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

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Abstract: In most countries, the burden of HIV among people who inject drugs, men who have sex with men, and sex workers is disproportionately high compared with that in the general population. Meanwhile, coverage rates of effective interventions among those key populations (KPs) are extremely low, despite a strong evidence base about the effectiveness of currently available interventions. In its first decade, President’s Emergency Plan for AIDS Relief (PEPFAR) is making progress in responding to HIV/AIDS, its risk factors, and the needs of KPs. Recent surveillance, surveys, and size estimation activities are helping PEPFAR country programs better estimate the HIV disease burden, understand risk behavior trends, and determine coverage and resources required for appropriate scale-up of services for KPs. To expand country planning of programs to further reduce HIV burden and increase coverage among KPs, PEPFAR has developed a strategy consisting of technical documents on the prevention of HIV among people who inject drugs (July 2010) and prevention of HIV among men who have sex with men (May 2011), linked with regional meetings and assistance visits to guide the adoption and scale-up of comprehensive packages of evidence-based prevention services for KPs. The implementation and scaling up of available and targeted interventions adapted for KPs are important steps in gaining better control over the spread and impact of HIV/AIDS among these populations.

Key Words: PEPFAR, key populations, HIV prevention

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INTRODUCTION

Substantial evidence indicates that high population coverage of combinations of structural, biological, and behavioral interventions—linked with a supportive social and political environment—can decrease HIV risk and vulnerability among key populations (KPs) such as people who inject drugs (PWID), men who have sex with men (MSM), and sex workers (SWs).1–3 Yet, coverage of core interventions for these KPs that have proven to have the greatest impact in preventing the further spread of HIV is limited in most low-income and middle-income countries—including countries receiving support from the President’s Emergency Plan for AIDS Relief (PEPFAR).3–7

In this article, we review the progress made by PEPFAR since 2004 in implementing programs for KPs. Specifically, we examine epidemiological patterns, the availability and use of surveillance, surveys, size estimation methods, and scientific findings to plan and implement evidence-based HIV prevention interventions for KPs. Also included in this review are PEPFAR-specific and illustrative case studies, which reflect best program practices for each of the KPs. We also examine the challenges ahead for PEPFAR’s programming and make recommendations for KPs to ensure that efforts to introduce and scale-up evidence-based combination intervention packages for PWID, MSM, and SWs are implemented in all affected countries.

Progress and Challenges in Implementing Surveillance, Surveys, and Size Estimation Activities for KPs

During PEPFAR’s early years, limited data on hard-to-reach, hidden, and stigmatized populations made it difficult to target resources and plan and implement programs to
reduce HIV burdens among KPs. PEPFAR concentrated most of its resources during the first five years in building country-level infrastructure and capacity, preventing mother-to-child transmission, supporting antiretroviral therapy (ART), and preventing heterosexually transmitted HIV in sub-Saharan African and Caribbean countries. However, PEPFAR’s 2008 reauthorization led to an increase in use of methods to provide reliable estimates of the numbers and characteristics of KPs, an expansion of evidence-based and rights-based policies and programs for KPs and greater attention to KP programming in countries with generalized and concentrated HIV epidemics. In several countries, national behavioral surveillance and/or surveys have included all 3 KPs. Data collected among KP using behavioral surveillance and surveys and size estimation approaches are increasingly helping to estimate disease burdens, better understand risk behavior trends, and identify coverage and resource requirements for scale-up of services.

A number of PEPFAR training efforts are now under way to assist countries to better define the size and characteristics of the specific KP and to use the data generated to plan and implement appropriate intervention programs. For example, in 2010–2011, PEPFAR brought together about 350 participants from 65 countries in 3 workshops in Africa, 1 in central Asia and 1 in the Caribbean, to help build national and local capacity for using population size estimation methods and behavioral surveillance and surveys for KP. These data will become increasingly available in the future; at this time, many countries are in the protocol stage and/or implementing their studies. However, although these and other activities encouraged the collection of reliable data, a number of ongoing challenges remain for PEPFAR, including (1) convincing more countries to undertake these size estimation studies, (2) improving the overall quality of collected data, and finally (3) convincing countries to actually use the resulting data for KP policy, program planning and implementation, and resource allocation. While many PEPFAR countries have undertaken various surveys, size estimation activities, the challenges to collecting data continue to remain. As in most countries these populations are either hidden, face severe stigma or discrimination, collecting data can be very challenging. This also minimizes quality of data collected.

