

Risks, Experiences, and Needs of Female Intravenous Drug Users

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EXECUTIVE SUMMARY

Women who inject drugs have substantially different needs and face higher risks of disease and violence than do men who inject drugs. Given this difference, it is surprising that much of the literature on injecting drug users (IDU) does not distinguish between men and women when discussing prevalence, needs, risks and outcomes of injection. This has led to a possible under-representation of the specific issues that female IDU face and a gap in appropriate policy development and understanding around their specific needs. Evidence suggests that women comprise the minority of IDU in most countries which may be partly responsible for the lack of focus on their needs and risks; however, where women are discussed, there is a tendency to focus on women of reproductive age who are sexually active, referring to them as ‘bridges for disease’ into the general population. This suggests that the epidemiological and policy concerns around these women in most cases are based on concerns for their sexual partners and children instead of their own human rights, health and wellbeing.

A focus on injecting women is important for many reasons including their significantly higher mortality rates, increased likelihood of facing injection-related problems, faster progression from first use to dependence, higher rates of immuno-deficiency virus (HIV) and increased risky injection and/or sexual risk behaviours. This paper seeks to illuminate this position through a systematic literature review utilising three main search strategies: search of the peer-reviewed literature using electronic bibliographic databases, online searches for non-peer reviewed (‘grey’) literature, and expert consultation (See Appendix A).

Initiation to injection

The period of initiation to injection has been well documented as the period during which injectors are at greatest risk for acquiring blood-borne diseases such as HIV, hepatitis C virus (HCV) and hepatitis B and is therefore a crucial time for interventions to prevent acquisition of these diseases. New injectors, particularly women, may be dependent on their initiators to prepare the solution and perform the injections. This dependence often puts the injector last in line in the drug division and injection process and means they are more likely to share drug solution from equipment that may have already been used by other injectors, a known HIV risk. The initiation period is particularly important for novice female injectors who have higher seroprevalence rates than male injectors with the same duration of injection use despite having similar rates of initiation to injection.

Risk factors

Studies from around the world have sought to pinpoint common characteristics among new initiates to injecting drug use that may predispose some to start injecting or contextual or environmental factors that may facilitate this. Some common themes have emerged across studies

done in several countries; however, it is unlikely that any of the following associations alone are ultimate predictors of those who will initiate injecting drug use. Instead, it is far more likely that complex interactions between these vulnerabilities within an individual combine to create a situation leading to injection. However, to better understand these factors, we must examine each separately. To do this we will tease out those factors which are risk factors for initiating drug use and then look at which of these factors contribute to making initiation to drug use risky.

Risk factors for initiation to injection

Studies have identified several personal and environmental characteristics which act as predictors for initiation into injecting drug use. These factors include engagement in sex work, non-injecting drug use history, lifetime history of sexual abuse (particularly at a younger age), exposure to trauma and violence, social network that includes injecting drug users, family history of drug use, social disadvantage such as homelessness or low socio-economic status (SES), lifetime history of incarceration, delinquent behaviour such as truancy or running away, young age of first illicit drug use, same-sex attracted women, early sexual experiences, and mental illness and suicide attempts.

Factors that make initiation risky

Studies have also identified several personal and environmental characteristics that have been associated with HIV acquisition amongst those initiating into injecting drug use. These factors include younger age of initiation to injection, lifetime history of sexual abuse, social network that includes IDU, social disadvantage such as homelessness or low SES, and a lifetime history of incarceration.

Context of first injection

The context of the first injection; where the injection takes place, who is present, where the drugs and equipment come from and the types of drugs used, are important factors in examining the risks faced by IDU from the beginning of their injecting career. Women are more likely to inject in a social setting, less likely to inject alone, more likely to have their spouse or lover present and more likely to have been in a group of mostly women. Women are also more likely to be injected by someone else the first time, often a male sexual partner. In contrast, men are more likely to self-inject at initiation, more likely to perform an injection on others upon initiation, and when initially injected by someone else to have that person be a friend or acquaintance instead of a girlfriend or lover. Further, women are supplied both drugs and equipment more often than men at their first injection, most often by their sexual partners.

First drug of injection varies greatly from country to country and may be a reflection of drug availability in the region, the age and the motivations of injectors in that region. This choice of

drug may be an important reflection of the characteristics of the injector and their motivations behind transitioning to injection. Drug of injection may also be an important marker of the risks that will be undertaken by the injector during their injection career.

Motivations for and against injecting

Motivations for transitioning to injection include curiosity, desire for experimentation, seeking a stronger effect from the drug, seeing injection as a more economical option, and seeing injecting as a 'healthier or cleaner' option of administration. Women are almost universally more likely to cite social influence or peer pressure as their primary motivation for transitioning to injecting and to be transitioned by their male sex partners.

Characteristics of initiators

Men are historically more likely to initiate others to injection than are women. Compared to non-initiators, initiators are more likely to have been in prison or detention, to have lent a used syringe, to have injected others recently, to have obtained needles and syringes from informal sources, and, in developed country settings, to have told others about HCV and safe injecting, and to have recently been tested for HCV. Most evidence supports the idea that women and men are introduced to injection by different groups of people, with men more likely to be initiated by a friend or acquaintance and women more likely to be initiated by a sexual partner.

Women, their partners and injecting drug use

Injecting drug use significantly impacts on interpersonal relationships and relationships also impact the course of a person's drug use; particularly for women for whom entry into, and maintenance of, injection use is often reported as being linked to social influences including sexual partnerships.

Nature of relationships

There are two types of IDU relationships: those in which both partners inject and those in which only one partner injects; however, there may be fluctuations in and out of injecting drug use. The influence of injecting on the partnership will depend upon the existence and extent of drug dependence within the injector. Where dependence exists, the relationships may be marked by the everyday demands of drug use such as drug acquisition and injecting which means dependent individuals are less likely to have partnerships untouched by their drug use.

IDU partnerships are subject to the dual risks of unsafe injection and sexual practices. Indeed, injecting may lead to unsafe sexual practices through decreased inhibitions while a foundation of trust within a relationship may lead partners to share injecting equipment and to practise unsafe sex.

Non-injecting women partnered with injecting men

The majority of male IDU have non-injecting female sex partners. This preference may be a result of social stigma attached to female injectors, a desire to have a more functional household where only one partner is injecting, or increased financial support. Female non-injectors may engage in partnerships with IDU for a variety of reasons but whatever the reasons for entering and maintaining a partnership with an IDU, the impacts and risks imposed on the non-injecting women because of this decision are significant.

Impacts of having an IDU partner

Potential impacts on the life of a non-injecting woman partnered with an IDU include: financial responsibility within the partnership, risk of acquiring HIV and other blood-borne diseases through the injection and sexual risk behaviours of her partner both in and out of the relationship and risk of initiation to injection.

Women IDU partnered with male IDU

Female IDU social networks contain more female IDU and have a greater overlap between sexual and injection networks than those of male injectors. It has been hypothesised that women are more entrenched in their injection networks because of the increased stigma attached to women's drug use. Maintaining daily life and drug use, particularly how the couple divides labour in order to obtain drugs, food and other necessities, impacts a dual injector partnership, especially where both are substance dependent. It is common for female IDU to engage in sex work to provide for their partner and/or family as part of the gendered division of labour. Further, some female IDU report transactional sex relationships where the intimacy with their partner is tied to shelter, food, drugs and/or protection. These relationships may leave the women in particularly vulnerable positions because they are dependent upon these men and are therefore potentially in a subordinate position and less capable of insisting on safe sex and injection behaviours.

Equalising drug use

One of the risks within dual IDU partnerships is the possibility of equalisation of drug use where one partner increases their injection use to match that of the other partner. Increased injection is a risk factor for HIV, overdose, and injection injuries; however, despite the risks, the increased use is also tied to functional and emotional aspects of the partnership that the women injectors seek to maintain.

Difficulties ceasing injecting

Another risk within IDU relationships is difficulty in reducing or stopping drug use for fear of disrupting the partnership. For many women, the emotional benefits they received from the partnership outweighed the risks they faced from injecting. As such, injecting partners can present a significant barrier to abstinence or reduction.

HIV sexual risks outside the partnership

Studies have found high prevalence levels of extra-relationship sexual encounters among IDU partnerships. Sexual risks from extra-relationship sexual encounters often come from both partners with women being more likely to be engaged in sex work and men more likely to be engaged in casual sexual encounters.

HIV sexual risks within the partnership

Unsafe sexual practices are common in IDU partnerships. While men reported engaging in more high-risk sexual behaviours than women, women had higher rates of HIV, suggesting that while men may have higher personal sexual risk behaviours, women may have more high-risk partners. Couples may choose not to use condoms as an expression of trust, monogamy and commitment to their partner and the symbolic meaning of condoms may be attached to female IDU feelings of status and self-worth. Transactional sexual partnerships add a further element where female IDU may be less able to negotiate safe sexual behaviours with their partners because of their dependence on them for physical needs such as food and shelter.

HIV injection risks

Generally women are more susceptible to injection-related risks than men because women are significantly more likely to experience injecting-related problems and use more injecting sites than men. This is critical because injection-related problems may result in increased likelihood of blood-spills and generally poor injecting practices which creates an environment conducive to the transmission of blood-borne diseases.

Injection risks outside the partnership

Equipment sharing outside of partnerships is common amongst both male and female IDU, particularly in settings where injecting is criminalised and injectors may be afraid to carry their own equipment. This broad sharing outside of the partnership places both partners at increased risk of contracting and/or transmitting HIV, HCV and other blood-borne diseases.

Injecting risks within the partnership

IDU are more likely to share syringes in sexual relationships than in other social relationships and women are more likely to share equipment than men. Sharing within a sexual relationship has been presented in terms of trust, love, intimacy and togetherness which is very different from the more practical considerations that are often outlined as reasons for sharing with friends or strangers. This link between intimacy and injecting may mean IDU partners may not see risky injection behaviours within the relationship as genuine risks.

Non-self injection risks

Women are particularly susceptible to the risks associated with being injected by someone else. Women are more likely to continue being injected by someone else during the duration of their injection career, and non-self injection is an independent predictor for HIV incident infection. Those who provide injection assistance are more likely to borrow used syringes from others, lend used syringes to others and share peripheral equipment which may further increase the risk exposures faced by the partner being injected. Non-self injection has also been linked to an increased dependence on the injecting partner and to further marginalisation within the partnership and within peer groups because of the dependence upon the partner.

Changing behaviour around risk

Changing sexual and injecting risk behaviours of IDU couples may be difficult, especially where the risk behaviours in question are tied to emotional beliefs about their partnership. Because of this, sexual risk behaviours are considerably more difficult to change than injection risk behaviours and couple-based HIV prevention interventions are more effective than individual approaches. It is therefore critical to address sexual risk factors among IDU as a primary, efficient, and hard-to-change method of HIV transmission, and awareness campaigns should focus on the prevention of HIV through both sexual and injection transmission as a matter of responsibility and partner care to counteract the negative connotations associated with safe sex practices within intimate partnerships.

Female same-sex partnerships

Women who have sex with women (WSW) is a population that has been largely ignored in research considering HIV risks within IDU partnerships. While historically female same-sex relationships have been considered 'low risk' partnerships, there is evidence of significant HIV risks through the same injection and sexual risk channels that affect heterosexual partnerships. These risks may actually be higher for WSW in many cases because of their assumed low risk status among those who carry out interventions and policy makers who may not seek out or address the needs of WSW IDU in the same way they seek out MSM IDU or other female IDU.

