

**Title:**

**HIV prevention in individuals engaged in sex work**

**Authors:**

Joanna Busza  
Centre for Evaluation  
London School of Hygiene and Tropical Medicine  
Keppel Street, London WC1E 7HT, UK  
Tel: +44 2079272399  
[Joanna.Busza@lshtm.ac.uk](mailto:Joanna.Busza@lshtm.ac.uk)

Frances M Cowan  
Liverpool School of Tropical Medicine and Centre for Sexual Health and HIV/AIDS Research  
(CeSHHAR) Zimbabwe

Primrose Matambanadzo  
Centre for Sexual Health and HIV/AIDS Research (CeSHHAR) Zimbabwe

Lawrence Phiri  
Zimbabwe Rainbow Community (ZRC)

Bee Meki  
Trans and Intersex Rising Zimbabwe

## **HIV prevention in individuals engaged in sex work**

### **Structured Abstract**

#### *Purpose of the Review*

People who sell sex remain at disproportionate risk of acquiring HIV and should be prioritised for evidence-based HIV prevention programmes delivered at sufficient scale and intensity for effectiveness. Although new biomedical tools are becoming available, many basic lessons learned early in the HIV pandemic remain salient today and need renewed attention.

#### *Recent Findings*

New PrEP formulations, distribution systems, and delivery mechanisms are being successfully trialled and implemented, adding to well-established prevention tools such as male and female condoms and lubricants. The importance of social support networks and community ownership of programmes has been consistently reaffirmed. Serious challenges remain in optimising HIV prevention for sex workers, including providing services at the scale and intensity necessary for population level impact, addressing culturally sensitive issues of gender identity and sexual orientation, and protecting adolescents and young people who may sell sex. Pervasive social stigma, often reinforced by criminalisation and police harassment, further constrain sex workers' access to available services and prevention tools.

#### *Summary*

Meaningful community engagement and addressing the multiple social determinants of vulnerability at individual, community, and structural levels remain at the core of preventing HIV among people involved in selling sex.

*Key Words:* Sex work; HIV; prevention; vulnerability; social determinants

## Introduction

Selling sex occurs along a continuum, from professional sex work to less formalised transactional relationships, and includes the exchange of sex for cash, material goods, or services such as rent [1-4]. Selling sex is associated with increased risk of acquiring HIV and other sexually transmitted infections for both those selling and purchasing it, with unequal power dynamics in negotiation of sexual exchange often making it difficult for people who sell sex to mitigate these risks. Although people of all genders, sexual orientations, and ages may be involved in selling sex, much of the global HIV literature focuses on female sex workers, who are defined as adult women aged at least 18 years, engaged in consensual sex acts for monetary or other compensation [5].

Global HIV prevalence among female sex workers remains disproportionately high at 10.4%, and in all regions remains significantly higher than among women in the general population [6]. Sex work can facilitate HIV transmission through sex between sex workers and their clients and subsequently clients with non sex working partners [7\*]. Sex workers' heightened vulnerability provides ample justification for prioritising them for delivery of intensified evidence-based HIV prevention programmes at scale, although consideration should be given to how to avoid repeating stigmatisation of individuals involved in selling sex as "vectors of disease" [8].

Effective HIV prevention approaches for sex workers are well established and widely documented [9-11]. These include peer outreach, sex worker "friendly" clinics, safe spaces and drop-in centres, and support for individual empowerment and community mobilisation. The concept of "combination prevention" was introduced in the early 2000s and emphasised the importance of addressing the broader social determinants of vulnerability, including structural dimensions, rather than focusing solely on behavioural risks among sex workers and other priority groups [12]. In recent years, new biomedical tools, additional formulations or modalities for their delivery, and expanded distribution mechanisms have contributed to growth in prevention options, but none of these in and of themselves will offer 'a magic bullet'. Many of the basic lessons learned early in the HIV pandemic remain salient today. In this paper, we outline the existing knowledge base on effective HIV prevention for sex workers, followed by a narrative review of new developments and insights from research published since 2020, and highlight remaining evidence gaps.

## Selling Sex and HIV Risk

The disproportionate burden of HIV among sex workers, even in the context of generalised epidemics, has remained constant throughout the pandemic [13]. This has long been acknowledged as reflecting social patterns of power and unequal distribution of resources, which shape individual risk behaviour and engagement with services [14, 15]. Although selling sex usually increases individuals' number of sexual encounters, this does not necessarily enhance risk of HIV acquisition. Similarly, exchange of money, gifts, or material goods does not itself transmit infection. Rather, the broader social conditions in which people sell sex determine whether and to what extent they can protect themselves from HIV and other adverse health outcomes [16-18].