### POPULATIONS OF PWID

#### HIV/AIDS Epidemiology and Burden Among PWID

Globally, an estimated 3.0 million of the nearly 16 million PWID worldwide are HIV-infected. The PWID population accounts for nearly 10% of all HIV-infected people in the world. The reuse or sharing of HIV-contaminated syringes and needles is the major route of HIV transmission among PWID, although sexual transmission between PWID and their noninjecting sexual partners accounts for an increasing proportion of HIV burdens in many countries. US-supported surveillance and surveys among PWID have been conducted in Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan), Vietnam, Tanzania, Kenya, Russia, Thailand, and Ukraine. There is considerable regional, country-level, and within-country variation in the estimated size and HIV prevalence among PWID. In Central Asia and Eastern European countries with PEPFAR programs, HIV prevalence ranges from a low of 1.43 in Georgia to a high of 37.15 in Russia and of 32.4 in Ukraine among PWID. In South and Southeast Asian countries with PEPFAR programs, HIV prevalence is lowest in the Philippines (0.43) and highest among PWID.

#### TABLE 1. PEPFAR’s Evidence-Based Interventions for KPs

<table>
<thead>
<tr>
<th>KPs</th>
<th>Guidance issued</th>
<th>PWID</th>
<th>Interventions outlined by PEPFAR guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2006</td>
<td></td>
<td>Community-based outreach; no USG funds for NSPs; HCT; Abstinence, Be Faithful, Condom programs; ART for injection drug users (IDUs) living with HIV; opioid substitution therapy for HIV-positive IDUs but only on a pilot basis for HIV-negative IDUs; prevention and treatment of STIs</td>
</tr>
<tr>
<td></td>
<td>2011†</td>
<td></td>
<td>Community-based outreach; NSPs; opioid substitution therapy and other drug dependence treatment; HCT; ART for IDUs living with HIV; prevention and treatment of STIs; condom programs for IDUs and their sexual partners; targeted IEC for IDUs and their sexual partners; vaccination, diagnosis, and treatment of viral hepatitis; prevention, diagnosis, and treatment of tuberculosis</td>
</tr>
</tbody>
</table>

New advances under consideration

<table>
<thead>
<tr>
<th>PWID</th>
<th>SWs</th>
<th>MSM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prevention guidance 2011‡</td>
<td>Community-based outreach; distribution of condoms and condom-compatible lubricants; HIV counseling and testing (HCT); active linkage to health care and ART; targeted information, education, and communication (IEC); STI prevention, screening, and treatment</td>
</tr>
<tr>
<td></td>
<td>Community-based outreach; access to condoms; targeted IEC for SWs and their sexual partners; increased access to ART; prevention and treatment of STIs; HCT</td>
<td>Community-based outreach; ART TasP</td>
</tr>
</tbody>
</table>

PrEP, microbicides, ART TasP; WHO SW guidance in 2012

PrEP, microbicides, ART TasP

Pre-exposure prophylaxis; TasP, Treatment as Prevention.

‡WHO does not include community-based outreach as a separate intervention in the comprehensive package; however, it is recommended as an extraordinarily effective method of overcoming challenges related to accessing PWID populations.

||To date, there has been only limited programmatic attention to screening, diagnosis and treatment for viral hepatitis in partner countries with PEPFAR support.

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in Indonesia (42.5). Vietnam reports an HIV prevalence of 33.85 among PWID. 

Recently, some east African countries, specifically Tanzania and Kenya, began reporting HIV epidemics among PWID. A January–March 2011 integrated behavioral and biological surveillance survey in Nairobi found an HIV prevalence of 30.2% among PWID sharing syringes and 5.4% among nonsharing PWID. 

Studies in Tanzania have estimated an overall HIV prevalence of 42% among PWID, compared with an estimated prevalence of 6% in the general population. 