Risk of HIV in WSW

There are inconsistent HIV prevalence links to WSW. The studies that have examined HIV and sexual practices in women have found conflicting evidence with some studies reporting that bisexual women have the highest rates of HIV and others reporting that women who strictly identify as lesbian have higher HIV rates than women who identify as bisexual or heterosexual. Despite these discrepancies, studies are in agreement that female IDU who have had female sexual partners consistently have higher prevalence rates of HIV than strictly heterosexual women.

Prevalence of WSW in IDU

A substantial portion of female IDU engage in same-sex behaviours. Women who had one or more female sexual partners in their lifetime were nearly twice as likely to inject drugs during the same period as women who had had no female sexual partners. There is no suggestion of causation between injection and WSW behaviour, and no explanation of the link in the literature; however, it is important to note the high prevalence of WSW within the female IDU community.

HIV sexual risks in WSW IDU

While the risk of woman-to-woman transmission appears to be lower than transmission via same-gender sex between men and heterosexual sex, it is a mistake to focus solely on woman-to-woman sexual transmission as the factor that differentiates risks among lesbian and bisexual women from risk among strictly heterosexual women. The literature suggests that WSW may also have sex with men and that women who identify as lesbian may participate in riskier sexual practices with their male partners than would heterosexual women because their sex with men is often associated with commercial sex work and they may not associate their sexual behaviours with men as part of their identity and thus their risks.

Injection risks in WSW IDU

There is evidence that WSW IDU engage in higher risk injection practices than heterosexual women. It has been hypothesised that lesbian/bisexual IDU are at risk for HIV not only because of their sexual and injection behaviours, but also because of the protection they believe is afforded by their 'low risk' lesbian identity. The fact that WSW have traditionally been seen as a 'low risk' group by academics and policy makers has meant that WSW IDU receive limited and often conflicting information about their risks and are not targeted or included in many research and education programs. Where WSW IDU do present for services, they have reported that staff have little or no training in their specific issues which can lead to inadvertent discrimination and a focus on their same-sex behaviour to the exclusion of their other risk factors.

Intimate partner violence

Intimate partner violence (IPV) is a reality in many IDU partnerships. The odds of intimate partner aggression are three times greater when drug use and drug abuse are implicated. Partner violence is a particularly important issue for women who use drugs because it is more commonly reported by female IDU than women in the general population and has been found to be associated with HIV, sexually transmitted infections (STI), and risky sexual behaviours.

Men in IDU partnerships are also subjected to high levels of violence; however, the differences in reported types and sources of violence between women and men is important. Women more often reported their aggression as self-defence and their violence is directed towards a sexual partner while men report a variety of sources of violence, most often outside of the partnership and related to drug acquisition and use. There is also evidence that the types of violence suffered by the sexes may differ greatly dependent on cultural norms and, where female injection is particularly stigmatised, partner violence has been linked to the stigma of women using drugs.

Women, sex work and injecting drug use

Sex work is a major independent risk factor for HIV among female IDU. A significant overlap has been found between women who engage in injecting and sex work behaviours, particularly street-level sex work. Generally, women are more likely to engage in sex work, more likely to acquire HIV sexually and participation in sex work has been associated with syringe sharing and inconsistent condom use. Female IDU sex workers (SW) are at heightened risk of sexually acquired HIV from exposure to multiple sexual partners, limited condom use with partners; they are also exposed to environmental risks from the perilous circumstances under which sex work often takes place where coercive sex may be common and condom use has been found to be infrequent.

There is variation in reported prevalence of sex work among female IDU which could be explained by women transitioning in and out of sex work, the hidden nature of sex work, and/or the added marginalisation that female IDU sex workers may experience over both non-injecting sex workers and non-sex worker female injectors. Several distinctions may also result in an underreporting of sex work such as confusion around the distinction between sex work and exchange of sex for money or drugs, the fact that not all women who inject drugs will identify as IDU, and not all women who occasionally exchange sex for money will consider themselves sex workers. This is particularly important because the disparity between their behaviour and self-identification may leave these women vulnerable because they do not consider themselves part of particular risk groups and they may therefore be left out of targeted interventions.

Links between drug injection and sex work

Female IDU can be drawn into sex work through poverty, absence of other employment opportunities, fewer years of education and the need to support themselves and/or their partners. There is a strong link between injecting and sex work, and periods of heavy drug consumption have been shown to increase levels of engagement in such activities. Generally, where the policy has been to criminalise drug use, drug prices have increased meaning that the high cost of drugs may deter some drug use but more dependent users may resort to various forms of prohibited activities including sex trade to generate sufficient income to support their preferred level of drug consumption. For those who become sex workers primarily to support their drug addiction, sex work has much in common with transactional sex, with an absence of genuine choice regarding selection of clientele, insistence on safe sex practices, locations and times of exchanges in the face of urgent need. Theories around the link between IDU and sex work tend to focus on a need for money to procure drugs as a primary motivator for engaging in sex work; however, female IDU have also reported providing sex as an exchange for housing, sustenance and protection.

Characteristics of IDU SW

Some characteristics of female IDU SW include: younger age, shorter injection career, unstable housing situations, history of incarceration, greater than once daily injecting, injected with used equipment, IDU partnerships, requiring help injecting and less likely to be enrolled in methadone maintenance than non-SW IDU.

General risks

Much of the work around female IDU SW has focused on containing them as potential 'bridges of disease' between the IDU and non-IDU populations instead of focusing on the health, safety and human rights of the drug using sex workers.

Female IDU SW are faced with significant health risks, threats of violence, and high social marginalisation. Many of the harms of commercial sex work are not directly related to sexual activity per se, but rather to the risky environments and larger socio-legal context in which sex trade occurs.

Sexual risks

The types of partners that female IDU SW take and the behaviours they are willing to engage in with those partners are primary sources of risk that may explain the higher rates of HIV among this population. The types of clients they take are mediated by their higher levels of street-level sex work which may imply having to take higher risk clients who are unable to engage with

SW in more structured settings. Female SW IDU may be seen as undesirable and therefore excluded from brothels which could otherwise provide protection and a system for imposing safer sex practices. Further, sexual risks taken by female SW IDU differ between regular partners and casual clients, with women more likely to use a condom with a casual client than with a regular client and more likely to use a condom with a regular client than with a partner/lover showing the link between the perception of trust within a relationship and the likelihood of unprotected sexual behaviours.

Injection risks

The injection risk behaviours of female IDU SW may put them at higher risk than their sexual practices. Female IDU SW report injection risk behaviours which may not be a direct consequence of their sex work, but instead result from environmental factors attached to that sex work that necessitate some of these risks and SW IDU possibly higher levels of dependence which require more frequent and urgent injection. SW are more likely to engage in risky injection practices such as renting, borrowing and sharing equipment; they have higher rates of injection generally as well as higher rates of injecting in public places.

Street-based SW may be more likely to share equipment because the circumstances of their work provides less opportunity to plan injections and obtain equipment and because the settings in which they choose to inject are often dictated by urgency and general proximity to their work sites. Further, IDU SW are less likely to carry injecting equipment in places where there are criminal implications for possession – their engagement in sex work means they are at increased exposure and vulnerability to police intervention, making them less likely to use sterile or new equipment when injecting. Female SW IDU are more likely to report ever needing help injecting, borrowing needles and reporting difficulty in accessing clean needles all of which are significant risk factors for HIV.

Comparison of IDU and non-IDU SW

IDU SW face different risks and vulnerabilities than non-sex workers and non-IDU. The environment of sex work differs between women who inject and women who do not. There is higher prevalence of injecting drug use and higher levels of problematic drug use among street-based SW over brothel-based SW, with many street SW forced out of indoor markets due to their drug use. Because IDU SW are more likely than non-IDU to work on the street, they face an increased likelihood that they will have IDU clients and experience violence from their clients. Streets-based SW are also more likely to work nights and longer hours than their non-injecting counterparts and are at higher risk for adverse contact with law enforcement, and more likely to be subjected to physical assault and rape.

Treatment

Most research on treatment best practices has been sampled from the developed world around male IDU, leaving a significant gap in knowledge around which treatment modalities and characteristics are the most effective and desirable for women and how different cultural contexts might suit different treatment types. Women differ from men in their motivations to enter and complete treatment, as well as in the personal factors that interact with motivation to determine treatment success; therefore, without female-specific research in this area, it will not be possible to appropriately design treatment programs to suit women's needs.

Characteristics

In general, women who enter treatment are younger, less educated, less likely to be employed, come from lower SES, have shorter injection careers, are more likely to have dependent children and have higher levels of daily injecting than their male counterparts.

Motivations

Women and men cite different motivations for entering drug treatment with women more likely to cite pending/current parenthood and intimate partner entry into treatment as primary motivating factors. Parenthood has a complex interaction around treatment entry for women. Many women cite pregnancy as a significant motivator for entering treatment; however, in countries where injecting drug use is criminalised many women have purposefully stayed out of treatment for fear of the repercussions to themselves and their children.

Partner treatment status has also been cited by women as a motivating factor to enter treatment. Having a partner enter treatment has been shown to greatly improve female IDU motivation to both enter and remain in treatment while having a partner outside of treatment is significantly associated with non-completion of treatment. In the same way that co-injection has been linked with feelings and expressions of intimacy, it is hypothesised that having a partner abandon injection leads to feelings of personal abandonment unless they both stop together.

Nature of treatment

Female IDU have different needs in treatment settings based on their differing vulnerabilities and higher likelihood of having domestic responsibilities over male IDU. Many programs have sought to accommodate these needs through the development of female specific inpatient, outpatient and low threshold services that are sensitive to the time constraints, location sensitivity, discretionary needs and safety concerns of women accessing treatment, particularly for women engaged in commercial sex work or who have children.

Pregnancy

While abstinence is the ideal goal during pregnancy, it is important to note that opioid substitution treatment (OST) is the preferred method of treatment for pregnant opioid users with both methadone and buprenorphine showing high levels of efficacy and safety for both the mother and the child.

Barriers to accessing drug treatment

UNODC has identified systemic, structural and personal variables that can act as barriers for women to access treatment. Systemic barriers stem from those who work within the treatment system and include: lack of staff knowledge around the specific needs and concerns of female IDU, lack of gender appropriate services, judgmental staff, stigma imposed by staff members, and costs. Structural barriers stem from issues around the functioning of treatment services and include; lack of child-care, unsafe or indiscreet locations, rigid service schedules, long waits, bureaucratic hurdles, and lack of sufficient services provisions. Personal barriers stem from internal issues within the injector and include: fear of partner violence, fear of losing their children to government bodies where injection is illegal, personal financial concerns and fear of losing their partnership.

Outcomes

Very little research has been done comparing success rates of particular treatment modalities for women or on personal characteristics that may indicate treatment success; however, OST and residential treatment have been found to be particularly effective while pure detoxification has been much less successful within female IDU populations.

1. INTRODUCTION

This report summarises the existing peer reviewed and grey literature describing evidence on the nature and degree of risks and experiences of women who inject drugs and women whose partners inject. In collecting this literature, a range of search strategies were used (see Appendix A) in tandem with expert consultations across the key themes.

