY, USA, 2009.

[14] European Collaborative Study in EuroCoord, H. Bailey, C. Townsend, M. Cortina-Borja, and C. Thorne, "Insufficient antiretroviral therapy in pregnancy: missed opportunities for prevention of mother-to-child transmission of HIV in Europe," *Antiviral Therapy*, vol. 16, no. 6, pp. 895–903, 2011.

[15] R. MacRae and E. Aalto, "Gendered power dynamics and HIV risk in drug-using sexual relationships," *AIDS Care*, vol. 12, no. 4, pp. 505–515, 2000.

[16] M. C. Doherty, R. S. Garfein, E. Monterroso, D. Brown, and D. Vlahov, "Correlates of HIV infection among young adult short-term injection drug users," *AIDS*, vol. 14, no. 6, pp. 717–726, 2000.

[17] C. A. Latkin, W. Mandell, A. R. Knowlton et al., "Gender differences in injection-related behaviors among injection drug users in Baltimore, Maryland," *AIDS Education and Prevention*, vol. 10, no. 3, pp. 257–263, 1998.

[18] M. W. Tyndall, R. S. Hogg, M. T. Schechter, and E. Wood, "Requiring help injecting independently predicts incident HIV infection in a prospective cohort study of injection drug users," in *Proceedings of the 15th International AIDS Conference*, Bangkok, Thailand, 2004.

[19] W. M. Wechsberg, W. Luseno, K. Riehman, R. Karg, F. Browne, and C. Parry, "Substance use and sexual risk within the context of gender inequality in South Africa," *Substance Use & Misuse*, vol. 43, no. 8-9, pp. 1186–1201, 2008.

[20] N. El-Bassel, L. Gilbert, S. Witte, E. Wu, and M. Chang, "Intimate partner violence and HIV among drug-involved women: contexts linking these two epidemics-challenges and implications for prevention and treatment," *Substance Use & Misuse*, vol. 46, no. 2-3, pp. 295–306, 2011.

[21] M. Engstrom, N. El-Bassel, and L. Gilbert, "Childhood sexual abuse characteristics, intimate partner violence exposure, and psychological distress among women in methadone treatment," *Journal of Substance Abuse Treatment*, vol. 43, no. 3, pp. 366–276, 2012.

[22] C. J. Boyd, "The antecedents of women's crack cocaine abuse: family substance abuse, sexual abuse, depression and illicit drug use," *Journal of Substance Abuse Treatment*, vol. 10, no. 5, pp. 433–438, 1993.

[23] R. C. Freeman, K. Collier, and K. M. Parillo, "Early life sexual abuse as a risk factor for crack cocaine use in a sample of community-recruited women at high risk for illicit drug use," *American Journal of Drug and Alcohol Abuse*, vol. 28, no. 1, pp. 109–131, 2002.

[24] D. Kaysen, T. M. Dillworth, T. Simpson, A. Waldrop, M. E. Larimer, and P. A. Resick, "Domestic violence and alcohol use: trauma-related symptoms and motives for drinking," *Addictive Behaviors*, vol. 32, no. 6, pp. 1272–1283, 2007.

[25] R. D. Weiss, M. L. Griffin, and S. M. Mirin, "Drug abuse as self-medication for depression: an empirical study," *American Journal of Drug and Alcohol Abuse*, vol. 18, no. 2, pp. 121–129, 1992.

[26] D. E. Grice, K. T. Brady, L. R. Dustan, R. Malcolm, and D. G. Kilpatrick, "Sexual and physical assault history and post-traumatic stress disorder in substance-dependent individuals," *American Journal on Addictions*, vol. 4, no. 4, pp. 297–305, 1995.

[27] N. El-Bassel, L. Gilbert, R. Schilling, and T. Wada, "Drug abuse and partner violence among women in methadone treatment," *Journal of Family Violence*, vol. 15, no. 3, pp. 209–228, 2000.

[28] V. Frye, N. El-Bassel, L. Gilbert, V. Rajah, and N. Christie, "Intimate partner sexual abuse among women on methadone," *Violence and Victims*, vol. 16, no. 5, pp. 553–564, 2001.

[29] R. A. Sansone, J. Chu, and M. W. Wiederman, "Self-inflicted bodily harm among victims of intimate-partner violence," *Clinical Psychology & Psychotherapy*, vol. 14, no. 5, pp. 352–357, 2007.