Evidence Base for Intervention Program Access and Effectiveness

There have been many systematic reviews of effectiveness of the core components of a comprehensive HIV prevention program for PWID. A number of PWID interventions, including needle and syringe programs (NSPs), medication-assisted treatment (MAT), and ART, have been shown to reduce HIV incidence when used individually. Findings from recent mathematical modeling studies reveal that high coverage of MAT and NSP among HIV-infected PWID could lead to a 29% reduction in HIV incidence within 5 years, depending on the setting. However, many countries exhibit ongoing resistance to implementation and scaling up of NSPs and/or MAT that will potentially limit the impact on HIV incidence.

Existing Data on Prevention, Care, and Treatment Program Coverages

Global estimates among PWID suggest that only 5% of injections use sterile equipment provided by an NSP; only 8 of every 100 PWID were receiving opioid substitution therapy and only 4% of HIV-infected PWID were receiving ART. For PWID, data from Central Asia/Eastern Europe and Asia...
indicate that in 10 of the 12 PEPFAR-supported countries, fewer than 50% of PWID accessed voluntary testing and counseling and, with the exception of China, no country has provided MAT for >20% of its PWID population.18 PWID receiving opioid substitution therapy totaled 4786, an almost 80% increase from 2010 in Central Asia, Vietnam, Ukraine, and Tanzania.19 Of the PWID reached in 2011, >4300 were reported to have accessed MAT in Vietnam. Figure 1 illustrates the data reported on PEPFAR key populations (KPs) indicators in the annual progress report from 2010 to 2011. In 2011, PEPFAR programs reached >4 million KPs. Specifically, PEPFAR countries reported reaching 297,846 PWID with individual-level and/or small group–level evidence-based interventions. There is regional variation, with Eastern Europe and Central Asia reaching 146,000 PWID, or 70% of the total KPs and Southeast and South Asia reaching about 88,000 PWID, but only 7% of the total KPs were reached with individual and/or small group interventions.

Some countries, notably Vietnam and Ukraine, reach large numbers of PWID with NSP services. The Global Fund to Fight AIDS, Tuberculosis, and Malaria is the major donor supporting MAT and NSP in low-income and middle-income countries.20

PEPFAR’s Approach to HIV/AIDS Among PWID

PEPFAR had issued guidance to address programs for PWID in 2006 that supported elements other than NSPs and that made MAT available only on a pilot basis for HIV-negative drug users. Interventions for other KPs are also included in Table 1. Table 1 shows the evidence-based PWID interventions included in these guidance documents. PEPFAR has encouraged countries and the US Government (USG) to provide assistance that would lead to the adoption of a comprehensive package of prevention services. These documents build on evidence-based public health interventions and policies, and support laws, regulations, and policies linked with a human rights approach. An updated PEPFAR guidance, released in July 2010, highlighted the importance of a comprehensive HIV prevention program and, for the first time, allowed funds to be used for NSPs and for MAT for all PWID independent of their HIV status. This policy shift followed Congressional lifting of the domestic ban on NSPs as part of the Consolidated Appropriations Act of 2010, and aligned PEPFAR programming with guidance from Joint United Nations Programme on HIV/AIDS (UNAIDS), World Health Organization (WHO), and United Nations Office on Drugs and Crime. Congress in 2011 again reestablished the ban on direct USG support for NSP.21 Boxes 1 and 2 highlight exemplary PEPFAR programs in China and Tanzania.