The literature shows that women who inject drugs have substantially different needs and face higher risks of disease and violence than do men who inject drugs. Given this difference, it is surprising that much of the literature on injecting drug users (IDU) does not distinguish between men and women when discussing prevalence, needs, risks and outcomes of injection. This has led to a possible underrepresentation in the available literature of the specific issues that female IDU face and a gap in understanding and appropriate policy development around their specific needs. Evidence suggests that women comprise the minority of IDU in most countries [1-9] which may be partly responsible for the lack of focus on their needs and risks. However, female IDU are notoriously hard to reach and maintain a relatively subordinate position to men in the drug using subculture [2] which may also contribute to the general underreporting. Where women are discussed, there is a tendency to focus on women of reproductive age who are sexually active, referring to them as 'bridges for disease' [10, 11] into the general population. This suggests that the epidemiological and policy concerns around these women in most cases are based on concerns for their sexual partners and children instead of their own human rights, health and wellbeing [12].

A focus on injecting women is important for many reasons including their significantly higher mortality rates [13-16], increased likelihood of facing injection-related problems [17], faster progression from first use to dependence [18-22], higher rates of human immune-deficiency virus (HIV) [23-31] and increased risky injection [25, 32, 33] and/or sexual risk behaviours [23, 34-36]. Further, injecting drug use is often seen as contrary to the socially derived roles of women as mothers, partners and caretakers [37-40], leaving female IDU to face greater stigma, risks and to experience a range of specific harms at higher levels than male IDU.

As will become clear in this report, the specific issues faced by female IDU are the same issues of subordination, discrimination and social marginalisation faced by women in many parts of the world, paired with the issues of social isolation, discrimination and social marginalisation faced by IDU. As IDU women, they may lack of power in their communities and relationships, be exposed to sexual and physical violence, be stigmatised by the community, have to cope with an imbalance in responsibilities for childcare, face ongoing threats to their well being from multiple channels, be forced into transactional or street-based sex work and face barriers in accessing services (both for HIV prevention and drug dependence treatment). This report describes the nature of these issues and explores how women enter into drug use, how they use drugs, the relationships that shape and drive their drug use and their experiences in accessing services and treatment.

2. INITIATION TO INJECTION

This section focuses on initiation to injecting drug use amongst women by looking at the context of initiation, how this might differ to the experiences of men in terms of the risk factors around initiation itself and also factors that might influence the risk from injecting.

It is necessary to examine risk factors for the initiation of injecting drug use, the contexts of the initial injection, and characteristics of those who initiate others to drug use and what particular risk behaviours at the time of initiation may mean for an injector's risk behaviours throughout her injecting career.

In this section we focus on women's first initiation to injection, rather than women who have previously injected and are '*re-initiating*'. Although studies from the United States (US) and from Amsterdam have outlined that the risk of making transition from injecting drug use from non-injecting drug use is greater among former injectors than those who have never injected [41, 42], other research has shown that the injection and sexual risks taken by new injectors are significantly different from the risks taken by those who have a prior history of injection and are much more likely to place new injectors at risk for acquiring blood-borne diseases such as HIV and the hepatitis C virus (HCV).

2.1 Limitations to the literature

The most substantial limitation in the research on women's initiation into injecting drug use is the almost exclusive focus on the developed world and primarily urban settings. While there is scattered research through other regions, the bulk of research discussed here has been sourced from North America. This may limit the generalisability of the findings and thus the conclusions drawn by this section to the developing world as well as rural settings.

Another limitation is the variance that will occur between different drugs in relation to reasons for initiating injection, duration of use before injection and several other factors discussed below. The most substantial part of the literature focuses on heroin and other opiates or does not define the drug used in initiation to injection, but, wherever available, the differing characteristics associated with specific drugs have been discussed.

2.2 Importance of the initiation period

The period of initiation to injection, from the first injection and including the first few years of injection, has been well documented as an important time in a drug using career. This is the period during which injectors may be at greatest risk for acquiring blood-borne diseases such as HIV, HCV and hepatitis B virus (HBV) [23, 26, 43-54]. It has been hypothesised that this increased risk stems from new injector engagement in risky behaviours because of ignorance of the

risks, lack of planning around injections or through the influence of their initiators [55–58]. For example, a study of IDU in Paris found that 57% of IDU shared equipment and 22% borrowed injecting equipment at first injection and that HCV seroconversion was strongly correlated with sharing and borrowing equipment at first injection [59].

New injectors and particularly women, because of their possibly lower social status, may have limited control over the process of dividing drugs for sharing, while their lack of technical knowledge around how to prepare and inject the drugs and the likelihood that they will not own their own injecting equipment, leaves them further dependent on their initiators to prepare the solution and perform the injection [56, 60, 61]. This dependence puts the new female injector in a position where she may find herself last in line in the drug division and injection process and sharing drug solution from equipment that may have already been used by other injectors, a known HIV risk [32, 56, 61–66].

The initiation period is particularly important for novice female injectors. Compared to new male injectors, new female injectors with the same duration of injection use have been demonstrated to have higher HIV incidence [15, 25, 67, 68]. There is contradiction in the literature as to whether this increased HIV incidence rate is due primarily to women participating in higher injection risks, higher sexual risks or a combination thereof [66, 69, 70]. Studies from both the US and Canada have shown that new initiates to injecting, and particularly female initiates, are more likely to engage in risky injection practices such as sharing injecting equipment, or not using a clean needle on initiation to injection [34, 43, 55, 71–76]. Further, women take longer to learn to self-inject which is important; a study in the US found the odds of acquiring HIV were higher among those who needed longer periods of time to learn to self-inject (defined as 60 days or more) [53]. However, despite the specific implications of risk type, there is no question that both injection and sexual risks are important – a US natural history study of HIV infection in IDU found that sexual behaviours rather than injection behaviours were predominately associated with HIV, while HBV and HCV were more strongly associated with injecting behaviours [35, 47, 77, 78].

The period of initiation can be an important point of intervention. In some countries, relatively large portions of the drug using population transition to injecting drug use: a Canadian study found an incidence rate of injection of 22.7 per 100 person years within the drug using population with similar rates between men and women [79]; a study in Amsterdam of non-injecting drug users found that 30% of interviewees had transitioned to injection use within one to five years of the study [42]; and another Canadian study showed an incidence rate of 8.3 per 100 person years among street youth who were never injectors [80].

The majority of literature points to a commonality of risk behaviours between novice and experienced injectors. Studies from the US have found that risk behaviours of both new and long-

term injectors were similar [81]. Other studies have found that even where long-term IDU have reduced risky injection behaviours, such behaviour persisted among young, and new injection initiates [72, 82]. This commonality in risk behaviour may be a product of long-term injectors teaching risky injection behaviours to new initiates or of a lack of knowledge around risk factors and safe practices amongst the newly initiated.

There is a need to intercept both non-injecting drug users at risk of initiating injecting to educate them about the risks associated with injecting and also new injectors to provide education on risk reduction and prevention before their risk behaviours become habitual.

2.3 Risk factors

Studies from around the world have sought to pinpoint common characteristics among new initiates to injecting drug use that may predispose some to start injecting or contextual or environmental factors that may facilitate this. Some common themes have emerged across studies done in several countries; however, it is unlikely that any of the following associations alone are ultimate predictors of those who will initiate injecting drug use. Instead, it is far more likely that complex interactions between these vulnerabilities within an individual combine to create a situation leading to injection. However, to better understand these factors, we must examine each separately. To do this, we will tease out those factors which are risk factors for initiating drug use and then look at which of these factors contribute to making initiation to drug use risky.

2.3.1 Risk factors for initiation to injection

2.3.1.1 Sex work

In the US, Thailand, Canada and the United Kingdom (UK), engagement in sex work for women has been linked to an increased risk of initiation to injecting drug use [46, 79, 83-90], particularly among women who engaged in sex trade for a sustained period of time [87] or initiated sex work at a relatively younger age [88]. In addition, a US age-matched case-control study found that recently initiated IDU were more likely than age-matched non-IDU drug users to have traded sex during the year prior to the IDU group's transition to injection [86] and ever having engaged in sex work was linked to a younger age of initiation into injecting drug use [85]. Further, survival sex, defined as trading sex for necessities such as food and shelter, was also found to be an independent predictor of initiation to injecting drug use in a Canadian study [79]. Thus early sex-trading, particularly survival sex trading, among young female drug users may not only predict transition into injection, but may add to the increased HIV exposure risk observed among females who have recently started to inject as compared to IDU with a longer injection history [86]. It maybe that this sex work allows young women to support their drug use or commercial sex work may simply be another marker of the tenuous economic lives that underage

youth experience living on the streets; or drug injection could also be linked to commercial sex work, not through a causal relationship, but by simple association [79]. The complex interrelationship and association between sex work and drug use is further explored in this report in section 4.

2.3.1.2 *Prior drug career*

Research from multiple countries (including the US, Australia, the Netherlands, China, Canada, France, Taiwan and the UK) supports the notion that most IDU start out as non-injecting drug users and transition to injecting drug use [41, 50, 80, 90-93]; hence, prior non-injecting drug use can be understood as a risk to initiation to injecting drug use. For example, a study of drug users in China found that only 4% of men and 0% of women initiated drug use via injection even though heroin was the first drug used by 90% of men and 94% of women [94].

The period of time between first drug use and injecting may vary but usually a period of only a few years [56, 59, 95-97]. Studies in the US have shown that while women and men may initiate injection use at similar ages, women tend to have a shorter period of time between the initiation of drug use and the initiation to injection [58, 83]. This suggests that female progression within a drug career from first use to first injection may be faster than that of men and also that men initiate non-injecting drug use at an earlier age than women [83]. This is particularly important considering a US study found that HIV rates were double among IDU that had transitioned to injecting less than a year after initiating non-injecting use compared to those who transitioned after longer periods of time [53].

Studies from the US, Australia and China have demonstrated the regional variation in the types of drugs used prior to the initiation of injecting drug use. In developed country settings, cannabis, alcohol, non-injected cocaine, heroin and amphetamines are reported as commonly used in the lead-up to an injector's first injection [67, 98-101]; while, in developing country settings, alcohol and cannabis are also commonly reported, but few other drugs are listed prior to using injectables [94]. This may be a reflection of drug availability within those regions.

Some studies have found particular types of drug used, polydrug use, and length of prior drug use history to be predictive of initiation into injection. Studies in the US found sniffing heroin, and use of crack, cocaine or heroin to be a predictors of initiation into injection [41, 88, 102] while a study in Thailand found that heroin use was a risk factor for injection amongst the drug-using population [89]. Other studies have found that increased use of non-injected drugs was predictive of initiation to injection. A study in Montreal found that lifetime history of consuming four types of drugs or more was an independent predictor of initiation to injection [79] while, similarly, a study in Vancouver found associations between early age of initiation to injection and binge drug use [85]. Other studies have found somewhat different results; for example, a study in London found that length of time using heroin was not necessarily predictive of initiation to

injection and if heroin chasers use for longer than four years without having initiated injecting, they are very unlikely to initiate at all [97].

2.3.1.3 *Sexual abuse*

Studies in the US, Canada, UK and Thailand have found that for women in particular, a lifetime history of sexual abuse/rape may be a risk factor for substance use [103–107], earlier initiation into non-injecting drug use [108–110], initiation into injection [37, 40, 50, 79, 80, 89, 90, 103–124], and earlier initiation into injection [85]. In particular, women who report histories of child sexual abuse appear to initiate drug use at earlier ages than women without child sexual abuse histories [108, 109].