The socio-ecological framework is one schematic commonly used to depict the different routes through which involvement in sex work increases such vulnerability [19]. Figure 1 presents a socio-ecological framework depicting interactions between sex work and HIV risk at different levels of human organisation.

Figure 1 here

At the outermost, structural level, criminalisation of sex work is associated with higher rates of HIV prevalence, violence from clients and other perpetrators, and condomless sex [20, 21]. The effects of different policy approaches on HIV incidence are difficult to empirically determine due to variations in legal instruments and extent to which they are implemented and enforced [22]. Nonetheless, there is accumulated evidence that when criminalised, sex workers are unable to seek redress for violence and abuse, including by police [23]. They may actively seek to avoid contact with authorities, including health services and the desire to remain hidden also limits sex workers' ability to negotiate with clients who may threaten them with violence or legal repercussion [24].

The law both influences and reflects societal attitudes toward sex work, and widespread stigmatisation of people who sell sex often overlaps with other marginalised identities, including coming from backgrounds of entrenched poverty, minoritized ethnicities or sexual orientations, or irregular migration [25\*, 26\*]. Stigma affects sex workers' risk by negatively influencing their sense of self-worth and thus self-efficacy for seeking care, as well as by creating unwelcoming environments in many health facilities that can result in neglect and abuse from providers, further limiting uptake of services [27]. Violence against sex workers is endemic, and increases HIV risk through rough, unprotected sex as well as contributing to their sense of fatalism and inability to exercise agency over their health [28, 29\*\*]. Use of alcohol and drugs to cope with these multiple stresses can further affect sex workers' health and increase their risk of HIV [30] as it reduces their capacity to protect themselves during sexual transactions [31] and exacerbates stigma against them [32].

At community level, availability of services and support affect sex workers' vulnerability and resilience. "Community mobilisation" refers to sex workers' collective capacity to work toward shared priorities, and has been found to be protective of their health and well-being [33]. Important aspects of this include presence of supportive social networks and relationships of trust [34\*, 35]. Although not always clearly defined or conceptualised, community mobilisation has been shown to be possible to catalyse and nurture even in contexts where there is initially much distrust and lack of solidarity among people who sell sex [36]. Local policing practice and interpretations of law and policy also affect sex workers, and can change unexpectedly, such as use of Covid-19 related restrictions to constrain sex workers' and other key populations' ability to access services [37].

Finally, at the level of the individual, sex workers' self-efficacy, knowledge and skills will determine likelihood that they will be able to negotiate condom use with clients, successfully use PrEP, and/or take up other preventive measures. Younger age, migrant status, and poor mental health may all reduce individual self-efficacy for prevention [38-41]. A systematic review and meta-analysis of mental health data on female sex workers in low- and middle- income countries demonstrate high pooled prevalence rates for mental disorders including 41.8% depression and 21.0% anxiety [42]. Although individually experienced, these mental health problems were associated with community-level factors, including experiences of violence.

### **Comprehensive Combination Prevention**

HIV prevention for people selling sex has long acknowledged the importance of tackling their vulnerability across the whole of the socio-ecological framework, using the best available biomedical, behavioural and social strategies, although both funding and prioritising such comprehensive approaches have often been inadequate. While new biomedical tools or advanced formulations attract much attention, many of the central tenets of effective HIV prevention approaches for sex workers have remained consistent for over three decades. At the core of these is meaningful community engagement, where sex workers themselves lead the design and delivery of

programmes. There are now numerous examples from around the world of how peer networks of support have coalesced into successful political movements, ensuring sex workers' advocate for their own priorities and tailor activities and programmes to their local risk environment with resulting reductions in their vulnerability to HIV and other adverse health and social outcomes [33, 43-48]. In some cases, sex workers have forged powerful coalitions that contributed to changing national policy, such as the role of the New Zealand Prostitutes Collective in achieving decriminalisation in Aotearoa New Zealand [49, 50].

What starts as peer education can develop into sustained community participation, engagement and eventually ownership. A meta-analysis of programmes that harnessed social networks among key populations to influence and accelerate behaviour change found significant positive effects on condom use, HIV testing uptake, retention in health services and reduced HIV seroconversion [51]. Community-led activism is more likely to challenge structural barriers to sex workers' safety, and global HIV prevention institutions have thus been criticised for their perceived lack of commitment to the outer-most level of the socio-ecological framework and an over-focus on prevention technologies [52\*\*].