[30] T. Matsumoto, K. Kosaka, A. Yamaguchi et al., "Eating disorders in female substance use disorders: a preliminary research on the relationship of substances and eating behaviors," *Clinical Psychiatry*, vol. 45, no. 2, pp. 119–127, 2003.

[31] N. El-Bassel, L. Gilbert, E. Wu, H. Go, and J. Hill, "Relationship between drug abuse and intimate partner violence: a longitudinal study among women receiving methadone," *American Journal of Public Health*, vol. 95, no. 3, pp. 465–470, 2005.

[32] J. C. Campbell, M. L. Baty, R. M. Ghandour, J. K. Stockman, L. Francisco, and J. Wagman, "The intersection of intimate partner violence against women and HIV/AIDS: a review," *International Journal of Injury Control and Safety Promotion*, vol. 15, no. 4, pp. 221–231, 2008.

[33] A. Ordean, D. Midmer, L. Graves, S. Payne, and G. Hunt, *PRIMA (Pregnancy-Related Issues in the Management of Addictions): A Reference for Care Providers*, Department of Family & Community Medicine, University of Toronto, Toronto, Canada, 2008.

[34] United Nations Office on Drugs and Crime (UNODC), *Substance Abuse Treatment and Care for Women: Case Studies and Lessons Learned*, UN, New York, NY, USA, 2004.

[35] A. H. Kral, J. Lorvick, R. N. Bluthenthal, and J. K. Watters, "HIV risk profile of drug-using women who have sex with women in 19 United States cities," *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology*, vol. 16, no. 3, pp. 211–217, 1997.

[36] J. Absalon, C. M. Fuller, D. C. Ompad et al., "Gender differences in sexual behaviors, sexual partnerships, and HIV among drug users in New York City," *AIDS and Behavior*, vol. 10, no. 6, pp. 707–715, 2006.

[37] R. M. Young, S. R. Friedman, and P. Case, "Exploring an HIV paradox: an ethnography of sexual minority women injectors," *Journal of Lesbian Studies*, vol. 9, no. 3, pp. 103–116, 2005.

[38] R. M. Young, S. R. Friedman, P. Case, M. W. Asencio, and M. Clatts, "Women injection drug users who have sex with women exhibit increased HIV infection and risk behaviors," *Journal of Drug Issues*, vol. 30, no. 3, pp. 499–524, 2000.

[39] M. E. Epele, "Gender, violence and HIV: women's survival in the streets," *Culture, Medicine and Psychiatry*, vol. 26, no. 1, pp. 33–54, 2002.

[40] P. E. Estebanez, N. K. Russell, M. D. Aguilar et al., "Women, drugs and HIV/AIDS: results of a multicenter European study," *International Journal of Epidemiology*, vol. 29, no. 4, pp. 734–743, 2000.

[41] UNAIDS, *UNAIDS Guidance Note on HIV and Sex Work*, UNAIDS, Geneva, Switzerland, 2009.

[42] K. I. Black, C. Stephens, P. S. Haber, and N. Lintzeris, "Unplanned pregnancy and contraceptive use in women attending drug treatment services," *Australian and New Zealand Journal of Obstetrics and Gynecology*, vol. 52, no. 2, pp. 146–150, 2012.

[43] S. Pinkham and A. Shapoval, *Making Harm Reduction Work for Women: The Ukrainian Experience*, International Harm Reduction Development Program, Open Society Institute, New York, NY, USA, 2010.

[44] S. Murphy and M. Rosenbaum, *Pregnant Women on Drugs: Combating Stereotypes and Stigma*, Rutgers University Press, New Brunswick, NJ, USA, 1999.

[45] L. A. Paltrow, "Punishment and prejudice: judging drug-using pregnant women," in *Mother Troubles*, J. E. Hanigsberg and S. Riddick, Eds., Beacon Press, 1999.

[46] Eurasian Harm Reduction Network and Canadian HIV/AIDS Legal Network and E.V.A., "Violations of the rights to reproductive health and of women who use drugs in Russian Federation," Communication to the UN Commission on the Status of Women, 2012.

[47] Eurasian Harm Reduction Network, "Violation of the right to health and reproductive choice in Ukraine," Communication to the UN Commission on the Status of Women, 2012.