Sexual abuse has been shown to be more prominent in IDU than in non-IDU. A study across five US cities found that the proportion of young adult injectors who report sexual abuse is higher than that of the general population (14.3% vs. 8% [125, 126]), and for women specifically, sexual abuse is much more prominent in female IDU (50%) than in females from the general population (25%) [104, 109, 117–119] and significantly more prominent in female IDU than in male IDU [127, 128]. Women were more likely than men to have experienced sexual abuse before initiation to injection [80] and significantly more likely than men to have a lifetime history of sexual abuse (41.4% vs. 6.9%); however, across both genders, 72% of participants reported being abused before they started injecting [126]. Age seems to also be an important factor as significant differences in the age of initiation to injecting drug use were found according to age of sexual abuse with those reporting youngest age of abuse also reporting younger ages of initiating drug use [126]. In particular, those IDU who had been in a foster home or orphanage were most likely to report sexual abuse before the age of 18 and also to self-identify as gay, lesbian or bisexual and be HIV positive [126].

2.3.1.4 *Trauma/violence*

Outside of sexual violence, having experienced any violence or trauma has also been shown to be a risk factor of initiation of injection in the US, Netherlands, and Canada [50, 90, 91]. This has been shown to relate to both traumatic events during childhood [86, 129–131] and more recent victimisation among young adults [88]. One study of non-injecting users who transitioned to injecting in the US found that having ever been physically abused was an independent predictor of initiating injecting [91] and another study found that immediate exposure to physical violence was a risk factor to transitioning to injecting [86]. Experiencing trauma at a young age (usually defined as before 15 years) in particular has been shown to be associated with illicit drug use in adult samples [132] and current exposure to physical violence demonstrated the strongest association with being a recently transitioned IDU as compared with being a non-IDU in a US age-matched case-control study, which could provide possible evidence of early exposure to physical violence as a predictor of transition into injecting drug use [86]. No studies to date have found

any significant gender differences in relation to the risk for initiation associated with exposure to sexual abuse; rates of exposure to violence and trauma may differ between males and females which may set this as an important increased risk factor for initiation drug use for females.

2.3.1.5 *Social influence*

Studies from US, China, Canada, France, India and the UK have demonstrated that having friends or partners who are IDU is a strong predictor of initiation to injection, particularly for women [9, 56, 66, 80, 91, 92, 94, 96, 97, 133–138]. It has been postulated that the risk of making a transition to injecting among non-injecting heroin users may be a function of both individual attributes that increase susceptibility to transitioning to injecting and of social network influences that favours drug injection [91, 133].

Importantly, studies have also shown that males and females are influenced differently by their social networks, with women showing a higher likelihood to align their own behaviour, and therefore potentially their drug use, to that found within their social networks [70, 135]. The link between social exposure to injection and the risk of initiating injection for women has been documented in several studies [58]. A US study of non-injecting heroin users who transitioned to injection found that one of the strongest individual attribute predictors of initiating to injecting included having any friends who thought it was acceptable to inject drugs and one of the independent predictors of initiation injecting included exposure to current IDU and having friends who thought that was acceptable behaviour [91]. A study of illicit drug users in southwest China found that 94% of women and 84% of men believed that their friends also used illicit drugs [94]. In addition, several studies have found that attitudes, either positive or negative, about the social status of IDU are an independent predictor of initiation to injection [139–141].

Sexual partnerships are particularly important with regards to women's transition to injecting and the motivations for initiation; female injectors may link injecting behaviour to intimacy within their relationships [142]. Many women name their sexual partners as the person who introduced them to injecting. A study of new initiates to injecting in Australia found that the characteristics most prominently independently associated with women's initiation into injecting were having a partner who injected (OR 2.24), having a partner pay for the drugs (OR 4.64) and being injected by their partners [83].

2.3.1.6 *Family history of drug use/ instability*

A family history of drug use has been shown to be more frequent among women who have ever injected drugs than women who have never injected drugs in India, Taiwan and the US [2, 93, 94, 129, 130, 133], and has been found to be directly associated with initiation to injection [143]. A study in Australia found family history to be part of a larger pattern of social instability common among young IDU and because no gender differences were significant in predicting the effect of

family drug use on initiation to injection, the effects of family use might be related to exposure and desensitisation to drug use/injection or simply another expression of the impact of social network factors on vulnerability to injection [98].

2.3.1.7 *Social disadvantage (homelessness, unemployment, low SES)*

Across genders, several indicators of social disadvantage such as homelessness [80, 91, 144], unemployment [56, 91, 98, 145] and coming from lower socioeconomic neighbourhoods [133, 145-147] have been linked to the initiation of injection in the US, Canada, India and Australia. Homelessness has been identified as an independent predictor of initiation into injection in Canada and the US [79] and studies in Australia found an overarching pattern of social instability in new initiates to injecting including both homelessness and unemployment [98]. This is supported by evidence from the US which suggests that residents of certain neighbourhoods may find themselves at increased risk of initiating injecting drug use because of the socioeconomic structure of their environment [146, 147], where levels of psychological distress may be higher [148] or where there may be fewer alternative activities or employment opportunities [145]. For example, a study of young (between 15-30 years) recently initiated IDU in Baltimore found that the interaction of neighbourhood and personal characteristics determined the age at initiation of injecting drug use [145]. This could be particularly important for women since it may mean that women who are more likely to turn to risky activities such as survival sex work because of a deficiency in employment options will also be more likely to initiate injecting drug use, thereby adding injection risk to their sexual risks.

These findings are confined to developing countries. The impact in less developed countries, where these factors are more common in the general population, has been less studied. It may be that social disadvantage is a marker for initiation in developing countries too, but to accurately measure that interaction, it would be necessary to determine what social disadvantage means within that particular cultural context. A study in India found that political instability and an environment of violence contributed to general social disadvantage such as high levels of unemployment to increase the odds that both men and women would initiate injecting [56]. As this has not been more extensively explored, we can only speculate about the potential relationship outside of the developed world.

2.3.1.8 *History of incarceration*

Studies from Australia, Thailand, and the US have found that a history of incarceration is associated with an increased risk of injection [85, 89, 98, 149]. Incarceration has been identified as part of a larger pattern of social instability found across new initiates to injection in Australia [98], and a study in Canada suggests that this may be particularly important for women, where women between 12-16 years old in detention were more likely to have reported injecting than men in detention of the same age [85].

2.3.1.9 *Delinquent behaviour*

Engagement in early delinquent behaviours such as criminal activity, truancy, juvenile arrests, and running away have been shown to have strong associations with initiation to injecting drug use in men and women [50, 86, 131, 150–153]. Studies have shown that early delinquent behaviours were more frequent among individuals who had ever injected drugs than amongst the general population [86, 131, 150–152]. These associations may be a reflection of increased risk-taking within individuals that could lead to drug experimentation, a further aspect of general social.

Part of delinquent behaviour is an early onset of non-injecting drug use, a factor that has been found more commonly among those who have ever injected drugs [131] and that young age of first use can be an independent predictor of initiation to injection [91]. Evidence suggests that those who have begun substance use at an early age are more likely to develop problematic substance use [154]; engage in risky sexual behaviour [155, 156]; become involved in criminal activity [155]; complete fewer years of education [90, 157]; and are more likely to become more dependent, use for a longer time and have more drug-related problems [158–163]. Leaving school early is another factor associated with transition to injecting drug use in the US, Australia, India and Puerto Rico [2, 54, 56, 58, 86, 88, 90, 96, 98, 101] as well as an independent risk factor for HIV among female IDU in France, Spain, Italy, the UK and Germany [164]. This factor remains consistent across genders.

2.3.1.10 *Young age of first illicit drug use*

Studies from Canada, Thailand, China, India and the US have identified younger drug users (usually identified as being between the ages of 14–16) as being more likely to transition to injection use than older users [56, 80, 85, 89, 92, 134, 165], with one Canadian study finding that users under 18 years were three times more likely to start injecting than older individuals [80].

2.3.1.11 *Same-sex attracted women*

While very little work exists on initiation risks for same-sex attracted women, a study of non-injecting heroin users who transitioned to injecting in the US found that the strongest significant individual attribute predictors of initiating injecting included identifying as a woman who has sex with women [91].

2.3.1.12 *Early sexual experiences*

Very little evidence exists on early sexual activity and associations with initiation of IDU but a study of initiation to injection among street youth identified younger age (<19 years) and having sex before the age of 14 as significant predictors of initiation [166].

2.3.1.13 *Mental illness and suicide attempts*

A history of suicidal ideation and attempt has been identified as a predictor of initiation to injection among women [85, 86, 91]. One study of non-injecting heroin users who transitioned to injecting in the US found that one of the strongest significant individual attribute predictors of initiating injecting for women included attempting suicide [91] and an age-matched case-control study in the US of non-injection and injecting drug users found that current risk factors associated with recently transitioned IDU (in the last six months) included suicidal ideation [86]. Another US study of women and men entering treatment programs found that women entering outpatient methadone programs had significantly higher rates of reported suicide attempts, suicidal thoughts and feelings of depression than did their male counterparts [127].

2.3.2 *Factors that make initiation risky*

2.3.2.1 *Age of initiation to injection*

Early age at initiation to drug use is associated with drug risk behaviours such as injecting, particularly among women [46, 167]. The literature has shown a diversity of risks around younger age of initiation to injection (usually defined as before the age of 18), but those risks seem to be regionally and personally driven since very few consistent factors have been identified across studies. For example, one study from the US found that the frequencies for some risk factors such as trading sex for drugs, using condoms, attending shooting galleries and introducing someone else to injection did not differ significantly according to age of initiation [145], while another study from the US found that younger initiates to injection were more likely to report trading sex and dealing drugs than their older counterparts [88]. Further, a study in Australia showed that there was no difference between early and later aged injectors in terms of the type of drug first injected, place where the injection took place or use of new equipment at first injection [168]. Despite the inconsistency of the literature, it remains clear that in some settings, younger age of initiation to injection is closely related to several risky behaviours and thus increased risk of disease.

Studies in the US, Canada, and Amsterdam have found that young age of initiation into injecting drug use may be a significant factor in predicting HIV and risks that injectors may be exposed to during their injecting careers [23, 26, 46, 52, 91, 131, 154, 167, 169, 170]. Younger IDU, particularly those who had more recently initiated injecting drug use, are at increased risk for the acquisition of HIV, HBV and HCV [24, 26, 47, 51, 77, 92, 171]. Further, young female IDU have been shown to have greater risk of both prevalent and incident HIV infection than male IDU of the same age [77, 78, 172]. This is particularly important in the context of investigating female IDU as research has found that women not only have higher rates of disease but also tend to initiate into injection use at a younger age than men [56, 58, 66, 69, 173-175]. This has been demonstrated by studies in the US which found similar rates of initiation into injection between

men and women [79, 86, 149] but a marked male preponderance in studies carried out among older populations [92, 97, 152, 176] which suggests that while men initiate later than women, they have longer injection careers.