POPULATIONS OF MSM

HIV/AIDS Epidemiology and Burden Among MSM

A recently proposed framework for characterizing HIV epidemics among MSM in wider epidemiological contexts has described 4 different regional-level patterns of MSM epidemics in low-income and middle-income countries taking into account the epidemic patterns across KPs and general populations.22 The first pattern, primarily seen in South America, is characterized by MSM predominance, that is, MSM are the largest contributors to HIV prevalence within a general population with very low overall rates of HIV infection. In these countries, HIV prevalence is typically >10% and much higher than in the general population. PWID prevalence rates are well below 1%. A second scenario, in which MSM epidemics are occurring within HIV epidemics primarily driven by injection drug use, is found in Eastern Europe, Russia, and Central Asia. HIV among MSM is generally >10% and much higher than in the general population. Third, MSM epidemics occurring within widespread heterosexual epidemics are generally seen in Southern and Eastern Africa, and here men had substantial HIV acquisition risks from female and male sexual partners. HIV rates among MSM were highest in this epidemic scenario, reflecting the overall very high burden of HIV disease in African populations. Finally, epidemic contexts where heterosexual spread, sex work, MSM risks, and injection drug use are each contributing to local HIV epidemiology are seen in the complex epidemics of South and Southeast Asia. Among MSM, HIV risk is highly correlated with having unprotected receptive anal sex, likely because of the very high per-act transmission probability associated with this route of exposure.23,24

When PEPFAR began in 2004, little information was available on HIV among gay, bisexual, or other MSM in 14 PEPFAR focus countries. From 2006 to 2008, as African MSM communities began to emerge, a series of reports from several African nations reported consistent findings: there were, indeed, MSM in Africa; HIV rates were high in these populations wherever assessments were made; and these populations were markedly underserved by effective care, treatment, and/or prevention programs.25

After the implementation of PEPFAR, however, a number of these countries began to either include questions on male-to-male sexual behaviors in surveillance and/or survey activities that would reach MSM. The first MSM survey in sub-Saharan Africa was conducted in Senegal in 2005.26 To date, 17 countries have either implemented or plan to implement surveillance and surveys focusing on MSM.

Evidence Base for Intervention Program Access and Effectiveness

In recent years, a wave of opposition—cultural, political, and religious—has been rising as MSM communities emerge across Africa. Opposition to equality of MSM and other groups, with the potential for impact on health services for MSM, was intense in Senegal, Uganda, Malawi, and Kenya. In Senegal in 2008, health care workers were arrested by the government and emerging health services were closed down there.27 Ugandan activists, who demonstrated peacefully at the PEPFAR implementers’ meeting in Kampala for inclusion of MSM in Uganda’s HIV program, were subsequently detained, beaten, and harassed. PEPFAR and the US Department of State have followed a community-led approach of promoting services for MSM where safety could be assured, and where community groups are strong and cohesive enough to meaningfully engage in programs.
Among men with detectable intracellular drug levels of drug, the protective effect was >90%, suggesting the great potential of this intervention to reduce HIV acquisition in anorectal intercourse—the first such biomedical finding of this kind.

**Existing Data on Prevention, Care, and Treatment Program Coverages**

Current UNAIDS global estimates of prevention program coverage indicate that only between 10% and 20% of MSM receive even the most basic package of preventive interventions. MSM programmatic coverage data for specific evidence-based interventions are not available. On the PEPFAR programmatic indicator on individual and/or small group evidence-based interventions, countries report that 197,686 MSM were reached in 2011. In South Africa, where constitutional protections provide a universal right to health care equity, PEPFAR has been able to support 2 landmark clinics that provide comprehensive HIV care to MSM in safe and supportive environments (Box 3).

**PEPFAR’s Approach to HIV/AIDS Among MSM**

PEPFAR’s 2011 MSM guidance document linked public health to human rights and sought to create safe environments for HIV services among MSM. Table 1 shows the evidence-based MSM interventions included in the technical guidance documents. This document builds on evidence-based public health interventions (described previously) and policies, supports laws, regulations, and policies that allow for MSM to safely and in a timely way access a core package of appropriate and nondiscriminatory HIV prevention, care, and treatment services.

**SW POPULATIONS**

**HIV/AIDS Epidemiology and Burden Among SWs**

Sex work, and particularly unprotected sexual intercourse, was recognized as an early driver of many epidemics in sub-Saharan Africa well before PEPFAR began. Many African countries with generalized epidemics have documented HIV prevalence levels 3–10 times higher among populations of SWs, compared with the general population. The UNAIDS and World Bank’s Modes of Transmission model has estimated that between 2.7% and 30.9% of all new HIV infections are directly or indirectly related to sex work. Among generalized epidemics in sub-Saharan Africa, Baral et al estimate that SWs account for a wide range of all adult female HIV infections in individual countries, ranging from 4.5% (in Nigeria) to 76.7% (in Togo). They also report that regional pooled variation in the HIV burden among female SWs in low-income and middle-income countries is highest in sub-Saharan Africa (36.9%), followed by a HIV prevalence of 10.9% in Eastern Europe, 6.1% in Latin America and the Caribbean, and 5.2% in Asia. Surveys among female SWs, including HIV testing and counseling, have been conducted or planned in a number of PEPFAR countries.
Evidence Base for Intervention Program Access and Effectiveness