[48] A. Sarang and Andrei Rylkov Foundation, "I v glazakh ya byla konchennyi chelovek," 2011, http://rylkov-fond.org/blog/lichnye-svidetelstva/kaliningrad-hiv-story/.

[49] WHO and UNODC, *UNAIDS Technical Guide for Countries to Set Targets for Universal Access to HIV Prevention, Treatment and Care for Injecting Drug Users*, World Health Organization, Geneva, Switzerland, 2009.

[50] American Civil Liberties Union and The Brennan Center, and Break the Chains, *Caught in the Net: The Impact of Drug Policies on Women and Families*, 2012.

[51] Eurasian Harm Reduction Network, *Women and Drug Policy in Eurasia*, EHRN, Vilnius, Lithuania, 2010.

[52] WHO-Euro and UNODC, *Women's Health in Prison: Correcting Gender Inequity in Prison Health*, WHO-Euro, Copenhagen, Denmark, 2009.

[53] UNODC and UNAIDS, *Women and HIV in Prison Settings*, UNODC, Vienna, Austria.

[54] Columbia Human Rights Law Review, "Special issues of women prisoners," in *A Jailhouse Lawyer's Manual*, 2011.

[55] K. Willis and C. Rushforth, "The female criminal: an overview of women's drug use and offending behavior," in *Trends and Issues in Crime and Criminal Justice*, Australian Institute of Criminology, Canberra, Australia, 2003.

[56] E. Iakobishvili, *Cause for Alarm: The Incarceration of Women for Drug Offences in Europe and Central Asia, and the Need for Legislative and Sentencing Reform*, International Harm Reduction Association/Harm Reduction International, London, UK, 2012.

[57] Quaker Council for European Affairs, *Women in Prison*, 2007, http://www.qcea.org/wp-content/uploads/2011/04/rprt-wip1-main-en-feb-2007.pdf.

[58] WHO, UNODC, and UNAIDS, "Interventions to address HIV in Prisons: comprehensive review," Evidence for Action Technical Paper, WHO, Geneva, Switzerland, 2007.

[59] D. J. Javakhishvili, N. Balanchivadze, I. Kirtadze et al., "Overview of the drug situation in Georgia, 2012," Georgian Country Situation Summary, 2012.

[60] R. J. Wolitski, D. P. Kidder, and K. A. Fenton, "HIV, homelessness, and public health: critical issues and a call for increased action," *AIDS and Behavior*, vol. 11, supplement 2, pp. 167–171, 2007.

[61] L. Maher, *Sexed Work: Gender, Race, and Resistance in a Brooklyn Drug Market*, Oxford University Press, New York, NY, USA, 1997.

[62] A. Taylor, *Women Drug Users: An Ethnography of a Female Injecting Community*, Clarendon Press, Oxford, UK, 1993.

[63] D. German and C. A. Latkin, "Social stability and HIV risk behavior: evaluating the role of accumulated vulnerability," *AIDS and Behavior*, vol. 16, no. 1, pp. 168–178, 2012.

[64] E. L. Gollub, "A neglected population: drug-using women and women's methods of HIV/STI prevention," *AIDS Education and Prevention*, vol. 20, no. 2, pp. 107–120, 2008.

[65] N. Palmateer, J. Kimber, M. Hickman, S. Hutchinson, T. Rhodes, and D. Goldberg, "Evidence for the effectiveness of sterile injecting equipment provision in preventing hepatitis C and human immunodeficiency virus transmission among injecting drug users: a review of reviews," *Addiction*, vol. 105, no. 5, pp. 844–859, 2010.

[66] WHO, UNODC, and UNAIDS, *Technical Guide for Countries to Set Targets for Universal Access to HIV Prevention, Treatment and Care for Injecting Drug Users: Updated 2012*, World Health Organization, Geneva, Switzerland, 2012.

[67] M. Latka, "Drug-using women need comprehensive sexual risk reduction interventions," *Clinical Infectious Diseases*, vol. 37, supplement 5, pp. S445–S450, 2003.

[68] S. Semaan, D. C. Des Jarlais, and R. Malow, "Behavior change and health-related interventions for heterosexual risk reduction among drug users," *Substance Use and Misuse*, vol. 41, no. 10—12, pp. 1349–1378, 2006.

[69] J. Gay, K. Hardee, M. Croce-Galis et al., *What Works for Women and Girls: Evidence for HIV/AIDS Interventions*, Open Society Institute, New York, NY, USA, 2010.