The source of this increased disease risk seems to stem from a variety of factors. Several US studies have shown that across both males and females, younger initiates to injecting engage in higher levels of a risky injection and sexual behaviours that have been specifically linked to HIV infection among IDU than older initiates [46, 170, 177-181], such as a significantly greater likelihood of borrowing or lending injecting equipment [46, 52, 84, 174], being less likely to using a syringe exchange program or engage in other preventative behaviours [52, 84], having a higher frequency of injection [46, 170, 175], having higher rates of being injected by someone else [174], and higher attendance at illegal shooting galleries where IDU pay to use an informal injecting room [46]. For women specifically, younger age of initiation to injection has been found to be associated with increased sexual risk behaviours [46] that have been directly linked to HIV infection, such as increased number of sexual partners [34], likelihood of reporting same-sex intercourse, and trading sex for money, drugs or gifts [46, 175] as compared to older and long-term IDU. These associations remained even when it was taken into account that young injectors might also be new injectors [52].

Other associations found between younger (before 17 years) age of initiation to injection include;

- having a family member who injected at the time of first injection;
- having left school early and having fewer years of education [54, 96];
- no income or income only based on crime;
- sex work or dealing at the time of first injection [168];
- shorter and less diverse pre-injecting drug career [88, 168];
- planning the first injection;
- being injected by someone else [54, 168];
- reporting motivation other than curiosity as the primary motivation for injecting;
- depending on someone else for the equipment;
- having an unstable housing situation at the time of first injection [168];
- experiencing rape or sexual assault prior to injection [88]; and
- longer overall injecting careers [85].

These associations suggest that younger initiates have a shorter but more intense risk interval before starting to inject drugs than do their older counterparts [88].

2.3.2.2 *Sexual abuse*

Several studies suggest that among women, sexual abuse is a potent risk factor for engaging not only in injecting drug use, but in several other HIV risk behaviours [108, 111, 113-116] including risky sex [80, 182] and borrowing needles during injecting career [3].

The direct links between sexual abuse, initiation to injecting drug use, and HIV risk behaviours are unclear. Miller [112] proposes a number of causal pathways between sexual abuse and drug use in women: initiation of drug use and increased drug dependence to cope with the sexual abuse experience; problems with sexual adjustment that may be related to sexual risk taking; or psychopathology such as depression, which increases their likelihood of participating in HIV risk behaviours such as injecting. The mechanisms underlying the link between substance use and sexual abuse have been posited as the possible use of drugs to self-medicate, participation in self-destructive behaviours (such as injecting), or the use of drugs to create psychological distancing through denial or through the activation of dissociative mechanisms as a strategy of self-protection [112]. Each of these theories suggests that the transition to drug use may be a way of coping with the trauma of sexual abuse and seem to imply that the importance of these self-defence mechanisms may supersede the disease risks that these women face via their risky drug behaviours. Further, sexual abuse may adversely affect an individual's social network, which in turn, may influence opportunities for exposure to HIV risk situations through specific social network characteristics including social network membership type (i.e. comprised of injectors), the support of network members and subjective feelings of social isolation [112].

2.3.2.3 Social influence

Having high risk social networks has been found to be an independent predictor of HIV seroconversion [44]. Women IDU often have greater overlap between their sexual and drug-using networks than do male IDU [70], which can expose women to greater HIV risk through injecting-related risks, sexual risks via riskier partners and can affect their ability to access treatment; these issues are explored further in this report (in section 3 and section 5).

2.3.2.4 Social disadvantage (homelessness, unemployment, low SES)

Studies in Western Europe and the US found that homelessness was a current risk factor for HIV for recently transitioned IDU [86, 164]. Again, these findings are isolated to the developed world and more research would be necessary to determine if these associations would hold for lower SES countries where homelessness and economic disadvantage is more common.

2.3.2.5 History of incarceration

A history of incarceration has been found to be a factor significantly associated with HIV [164, 178]. This is particularly important for IDU since they are at high risk of police intervention and incarceration through engagement in illegal activities such as stealing or sex work and further may face incarceration from their injecting behaviours where it has been criminalised.

2.4 Context of first injection

The context of the first injection, including the setting where the injection takes place, who is present, where the drugs and equipment come from and the types of drugs used are all important factors in examining the various risks faced by IDU from the very beginning of their injecting careers.

2.4.1 Setting of first injection

Limited evidence exists as to the location of the first injection and how it may differ between men and women. Research from Canada suggests that men and women are generally similar in where they choose to inject for the first time with women being slightly more likely to inject in a public place and men slightly more likely to be at a close friend's home [55, 56, 58]. Women are also more likely to inject in a social setting, much less likely to inject alone [32, 56, 83, 94, 95, 183], more likely to have their sexual partner present [9, 55, 138, 184] and more likely to have been in a group of mostly women [83] at the time of their first injection.

2.4.2 Initiator performing the first injection

Equally important as to who is present at the time of first injection is who is responsible for performing the first injection. Studies from the US have found that IDU reported that when their first injection was carried out by someone else, the majority reported that person was already intoxicated from drugs or alcohol before performing the injection [58]. The literature is mostly consistent in outlining that women are more likely than men to be injected the first time by someone else [56, 134, 183, 185] – often a male sexual partner [9, 55, 71, 83, 98, 138, 184, 186]. This gender difference is important; US studies have identified that sharing injection equipment, a significant risk factor for HIV, is associated with initiation by a sex partner [71]. Men conversely are more likely to self-inject at initiation [58], more likely to perform an injection on others on initiation [55, 98, 183], and when initially injected by someone else, more likely to have that person be a friend [9, 138, 184, 187]. A study from the US found that self-initiates have the lowest HIV prevalence rates, followed males initiated by females, males initiated by males, females initiated by females and, finally, by females initiated by males who had the highest rates of HIV prevalence [58].

2.4.3 Source of drugs and equipment at first injection

Another important factor that feeds into the context of the first injection is who supplies the drugs and equipment used at first injection and what kinds of drugs are injected upon initiation. Studies from Australia and the US have found that while some initiates have their own needles,

often those needles were obtained from sources where cleanliness cannot be guaranteed [58, 98]. Research consistently points to women being supplied drugs and equipment more often than men at their first injection [9, 42, 58, 60, 138, 184, 187], most often by their sexual partners [71, 83, 94]. As described in the 'Partner' section of this report, this may reflect the gendered division of labour within drug-using couples where the man is most often responsible for obtaining and paying for the drugs [83] and this may also mean that there is a higher likelihood that equipment will be shared as expressed earlier in this section. Studies from both the US and Australia have suggested that female IDU are likely to be introduced to injecting by their male sex partners because they depend on them for assistance in acquiring and injecting drugs [98, 136, 137]. A study in the US which may support this male/female gendered division of labour found that only 9% of women who identified as lesbian or bisexual reported being injected by their sex partner at first injection [187].

2.4.4 Types of drugs injected at first injection

Finally, in regards to the context of initiation to injection, it is important to examine the types of drugs that are most often injected in the first injection. Data suggests that the first drug of injection varies greatly from country to country which may be a reflection of drug availability in the region, the age and motivations of injectors in the region. For example, over 90% of injectors in China and Paris initiated injection with heroin [94, 95], IDU in Melbourne were more likely to list amphetamines as their first drug of injection [98], those in Sydney were more likely to list heroin [96], some Canadians and American injectors reported injecting cocaine on first injection [55], injectors in Manipur and Nagaland initiated with heroin [56], and other Canadian and American studies found that heroin is more likely to be the first drug injected [55, 188]. Very little work has been done on differences in gender preferences of first drug injected.

This choice of drug may be an important reflection of the characteristics of the injector and his or her motivations behind transitioning to injection. For example, one study in Montreal found that more heroin first-time injectors were injected by a sexual partner while more cocaine first-time injectors were injected by an acquaintance for both genders [55]; this could be a reflection of partner influence versus thrill seeking with friends in the injector's choice to initiate. Further, a study in the US found that women with a history of sexual abuse were found to prefer cocaine [105] while a study of crystal methamphetamine injectors in Canada found no gender difference in the characteristics of first injection [189] and another study in the US found that ketamine injectors across genders initiate at a later age than other drugs and most often initiated injecting drug use with another drug [190]. Drug of injection may also be an important marker as to the risks that will be undertaken by the injector. For example, injection with cocaine relative to other drugs has been associated with increased risk of syringe sharing [75, 191-193], trading sex [36, 194], and is the drug most predictive of HIV positive status among drug users [112].

2.5 Motivations for and against injecting

Given the risks for blood-borne diseases faced by IDU from their first injection as well as risks for injection injuries, potential for overdose and several other risks, it is important to look at the motivations of the injector for transitioning to injection. Studies from both Australia, India, France and the US have found that the majority of both male and female IDU report not having planned their first injection [32, 54, 56, 58, 98, 183] but only very small proportions report having their first injection be someone else's idea [71, 95]. This strongly supports the idea that initiation to injection is mediated through relationships with others and that most often the first injection is facilitated by a friend or sexual partner [55, 56, 58, 83, 96, 187, 195]. These factors may be more influential for women compared to men, in that men are more often taught to inject by someone they consider a friend while women are more often taught by a sexual partner [96].

While the decision to undertake the first injection is most often reported as being the novice injector's own idea, the individual motivations behind that decision may be enlightening in regards to the kinds and types of risks likely to be faced on first injection. Research from India, Australia, the US, Canada and the Netherlands has shown a wide variety of motivations that are relatively consistent between men and women for transitioning to injection such as curiosity or a desire for experimentation [55, 58, 71, 96, 98, 196, 197], seeking a stronger effect from the drug [55, 58, 71, 96, 98, 195-197], seeing injection as a more economical option [99, 133, 196, 197], and in the case of amphetamine injection, seeing injecting as a 'healthier or cleaner' option of administration [99]. However, despite these commonalities, women are almost universally more likely to cite social influence or peer pressure as their primary motivation for transitioning to injecting [55, 71, 144, 196, 198] and to be initiated by their male sex partner [71, 198].

Just as important as the reasons behind transitioning are the reasons that non-IDU give for not transitioning into injection. There is not a great deal of research on this area, but the research that does exist suggests that the primary reasons given for not injecting are fairly consistent between men and women and include fear of needles [99, 196], fear of addiction [99, 196], fear of disease [141, 195, 199] and not being able to find veins [196]. A study in India also discussed the reasons injectors had for continuing to inject and found that fear of withdrawal was the most common reason cited followed by desire to continue the pleasurable effects of injecting [56]. The transition to injecting is not inevitable and opportunities to interrupt the pathways to injecting exist [91, 97].

2.6 Characteristics of initiators

We have discussed the importance of social networks in the transition into injecting drug use (particularly for women), making it necessary to look at characteristics of those that initiate others into injecting drug use. Research is consistent that men are more likely to initiate others

to injection than are women [56, 133, 186, 200, 201]. This is vital in the light of findings from the US which show that women initiated by men have a greater proportion of lifetime risky sexual behaviours and the highest levels of HIV of any other group [58]. It is important to note that initiating others into injection use is not uncommon among IDU populations. One Australian study found a general reproductive rate of injecting of 1.8 persons over the first five years of injecting [98], a Canadian study found an incidence rate of injection among the drug using population of 22.7 per 100 person years with similar rates between men and women [79], and an Indian study found that half of all IDU interviewed had initiated at least one other person during their injection career [56]. Another Australian study found that the proportion of IDU reporting initiating others rose in relation to the number of years they had been injecting from 8.5% reporting initiating someone in the first year of their own injection, to 20% from two to three years, to 50% from four to five years [201]. Research has also shown that compared to non-initiators, initiators are more likely to have been in prison or detention recently to the act of initiating, to have lent a used syringe, to have injected others recently, to have obtained needles and syringes from informal sources such as friends or dealers, to have told others about HCV and safe injecting, and to have recently been tested for HCV [201]. It has also been shown that age discrepancies between a younger initiate and an older initiator are not uncommon, which is a particularly important factor, since injecting or having sex with older IDU partners has been identified as a risk factor for HIV and HCV seroconversion [53, 56, 202].