Nonetheless, recent additions to the arsenal of prevention technology has indeed been impressive. While male and female condoms and lubricants remain important for sex workers, new tools and ever-increasing formulations and delivery mechanisms increase opportunities for communities to draw together optimal constellations of prevention methods for their needs [53, 54\*,55\*\*]. Empowering and mobilising communities thus set a strong foundation for operationalising all other tools and approaches.

### **New Developments and Directions**

PrEP is now a firmly established HIV prevention tool, with the past few years seeing a rapid trajectory from a handful of demonstration projects introducing it to sex work communities to its inclusion in 2016 global guidelines for HIV prevention among key populations, which include female, male and trans sex workers, as well adolescent and young women in high prevalence settings, where those at highest risk may be involved in transacting or selling sex [56\*\*]. Despite increasing use, a meta-analysis of PrEP studies found adherence to be suboptimal across diverse populations, with a pooled estimate of 50.7% discontinuation rate among female sex workers [57\*\*]. When introduced through existing community-led organisations, however, rates of both uptake and adherence can be impressively high. For example, the Ashodaya Samithi sex workers' collective in India took responsibility for a demonstration project in which 647 sex workers initiated PrEP, 640 completed 16 months follow-up, and out of a subset for whom biomarkers were taken, 80% had Tenofovir blood levels consistent with steady state dosing at 3 months and 90% at 6 months [58].

The use of "differentiated service delivery" (DSD) has supported this trend. Implementation of DSD uses individual risk assessments and preferences to guide provision of services, with greater flexibility in where and how sex workers can access PrEP [35, 59\*]. PrEP is now commonly prescribed for up to six months at a time without the need for return visits to a health facility, and sex workers trained as "microplanners" take a rigorous and standardised approach to peer outreach and referrals, including conducting risk assessments and following-up accordingly i.e. targeting those at highest risk for additional condom supplies, adherence support, and reminders and accompaniment to routine appointments [43]. Paradoxically, although the Covid-19 pandemic restricted sex workers' access to clinical services in many settings, it also led to loosening of prescribing and distribution restrictions, accelerating scale-up of DSD approaches to PrEP [54]. Other distribution-related developments include combining PrEP with self-test kits, task-shifting to nurses or peer volunteers

[60, 61\*\*]. These approaches have not been designed specifically for sex workers, but would meet many of their needs that relate to documented barriers to their regular attendance at set appointment times that may not fit with their travel and work schedules, or necessitate long waiting times, frequently in locations where they fear being recognised as sex workers [62-66].

New PrEP delivery mechanisms are also imminent, including the possibility of injectables, vaginal rings and skin gels and patches, all of which would help sex workers and others avoid common challenges of PrEP such as daily adherence [30] and anxieties the tablets can be mistaken for antiretroviral treatment, which sex workers particularly fear will dissuade potential clients [67]. Several studies have examined preferences for different PrEP formulations among people who sell sex, and it is hoped these new options will overcome existing barriers associated with daily tablet use [68\*]. To date there have been no demonstration projects of long acting injectables for example in sex workers specifically (<https://www.prepwatch.org/>) and implementation research to ensure that delivery models meet their needs and priorities is required. The possibility of longer-term implants will also be suitable for sex workers who consider selling sex to be their long-term livelihood, although less appropriate for those who prefer to concentrate prevention during period of greater risk. Studies among men who have sex with men (MSM) suggest that “event-driven” PrEP use, where PrEP is taken for short periods prior to and after higher-risk sexual activity, can alleviate concerns about long term medication and improve adherence [69]. In a study comparing male sex workers to MSM not involved in sex work in a US city, the sex workers were more likely to want to use PrEP during period of higher risk sex and drug taking [70]. The use of event-driven PrEP dosing among female sex workers, however, has not been examined in detail and may be less appropriate for those who face ongoing risks. Addressing the high prevalence of other sexually transmitted infections among sex workers also needs to be carefully integrated into expansion of PrEP distribution [71, 72].

### **Gaps in Evidence and Practice**

There are other gaps in current understandings of prevention for people who sell sex. Although the Key Population category as defined by WHO and UNAIDS is inclusive of *all* sex workers, most research has remained focused on female sex workers, with fewer studies on male sex workers (usually included in research on MSM more generally) or trans sex workers (both trans women and men, although there is more global literature on the former). Targeted sex worker prevention programmes, such as the nationally scaled *Sisters with a Voice* in Zimbabwe, are becoming increasingly inclusive of male and trans sex workers and tailoring their services accordingly (which may result in a change of name to avoid the gender-specific “*Sisters*”). As described in Box 1, they have reached at least 1200 MSM and 350 trans sex workers with a wide range of clinical and social services, and support community-led organising.