The most recent 2011 PEPFAR data indicate that >725,000 SWs received information and/or commodities (eg, condoms) from PEPFAR-supported prevention programs (Fig. 1). Of those, 55% were in sub-Saharan Africa, 23% in South and Southeast Asia, and 17% in Latin America.

Successful models in South Asia (India) and Southeast Asia (Thailand), developed before the existence of PEPFAR, have helped define the package of service for SWs. Guidance developed by WHO and, more recently, by UNAIDS provide a toolkit for SW programming that has incorporated elements of both models into the essential recommended strategies. The UNAIDS guidance identifies the 3 key pillars of an effective evidence-based response to HIV and sex work: (1) ensuring universal access to services, (2) building a supportive environment and partnerships, and (3) reducing vulnerability and addressing structural issues.

Existing Data on Prevention, Care, and Treatment Program Coverages

In fifteen sub-Saharan African countries, the percentages of sex workers who received an HIV test in the last 12 months and who knows the results ranged from 35% to 95%. In Latin American and the Caribbean, the range was 185 to 75%. In East, South, and South-East Asia, it ranged from 19% to 98%. The results indicate that while in some countries large percentages of sex workers were reached with prevention services (in this case HIV testing), a significant number of countries are yet to expand prevention services among SWs.

PEPFAR’s Approach to HIV/AIDS Among SWs

Information on how to program for SWs has been available in PEPFAR’s Technical Considerations since 2005. In addition, the 2011 PEPFAR guidance on preventing sexual transmission includes a review of evidence relating to SWs and discusses a package of prevention services appropriate for SWs. However, a technical guidance document specifically developed for SW programming has not been published. A new WHO technical guidance document will be released in 2012, which will further inform PEPFAR programs for SWs. This new document will summarize the research related to the package of interventions for preventing the spread of HIV among SW populations. Box 4 highlights an exemplary PEPFAR SW HIV prevention program in Kenya.

RECOMMENDATIONS AND CHALLENGES FOR MOVING PEPFAR FORWARD

PEPFAR remains in a truly unique position to advance the health of KPs globally and continues to build on its current position by expanding support for a full package of evidence-based, high-coverage, and comprehensive programs to reduce the HIV burdens in these populations. The USG can play a significant role:

- By continuing to provide strong and visible leadership;
- By helping to strengthen political will across multiple sectors of government, multilateral agencies, and civil society;
- By helping to create a safe environment with supportive legislation and policies that facilitate rapid scaling up of comprehensive HIV prevention programs for KP.

In an era of limited resources, it will be even more challenging but essential to:

- Advocate for laws, policies, and regulations supportive of implementing effective prevention, treatment, and care programs for KPs;
- Increase financial and technical resources for KP interventions that follow the epidemiology and match the burden of HIV disease;
- Ensure that reliable and credible data are collected and used in building government-level support, shaping country strategies, and measuring program impact. Data limitations related to the size of populations are not sufficient to delay the implementation of comprehensive evidence-based interventions for KPs;
- Strive to expand a public health and human rights approach globally to reduce stigma and discrimination and enable KPs to access needed services.

While PEPFAR programs have made significant contributions towards prevention, care and treatment of HIV among KPs, other multilateral and bilateral organizations such as WHO, UNAIDS, Global Funds, have also supported the implementation of comprehensive HIV programs to reduce the HIV burden among KPs. Success in this endeavor requires revising and resolving enduring contentious policy issues that limit programs such as NSPs and MAT for PWID; country efforts to criminalize and punish MSM, PWID, and...
SWs; and the antiprostitution pledge related to organizations working with SWs.

REFERENCES