There is some conflicting evidence about the differences in the types of people that initiate women versus men to injection use. Most evidence supports the idea that women and men are introduced to injection by different groups of people, namely, men are more likely to be initiated by a friend or acquaintance [98] whereas women are more likely to be initiated by a sexual partner [55, 98, 133, 186, 187, 200]. However, some research from the US has found that equal numbers of men and women are initiated by sexual partners and that, in fact, women are more likely to be initiated by other women [58] which is supported by an Australian study that found similar proportions of males and females reporting ever teaching someone to inject [96].

It would seem that an important target of interventions for HIV prevention can be those who are the initiators of injecting drug use. By providing information to those most likely to initiate others to injection on how to safely inject others, as well as ensuring they have a solid understanding of the various risks associated with dangerous injection and sexual behaviours, initiators may be more likely to pass that knowledge on to others, thereby reducing the significant risks that new IDU face on initiation.

2.7 Conclusions

- Given the disease risks faced by IDU through both risky injection and sexual behaviours and with the goal of reducing HIV and HCV incidence, IDU should be provided universal access to needle and syringe programs (NSP), opioid substitution therapy (OST), HIV testing and counselling, antiretroviral therapy, sexually transmitted infection (STI) treatment and prevention, condom distribution, hepatitis vaccination and treatment, and tuberculosis prevention and treatment. Given the extensive research showing the importance of initiation to injection as a time when IDU are very likely to contract blood-borne diseases such as HIV and HCV, IDU interventions should include information for current injectors about the risks that new injectors face and how they can mitigate those risks should they initiate someone into injecting through safe injection and sexual practices
- Support for research in the developing world on the characteristics and motivations of those who transition into injecting to better develop targeted interventions and policy plans based on the personal characteristics and needs of populations of injectors in a culturally appropriate context.

3. WOMEN, THEIR PARTNERS AND INJECTING DRUG USE

The links between injecting drug use and sexual partnerships have been the subject of much investigation. Injecting drug use significantly impacts on an IDU's interpersonal relationships while relationships also impact the course of a person's drug use, particularly for women for whom entry into and maintenance of injection use is often reported as being linked to social influences including sexual partnerships (see section on initiation to injection). Importantly, risk of exposure to HIV and other blood-borne diseases is likely to be increased if either or both partners are injecting through both injecting and sexual risks.

3.1 Limitations around the literature

The primary limitation with research in this area is finding common ground around what is meant by the term 'partnership' and what implications this term holds across studies. Few studies from this review define explicitly what they mean by 'partnership' which means there may be regional, country or cultural differences across study measures depending on where the study was conducted and what assumptions are placed on the term in that setting. This obviously raises questions of generalisability; however, whenever possible, this report draws on studies from diverse regions to try and temper the possible effect of this limitation.

The majority of existing literature on IDU partnerships focuses on heterosexual relationships and the majority of these studies examining relationships where only one partner is an IDU, it is most often the male. Taking this into consideration, the topics discussed in this paper will be limited primarily to these heterosexual relationships unless otherwise explicitly stated. As there may be wholly different aspects and impacts of female same-sex partnerships and to partnerships where only the woman is an IDU, it is important not to make generalisations about the nature and impacts of these relationships based on these heterosexually focused studies.

3.2 Nature of relationships

For the purpose of this discussion we will define two types of relationships involving injecting drug users: those in which both partners inject and those in which only one partner injects. It is important to note that within a particular partnership, there may be changes as one or both partners transition in and out of injecting drug use. The influence of injecting on the partnership depends upon the existence and extent of the injector's drug dependence and, where dependence exists, the relationships may be more significantly marked by the everyday demands of drug use, such as drug acquisition and injecting, both of which may exacerbate risks such as potential exposure to violence, disease, police intervention and overdose. These everyday reali-

ties of drug-use lifestyles mean that dependent individuals are less likely to have partnerships untouched by their drug use [203].

Sexual partnerships between IDU, regardless if both partners are injectors or not, are subject to the dual risks of unsafe injection behaviours and unsafe sexual practices [204, 205]. Exacerbating these risks are the findings that increased injecting may be directly related to increased sexual risks with injecting potentially leading to unsafe sexual practices because of decreased inhibitions and foundations of trust within a relationship leading partners to share injecting equipment and practice unsafe sex as a show of solidarity or bonding and as a form of intimacy within the relationship. Because of the additional risks involved in partnerships where both members are IDU and thus both potentially engaged in risky behaviours, it is necessary to examine the prevalence, impacts and risk levels of different behaviours in both single and dual IDU partnerships separately.

3.3 Non-injecting women partnered with injecting men

3.3.1 General prevalence and impact

Several studies suggest that the majority of male IDU may prefer to have a female partner who does not inject drugs [206, 207]. This preference may be a result of the social stigma attached to female injectors, a desire to have a potentially more functional household where only one partner is engaged in drug-seeking activities, or increased financial support [63, 174, 208, 209]. Regardless of the reason, male IDU are more likely to have a non-injecting female partner than an injecting one, particularly in countries where female injecting is highly stigmatised.

Female non-injectors may engage in partnerships with IDU for a variety of reasons and in many cases their partner may not disclose their injecting drug use. A study of IDU in London found that those partnered with non-injectors were unlikely to disclose their injecting for fear of rejection [203]. Another study in the US of the wives of men engaged in high-risk injection practices found that 71% of the wives were unaware that their husbands had engaged in these risk behaviours [210]. While some women may be inadvertently in partnerships with IDU who kept their injecting behaviours hidden, some women have reported actively seeking an IDU partner in order to facilitate the initiation of their own injecting drug use [56, 203]. Undoubtedly, many women would fall between the extremes of not knowing their partner is an IDU and actively seeking an IDU partner and would enter these partnerships for other personal and varied reasons. Whatever the reasons for entering and maintaining a partnership with an IDU, the impacts and risks imposed on the non-injecting women because of this decision are significant.

3.3.2 Financial responsibilities

One potential impact on the life of a non-injecting woman partnered with an IDU may be a significant financial responsibility within the partnership. The non-injecting women may often be responsible for acting as the breadwinners in the partnerships as was evidenced by a study in Pakistan which found that wives of IDU bore both the partner's drug expenditures as well as the household expenses [211]. Faced with the threat of poverty, a potential lack of employable skills and employment opportunities, particularly in developing settings, many female partners of IDU are forced to turn to illegal or potentially dangerous means of generating income such as engaging in sex work [212]. The prevalence and impacts of sex work are examined elsewhere in this review (see section 5).

3.3.3 Sexual incongruity

Another potential impact on a non-injecting woman's life of having an injecting partner is a significant discordance in sexual desire and practice with that of the injecting partner. Studies have found that injectors have often listed sexually-related issues as a significant problem within their relationships [203]. Problem drug use affects libido in a variety of ways which may conflict with the emotional and physical needs of the non-injecting partner within the relationship by altering the sexual dynamics, often decreasing the couple's overall sexual activity and commonly increasing sexual risk-taking [203]. This is particularly important since evidence indicates that, among IDU, risky sexual behaviours are independent risk factors for HIV transmission and that risky sex may be a more significant risk factor than injection behaviour [72, 82]. It is also important because it may be an emotional strain on the non-injecting partner who may not understand or have difficulty relating to the ebb and flow of libido associated with his or her partner's drug use.

3.3.4 HIV risks

Non-injecting women who are partnered with an IDU are in a unique position because they are exposed to the risk of acquiring HIV and other blood-borne diseases through the injection and sexual risk behaviours of their partner outside of the relationship, despite potentially not personally engaging in these behaviours. These risks are potentially exacerbated where the injecting partner does not disclose the existence or extent of their risk behaviours [203], thereby denying the non-injecting partner the opportunity to evaluate and mitigate the risks that she takes within the relationship partner.

The extent of the risk of HIV transmission from injecting partner to non-injecting partner has been demonstrated in multiple settings. For example, a study in Pakistan of male IDU, 28% of which were HIV positive, and their wives found that while none of the wives reported ever having injected or engaging in extra-marital sex, 15% of the women in one site who were married

to an HIV positive IDU were HIV positive themselves and over the entire sample, nearly 2% of the women were HIV positive [211]. A study in Sweden estimated that on average, one in 20 IDU had transmitted HIV sexually to a non-injecting partner [11]. Further, a study in India of male IDU and their female non-injecting sex partners found that 5% of the couples were jointly HIV positive and none of the women outside of the jointly positive couples were HIV positive [213]. Another study in north-eastern India found that 45% of the wives of HIV positive IDU, who reported never having injected or engaging in extra-marital sex, had acquired HIV [214]. Given that none of the partners in these studies reported ever having injected, these findings support the notion that for non-injecting women, the risk for HIV transmission through unsafe sexual practices with their male partners, who may have acquired it through either unsafe injection or risky extra-marital sex, is a significant threat.

3.3.5 Sexual risks

There is increasing recognition of the importance on the role that sexual risks taken within IDU partnerships play in the transmission of HIV. This is a particularly important consideration for non-injecting partners of IDU who, despite not personally injecting, may be at increased risk of contracting HIV through their sexual activities with their IDU partners [11, 50, 173, 215–219].

Sexual risks seem to be tied to notions of trust, loyalty, commitment and gendered power distributions. Studies from several regions have demonstrated that women are more likely to insist on safe sex practices with a casual or paying sexual partner than their regular partner, regardless of their knowledge of the regular partner's behaviours outside of the relationship. For example, a study of women in India engaged in sex work and partnered with IDU found that despite knowledge of their intimate partners' risky extra-marital sexual and injecting behaviours, the women continued to engage in unsafe sex with their partners [220]. The women in this study reported feeling powerless to request or even raise the topic of condom use with their partners, even though they were the financial providers in the relationship; this may relate to the strength of cultural gender roles and expectations, particularly around sex [220]. Further discussion of sexual relations with intimate and transactional partners is covered in the section concerning sex work.

In more westernised country settings, sexual risk for non-injecting partners may revolve around the types of drugs that are being injected by their partner. For example, a study in Stockholm found that amphetamine injectors were more likely to have sex with both regular and non-regular partners under the influence of drugs (a risk factor for unsafe sex) than any other drug type [11]; similarly, a study from the UK comparing heroin and amphetamine injectors found that amphetamine users were more likely to report sex on drugs, unprotected sex and to report their HIV risk as negligible [221]. These studies suggest that injector risk and therefore non-injection partner HIV risk might be associated with the types of drugs used in the injecting partner's drug career.

Given that regular female partners of IDU may be unable or unlikely to insist on safe sexual practices from their partner, the prevalence of sexual risks being taken by the IDU outside of their partnerships is also important because it may increase the chances of spreading disease within the relationship. A study of IDU and their non-injecting sex partners in India found that of the 26% of the IDU reported having had a casual sex partner in the last year, 16% reported having seen a sex worker in the last year, 62% reported never using a condom with a sex worker, 96% reported never using a condom with a casual partner, and 87% reported never using a condom with a regular partner [213]. A study in Pakistan found that 58.3% of male IDU reported paying for sex in the past year and of those 64% reported never using a condom [222]. Further, a study of male IDU in Sichuan province, China, found that 19% of interviewees had visited a sex worker in the past six months; of these, 74% did not use a condom, with the majority of the sample reporting never using condoms with their regular partner as well [223].