Box 1 here

Where male and trans sex workers have been included, the research suggests they confront barriers to service uptake similar to those of female sex workers, including fear of stigma (related to sexuality, gender identity, HIV status and due to selling sex), lack of trust in provider confidentiality, and poor self-esteem contributing to fatalism about their health [73]. They may also be concerned about interactions between prevention technologies and hormonal therapies. Male sex workers have been shown to benefit from supportive social networks, both with peers and with female sex workers with whom they may share local risk environments [34]. More attention should be given to how prevention strategies can be adopted from existing successful programmes with female sex workers and where they need to be further adapted to male and trans sex workers’ needs.

Another notable gap in the literature relates to the involvement of adolescent girls and young women, which remains a controversial and sensitive topic due to the definition of sex work as occurring between *consenting adults aged 18 or older* [5]. Individuals under the age of 18 who sell sex are *victims of trafficking* as per the 2000 UN Protocol to Prevent, Suppress and Punish Trafficking Persons, especially Women and Children, which has been adopted by institutions throughout the global HIV prevent architecture [74]. While all sex work exists along a continuum, those who are younger (and thus likely newer) to selling sex can be difficult to identify if they move from occasional or informal transactional sex, which does not always include remuneration for cash or in exchange for specific acts, into more formal arrangements [75, 76]. This age group is often most at risk of contracting HIV due to their poorer knowledge of prevention, weaker negotiating skills, and reluctance to connect with health services, particularly if they do not self-identify as sex workers [2, 39]. Evidence suggests that seroconversion can occur rapidly following starting to sell sex, providing a brief window of opportunity to reach adolescent and young people involved in selling sex with appropriate services, including child protection and education as required [77\*, 78]. Different programme models exist to redress this gap on the ground, for instance the DREAMS programme specifically targeted adolescent girls and young women who sell sex as at highest risk among eligible participants [79, 80\*]. Similarly, sex worker health programmes can introduce specific activities to identify and reach the youngest community members, including hiring young peer educators. Navigating the tension between acknowledging that adolescents who sell sex are victims of sexual exploitation while also building rapport and trust with them so that they take up opportunities for assistance continues to challenge programmes [81-83].

Finally, not all countries have accurate data on which to base programming for key populations, including people who sell sex. Criminalisation and stigmatisation influence ability to monitor the HIV pandemic as much as they shape individuals' risk. In the Middle East, for example, HIV rates among key populations continue to rise, but inadequate surveillance and restrictive legal frameworks mean little is known about HIV incidence among female sex workers and their clients [84\*\*]. Mathematical modelling has been used to try to better understand patterns and trends and this approach has estimated that sex between female sex workers and their clients contributed between 2.1% to 21.2% of all population incidence across this region [85]. Without reliable data and without the political will to pay specific attention to vulnerable populations, learning accrued throughout the HIV pandemic and emerging tools and strategies will not benefit those who need enhanced prevention most.

## **Conclusion**

Much of what works best to prevent HIV among people involved in selling sex has long been recognised and relates to comprehensively addressing determinants of vulnerability at all levels of the socio-ecological framework. New technologies, distribution systems, and evolving delivery mechanisms are being successfully trialled and implemented, adding to well-established prevention tools such as male and female condoms and lubricants. However, while national programmes find it relatively straightforward to introduce new methods and innovations for their distribution, serious challenges remain. These include providing services at the scale necessary for population level impact, addressing culturally sensitive issues of gender identity and sexual orientation, protecting adolescents and young people who may sell sex, and above all, ensuring sex worker communities are empowered and mobilised to lead future prevention initiatives and reduce their disproportionate burden of HIV.

## Key Points

- Sex workers' vulnerability to HIV reflects social conditions as much as behavioural risk, and discriminatory laws, policies, services and social attitudes influence whether and to what extent sex workers can protect themselves
- Emerging developments include PrEP in new formulations and delivery platforms, as well as flexible approaches to reaching sex workers through peers, outreach, and less rigid clinical protocols, collectively referred to as *differentiated service delivery*
- Empowering individual sex workers and mobilising their communities underpin the effectiveness of introducing new biomedical tools
- While experiences and needs of female sex workers have been well documented, less is known about male and transgender people involved in selling sex
- Young women who start selling sex have been shown to acquire HIV very quickly but HIV prevention programmes are often poorly equipped or reluctant to reach this age group, as they require a complex mix of services, including social protection



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### **Conflicts of Interest**

None

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