[70] W. M. Wechsberg, E. Krupitsky, T. Romanova et al., "Double jeopardy—drug and sex risks among Russian women who inject drugs: initial feasibility and efficacy results of a small randomized controlled trial," *Substance Abuse Treatment, Prevention, and Policy*, vol. 7, no. 1, pp. 1–11, 2012.

[71] S. G. Sherman, D. German, Y. Cheng, M. Marks, and M. Bailey-Kloche, "The evaluation of the JEWEL project: an innovative economic enhancement and HIV prevention intervention study targeting drug using women involved in prostitution," *AIDS Care*, vol. 18, no. 1, pp. 1–11, 2006.

[72] M. S. Kumar and M. Sharma, "Women and substance use in India and Bangladesh," *Substance Use & Misuse*, vol. 43, no. 8-9, pp. 1062–1077, 2008.

[73] O. S. Ashley, M. E. Marsden, and T. M. Brady, "Effectiveness of substance abuse treatment programming for women: a review," *American Journal of Drug and Alcohol Abuse*, vol. 29, no. 1, pp. 19–53, 2003.

[74] W. Sword, S. Jack, A. Niccols, K. Milligan, J. Henderson, and L. Thabane, "Integrated programs for women with substance use issues and their children: a qualitative meta-synthesis of processes and outcomes," *Harm Reduction Journal*, vol. 6, article 32, 2009.

[75] Open Society Foundations, "By women, for women: new approaches to harm reduction in Russia," Fact Sheet, Open Society Institute, 2011.

[76] B. Morse, S. Gehshan, and E. Hutchins, *Screening for Substance Abuse During Pregnancy: Improving Care, Improving Health*, National Center for Education in Maternal and Child Health, Arlington, Va, USA, 2000.

[77] D. Wolfe, M. P. Carrieri, and D. Shepard, "Treatment and care for injecting drug users with HIV infection: a review of barriers and ways forward," *The Lancet*, vol. 376, no. 9738, pp. 355–366, 2010.

[78] M. Thumath, "Creating the village for women who use drugs and their families: lessons from the pregnancy outreach project sheway," in *Developing Services for Women Who Use Drugs (Training Module)*, Eurasian Harm Reduction Network, Ed., 2009.

[79] R. Jurgens, "*Nothing About Us Without Us": Greater, Meaningful Involvement of People Who Use Illegal Drugs: A Public Health, Ethical, and Human Rights Imperative*, Canadian HIV/AIDS Legal Network, International HIV/AIDS Alliance, Open Society Institute, 2008.

[80] Global Coalition on Women and AIDS, *Women Who Use Drugs, Harm Reduction and HIV*, GCWA, Geneva, Switzerland, 2011.

[81] J. Fellner and P. Vinck, "Targeting blacks: drug law enforcement and race in the United States," 2008, http://www.hrw.org/en/node/62236/section/1.

[82] R. N. Bluthenthal, J. Lorvick, A. H. Kral, E. A. Erringer, and J. G. Kahn, "Collateral damage in the war on drugs: HIV risk behaviors among injection drug users," *International Journal of Drug Policy*, vol. 10, no. 1, pp. 25–38, 1999.

[83] L. Degenhardt, W. T. Chiu, N. Sampson et al., "Toward a global view of alcohol, tobacco, cannabis, and cocaine use: findings from the WHO world mental health surveys," *PLoS Medicine*, vol. 5, no. 7, pp. 1053–1067, 2008.

[84] R. Jürgens, A. Ball, and A. Verster, "Interventions to reduce HIV transmission related to injecting drug use in prison," *The Lancet Infectious Diseases*, vol. 9, no. 1, pp. 57–66, 2009.

[85] P. Reuter, "Ten years after the United Nations general assembly special session (UNGASS): assessing drug problems, policies and reform proposals," *Addiction*, vol. 104, no. 4, pp. 510–517, 2009.

[86] S. A. Strathdee, T. B. Hallett, N. Bobrova et al., "HIV and risk environment for injecting drug users: the past, present, and future," *The Lancet*, vol. 376, no. 9737, pp. 268–284, 2010.

[87] T. Rhodes, M. Singer, P. Bourgois, S. R. Friedman, and S. A. Strathdee, "The social structural production of HIV risk among injecting drug users," *Social Science & Medicine*, vol. 61, no. 5, pp. 1026–1044, 2005.