3.3.6 Injecting risks

Injecting risks such as equipment-sharing expose the IDU (and therefore their non-injecting partners) to further risks of HIV transfer. As previously discussed, sexual and injecting risks are closely linked and in fact may exacerbate one another by injection releasing inhibitions and thus encouraging riskier sexual behaviours.

3.3.7 Initiation to injection

One substantial risk for non-injecting women in partnerships with IDU is the possibility of initiation to injection. Studies in both the UK and the US found that women who entered partnerships with IDU with no pre-existing intention to start injecting saw their partner as a primary determinant in the initiation of their injecting drug use [133, 203]. A study in the US found that having an injecting sex partner was a significant risk factor of transitioning to injecting drug use [142] and a separate US study found that half of the male IDU interviewed had initiated a female partner to injecting at some point during their injection career [133]. Further, a study from Canada of non-injecting sex partners of IDU found that 26% of the baseline non-injecting partners began injecting over the four-year interval of the study, and the women most likely to begin injecting were those who had no prior history of illicit drug use beyond marijuana [186]. The topic of social and partner influence on initiation is covered in depth in this review in section 2, so it will suffice here to say that many studies from a variety of regions have found that social influence, and partner influence in particular, plays a significant role in a woman's transition into injecting drug use.

3.4 Women IDU partnered with male IDU

3.4.1 General issues

The social networks of female IDU have been found to contain more IDU and have a greater overlap between sexual and injection networks than those of male injectors [58, 224]. Studies have shown that female IDU are more likely to have a sexual partner who is an IDU than do male IDU [5, 32, 62, 63, 66, 207, 225–234]. It has been hypothesised that women are more deeply entrenched in their injection networks because of the increased stigma attached to women's drug use, leaving them more isolated and marginalised than are male injectors [53]. This hypothesis is supported by findings from a US study that female IDU reported fewer friends, particularly fewer female friends, than non-injecting women [235, 236], which may lead them to be more reliant upon, and to place greater importance on, their partnerships. It has also been hypothesised that, compared to male IDU, women IDU in some respects might gain greater benefit from having a partner who is an IDU partner in terms of protection and assistance in acquiring drugs [70, 237].

Maintaining the day-to-day necessities of life and drug use, particularly how a couple divides labour in order to obtain drugs, food and other necessities, significantly impacts a dual injector partnership, especially where both are substance dependent [63]. A study in London of problem drug users revealed that IDU considered that dual injector partnerships were significantly easier to manage and thus more sustainable than relationships with a non-IDU partner because of mutual acceptance of drug use, shared recognition of the priority of drug-related activities in day-to-day lifestyles and understanding of the difficulties, dangers and needs associated with injecting [203]. Further, a study of IDU in Vietnam found that the threat of poverty and the financial need to acquire drugs led to a gendered division of labour between IDU partners with the women most often undertaking commercial sex work and the men led to other illegal activities such as theft [209]. This division of labour, while considered by the study participants to be efficient, and necessary to sustain their lifestyle and drug use, did put both partners at increased risks of violence, legal action and sexual diseases beyond what they were already facing as IDU [209]. This gendered division of labour has also been observed in US studies where male injectors were more often expected to acquire drugs instead of women because of fear that the women would be subjected to violence or exploitation [237].

Within these relationships, it has been observed that injecting drug using partners may use different means and activities than non-IDU partners to express intimacy and affection. For example, a study of injecting partners in the US found that the process of drug procurement was expressed as a way of physically caring for their partner and as a way to increase intimacy within the relationship, even though it potentially leaves the man to deal with possible assault or arrest which, if it eventuated, would leave the woman alone and responsible for the acquisition drugs for herself

and possibly for her injured partner [237]. IDU report aspirations of partnerships comprised of love, fidelity, financial security, emotional support and stability but report expressing these aspects of their relationships through different avenues possibly because of their daily exposure to different lifestyle activities, potential dangers and disease risk than non-IDU partnerships [237].

It is not uncommon for female IDU, who may have limited work options, to engage in sex work to provide for their partner and/or family as part of the gendered division of labour. Studies of female IDU in Scotland, Russia and Georgia found that the majority of the women were engaged in commercial sex work to maintain their own and their partner's drug habit [238, 239]. Sex work and how it relates to injecting drug use is explored further in the section 'sex work' of this report; however, it is important to note here that female sex work may be a part of some IDU relationships stemming from a desire to care for, and support partners. Further, some female IDU have reported engaging in transactional sex relationships where their intimacy with their partner is tied to shelter, food, drugs and protection [240]. In comparison to sex work, these transactional sexual relationships are less likely to take the form of an explicit exchange of goods and services and are more likely to be included terms of gratitude, indebtedness, trust and dependence on the part of the woman towards the man [240]. This may leave the women in particularly vulnerable positions since they are dependent upon these men and are therefore potentially in a subordinate position and less capable of insisting on safe sex and injection behaviours. For example, prevention research has consistently demonstrated how socially embedded meanings tied to intimacy, such as trust, may lower the perception of risk attached to needle-sharing and unprotected sex between IDU partners encouraging them to engage in otherwise risky behaviours [229, 241-243].

3.4.2 Equalising drug use

One of the risks within dual IDU partnerships is the possibility of equalisation of drug use where one partner increases their injection use to match that of the other partner [244]. Studies of IDU in the UK and Vietnam have found that having a male IDU as a partner has a significant effect on a female IDU's drug use and that equalisation of drug use most commonly involves an increased use by the woman to match their male partner's higher level of consumption [203, 209, 245]. Increased injection is a risk factor for HIV, overdose and injection injuries; however, despite the risks, the increased use is tied to functional and emotional aspects of the partnership that the women injectors seek to maintain [245]. It has been hypothesised that women begin to inject whenever their partner injects for both practical reasons, such as availability and the need for injection assistance, as well as for emotional reasons such as making injection a shared bonding experience between the couple [245]. Also, having a drug using partner who uses drugs more often will of course increase the exposure to and availability of drugs for injecting.

3.4.3 Difficulties ceasing injecting

Another risk within IDU relationships is a difficulty in reducing or stopping drug use for fear of disrupting the partnership [133, 203, 209]. Research from the US and Vietnam has demonstrated the destabilising effect that can occur within a partnership when only one partner attempts to reduce or discontinue injection use [209, 246]. The study of IDU in Vietnam found that having the same injecting habit was listed as the single most important element in forming and regulating cohabitation between partners and they felt that the benefits they received from the partnership outweighed the risks they faced from injecting [209].

With regard to treatment, partnerships can present a significant barrier to abstinence or reduction that is presented where both partners refuse to reduce or abstain with the same degree of commitment [247]. The difficulty in treating a single partner within a partnership will be examined at length in section 5 of this review; however, it is important to note here that research has shown that female IDU in dual IDU partnerships who report higher relationship satisfaction are less likely to complete treatment and more likely to use drugs post-treatment than women who reported lower relationship satisfaction [248]. These findings may demonstrate the importance placed by female IDU on maintaining their partnerships, as evidenced by their return to their partner post-treatment despite the risk of resuming drug use, and the important role that drug use plays within those partnerships as evidenced by the frequent returns to use. Because drug use may dominate activities and may be one of the most important areas of commonality shared within a relationship, mutual injection use has been described as a cornerstone to IDU partnerships, which, if removed, could destroy the relationship. Given the importance of these relationships to the lives of the women involved, it may be difficult to make a choice between maintaining a relationship they see as supportive, protective and loving or losing that relationship in order to stop their own drug use.

In addition, maintaining a relationship with another IDU also exposes women to many more drug-using cues and situations where drug use may be occurring, making it more difficult to avoid drug-use triggers and/or the opportunity to inject drugs.

3.4.4 HIV risks

If both partners in a relationship are IDU, there may be an increased risk of exposure to HIV compared to single injector partnerships because of the potential for risky sexual and injection behaviours within the relationship as well as extra-partner sexual relations and extra-partner equipment-sharing. Women in particular may be at greater risk due to the risks associated with not self-injecting. These factors carry particularly high risks for the female partners who are subject to higher incidence and prevalence of HIV over their male counterparts [25, 67, 68]. While some data from the US has found associations between HIV seroconversion among female IDU

and having a male IDU partner [249, 250] other data has suggested that having a primary injecting partner may be actually protective against HIV seroconversion [82]. It is clear, however, that there are risky behaviours common within these relationships particularly as a number of authors have reported that both injecting and sexual risks are perceived as less risky by women than men when undertaken within relationships perceived as trusting [63, 221, 242].

3.4.5 Sexual risks

As mentioned earlier, there is increasing recognition of the importance of the role sexual risks play in the transmission of HIV within IDU populations [50, 215–217]. This is particularly important for women who are more likely than heterosexual men to acquire HIV via heterosexual transmission [218, 219] and is supported by a study from five European countries which found sexual behaviours amongst female IDU to be the a stronger determinant of HIV than injection behaviours [164].

Generally speaking, sexual risks fall into two categories: those risks taken within the partnership and those taken outside of the partnership; all sexual risks revolve around unsafe or unprotected sexual practices. Findings from a US study suggest that the greatest barriers to safe sexual practices within partnerships were beliefs that partners did not have a disease, lack of knowledge about where to get and how to use condoms and discomfort discussing condom use with partners [251]. These barriers will obviously differ across cultures because condoms carry different meanings and implications to different people, especially in the context of partnerships. Outside of partnerships, IDU have been found to be more likely than non-IDU to engage in unsafe sexual practices such as exchanging sex for money or drugs [36], having sex with multiple partners [252], having concurrent sexual partners, and having sex while intoxicated [253]. Given the importance of sexual practices in relation to HIV transmission [72, 82], it is vital to look at the prevalence and implications of these different risks.

3.4.5.1 *Sexual risks within the partnership*

There is a great deal of evidence on the existence of unsafe sexual practices within IDU partnerships [54, 66, 173, 203, 209, 254–257]. This is critical for female IDU; studies from the US have found that characteristics and risks taken within steady partnerships contributed to higher rates of HIV among women while the characteristics of non-steady sexual partnerships contributed to higher rates in men [233]. Further, while men reported engaging in more high-risk sexual behaviours than women, women had higher rates of HIV than the heterosexual men, suggesting that while men may have higher personal sexual risk behaviours, women may have more high-risk partners [233].

Sexual risky behaviour within partnerships has been shown to be influenced by the generally symbolic function that condoms play in communicating shared meanings between partners about the status and nature of their relationships [258]. This means that couples may choose not to use condoms as an expression of trust, monogamy and commitment to their partner; condom use might convey distrust, belief in a partner having a disease or extra-relationship sexual encounters or a general lack of responsiveness to the desires of their partner [209, 258]. Further, the symbolic meaning of condoms may be attached to female IDU's feelings of status and self-worth. This was evidenced by a study in Vietnam, which found that 80% of the IDU partners reported never using condoms and refusing to do so because the women would have felt degraded if their partner had asked them to use a condom because of the cultural stigma already attached to being a female IDU [209]. This unwillingness to use condoms with primary partners is further reflected in differences in condom use between primary partnerships and casual sexual relationships. For example, a US study of male IDU found that 12% reported consistent condom use with an exclusive, main female partner and by 17% with multiple female partners [255]. Regardless of the partnership type, many of the IDU in this study were engaged in unprotected sexual activity that placed both themselves and their female sex partners at risk for HIV and other blood-borne diseases through unprotected sex and high rates of extra-relationship sexual encounters [66, 255].

Transactional sexual relationships add a further element where female IDU may be less able to negotiate safe sexual behaviours with their partner because of their dependence on their partner for physical needs such as food and shelter [240, 259]. This is important because these types of relationships have been found to be much more common among female IDU than male IDU [233]. Studies from the US have found that women who are dependent on their partner for housing or drugs are two to three times less likely to ask them to use condoms than non-dependent women [260]. Further, a study in the US of women on methadone found that women reported acquiescing to partner sexual demands and allowing them to control sexual activity when they were in need of money [261].

3.4.5.2 *Sexual risks outside the partnership*

Sexual risks from extra-relationship sexual encounters often come from both partners with an often marked gender division of females being more likely to be engaged in sex work [246, 261] while males are more likely to be engaged in casual sexual encounters. The implications of sex work will be outlined thoroughly in section 4; however, it is important to note here that engagement in sex work is often seen as a method of supporting the partnership and has also been independently associated with HIV seroconversion.

Studies have found high prevalence levels of extra-relationship sexual encounters among IDU partnerships [54, 203, 209, 254, 255, 262, 263]. For example, a study of IDU in Tashkent, found

that one-third of the married male IDU reported multiple partners [254]. Another study of IDU in Indonesia found that 40.3% of the male IDU with a primary partner reported sex with a female sex worker, 28.6% reported sex with a casual female partner, 1.5% reported sex with a man, 47.6% reported sex with multiple partners and 35.2% reported unprotected transactional sex [262]. Finally, a study of IDU in India found that 75% of the sexually active men were HIV positive, 68% were married and of this group 50% reported having sex outside of the partnership and 64% reported never using a condom with any of their partners [54]. These high levels of both unprotected and extra-partnership sexual activity increase both partners' chances of contracting HIV or other sexually transmitted infections, and beyond the mere sexual risks, associations have been found between sexual risk behaviours (such as having sex with a sex worker or having unprotected sex with a casual partner) and injecting risk behaviours such as needle-sharing which may further increase the risks faced by both partners [264].

One issue in particular that may require more research is where female IDU are engaged in sexual partnerships with men who also have sex with men (MSM). One study with MSM found that some of these men have reported having concurrent relationships with women, not self-identifying as 'gay' or homosexual and engaging in higher risk sexual behaviours [265]. Lack of disclosure of MSM status, along with concurrent sex with women, has been cited as an important mechanism of HIV transmission among women. One study in the US found that 29% of drug-using women reported a male sexual partner who was also an MSM; therefore, we may assume that the actual number of concurrent MSM and female sexual partners may be much higher [233]. There is scarce research in this area; however, there is potential to explore it in more depth given the potential role it may play in female IDU sexual transmission.

3.4.6 Injecting risks

As an introduction to partner influence on injection risk, it is important to note that women are more likely to experience injecting-related problems, in particular difficulty in finding a vein, and as a result may inject into a greater number of sites on their body than men [266]. In turn, injection-related problems may result in increased likelihood of blood-spills and generally poor injecting practices which creates an environment for transmission of blood-borne diseases [267]. Women have also been shown to often inject after the men they may be injecting with and hence are more likely to be the receptive party in the sharing of needles and syringes [32, 62-66, 69].

3.4.6.1 *Injecting risks within partnerships*

It has been shown that IDU are more likely to share syringes with those with whom they are in a sexual relationships than in other social relationships [66, 232, 268]. In addition, women are more likely to share needles and equipment than are men [3, 32, 177, 224, 269]. For example, a

Scottish study of female IDU in partnerships found that 12 of the 13 couples interviewed described themselves as frequently sharing needles [227], while a Russian study found that twice as many female IDU reported sharing injecting equipment with sexual partners than did male IDU [269]. Studies have found that sharing needles and equipment within a sexual relationship has also been presented in terms of trust, love, intimacy and togetherness which is very different from the more practical considerations that are often outlined as reasons for sharing with friends or strangers such as availability of material, need to inject quickly to avoid police intervention or avoid withdrawal; these reasons often lead IDU to inject with other social relations [222, 227, 243, 270, 271]. Studies have also found that sharing between lovers has strong sexual connotations and refusal to share may call into question the partner's commitment to the relationship [63, 272]. This link between intimacy and injecting may mean that IDU partners are not likely to consider these injecting behaviours as potential sources of risk [227]. It has been suggested that the injecting process may be dictated by the dynamics of power and control within the relationship leaving women with limited power of negotiation over safe injection practices [63, 221, 227]. Conversely, some studies have shown that men share more often when women are part of their injecting sphere, hinting that women might have a greater role in men's risk-taking behaviour than previously thought [224].

3.4.6.2 *Injection risks outside the partnership*

Studies from Indonesia, Kazakhstan, the UK and the US have found that needle sharing outside of partnerships is common amongst both men and women in the IDU community [69, 224, 255, 257, 262, 273], particularly in settings where injecting is criminalised and injectors may be afraid to carry their own equipment for fear of being identified as an injector. While in some places sharing needles and equipment may be tied to practical concerns such as avoiding police interventions, in other settings there may be additional meaning placed on the act of sharing. For example, studies in the US and Scotland have shown that sharing equipment can be tied to perceptions of reliability of the individual in respect to co-operative efforts to secure money and drugs, as well as to notions of trust and health; therefore, a refusal to share equipment can compromise an injector's relationships and ability to maintain a flow of both drugs and money [63, 224, 274-276]. These pressures from within the IDU community coupled with practical concerns such as a lack of planning around the injection, the need to inject quickly to avoid withdrawal, or the unavailability of clean sources for new needles such as exchange programs or pharmacies, may encourage further sharing with strangers, dealers and friends [243]. This broad sharing outside of the partnership places both partners at an increased risk of contracting and/or transmitting HIV, HCV and other blood-borne diseases. In addition, some research has shown that IDU who share needles are significantly more likely to have unsafe sex than IDU with safe needle practices [173], contributing a further possible layer of risk to needle sharing.

3.4.6.3 Risks associated with being injected by others

An important set of risks that affect more women than men are those associated with being injected by someone else [56, 134, 137, 174, 243], most often their partner [133, 227]. As described in the 'Initiation' section of this work, it is extremely common for women to be injected by someone else at the first injection, but evidence suggests that women are much more likely than men to continue being injected by another [54, 227].

This is a common risk taken by many female IDU as evidenced by a Scottish study of female IDU injecting patterns and needle behaviour, which found strong ties between sexual relationships and non-self injection, with the majority of women who had ever been partnered with a male IDU reporting being predominately injected by that partner while in the relationship [227]. Studies have shown that non-self injection is an independent predictor for HIV incident infection which may be a reflection of the non-self injector's subordinate position in the injection process since they are often injected last after the equipment and drug solution have already been used by their partner and possibly others as well [227, 277-279].

It has also been found that those who provide injection assistance are more likely to borrow and lend used syringes from others, and share peripheral equipment [57] which may further increase the risk exposures faced by the partner being injected. Non-self injection has also been linked to an increased dependence on the injecting partner and to further marginalisation within the partnership and within peer groups because of dependence upon the partner for injections [245].

In some instances, non-self injection may be a practical matter where less experienced female injectors trust their partner's potentially more extensive injecting knowledge [133, 280]. It may also reflect a gender-based belief that male partners are more competent at injecting [227]. On a physiological level, women's smaller surface veins, and greater amount of subcutaneous adipose tissue, make them more likely to have difficulty and need help injecting [57] and thus potentially more likely to share injection equipment. Female IDU also report significant meaning behind allowing their partner inject them, reflecting trust and bonding within the partnership [227]. The predominance of non-self injection among women may also reflect the gendered power dynamics within IDU relationships because men have been shown to be more likely to control drug administration as well as access to drugs, needles, and injecting equipment within the partnership [63], even if the female partner is capable of self-injection [57]. This may particularly be the case for women in relationships with prescribed gender roles where the male might use drugs and their administration to exert dominance and control over the female partner. Conversely, some women might simply choose not to self-inject to reduce or control their drug use and injecting frequency [227].

3.4.7 Changing behaviour around risk

Changing the sexual and injecting risk behaviours of IDU couples may be difficult especially where the risk behaviours in question are tied to emotional beliefs about their partnership.

Studies have shown that IDU may be less likely to reduce risky sexual behaviour than to change drug use and needle practices due to the emotional ties to sexuality over the physical ties of injecting [281, 282]. For example, couples in Vietnam reported giving each other more flexibility around safe sexual practices than injecting practices because injecting practices were seen as purely physical needs while sexual practices were emotionally linked [209]. These findings highlight the efforts that must be made to address sexual risk factors among IDU as a primary, efficient, and hard-to-change method of HIV transmission. In addition, it is important to address HIV sexual risk of heterosexual male IDU who may, due to power dynamics within the relationship, have a greater ability to bring about behavioural change [283].

There is evidence that, if framed correctly, awareness campaigns may be effective in addressing sexual and injection risks. A study in four US cities of HIV positive male IDU found that 75% of the sample reported feeling responsible for protecting their sexual partners from HIV, and those who reported feeling this responsibility were significantly more likely to have had fewer sex partners and less unsafe sex although, interestingly, these feelings were not associated with safer injecting behaviour [284]. A separate study of male IDU found that those who had initiated partners into injection reported feeling a sense of responsibility to protect them against injection risks [133]. These findings suggest that awareness campaigns with a focus on the prevention of HIV through both sexual and injection transmission as a matter of responsibility and partner care may negate the negative connotations associated with safe sex practices within intimate partnerships. Overall, couple-based approaches to HIV risk reduction have been found to be efficacious in increasing condom use [285-288] and in decreasing drug use and HIV risk behaviours among drug-involved couples [257, 289-291].

Further, accumulated research suggests that couple-based HIV prevention interventions may be more effective than individual approaches with key intervention components including enhancing couple sexual communication skills, providing a conducive environment for both partners to disclose outside injection and sexual risks and balancing relationship power asymmetry in the sexual components of the relationship [285, 292-295].

3.5 Female same-sex partnerships

Women who have sex with women (WSW) are a population that has been relatively poorly investigated in research considering HIV risk within partnerships, despite findings of risky same-sex sexual and injecting behaviours [296, 297]. Historically it has been assumed that this is a ‘low risk’ group in terms of transmission and, as such, the Center for Disease Control in the US and other surveillance data reports about women with HIV/AIDS systematically excluded women’s sexual activity with other women [296]. A theme that has run through this work is how research has generally approached female IDU not from a human rights perspective, but from a public health perspective, treating these women not as individuals but as potential transmitters of disease to men and children. This is perhaps clearest in the work done with WSW which has found that, since it is often mistakenly assumed that lesbians are not mothers and that they do not have sex with men, HIV research on this subgroup has been sparse [12]. Despite the assumption of ‘low risk’ clinical reports confirm woman-to-woman transmission of HIV [298-301] but because specific information about women-to-woman sexual transmission is lacking [302], it is difficult to determine from the literature the true nature of the risk faced by WSW.

3.5.1 Risk of HIV in WSW

Older studies from the US reported low levels of HIV transmission within the WSW community [303-305]; however, more recent studies from the US have found substantial levels of HIV within the WSW community. There are inconsistent HIV prevalence links within this population with some studies reporting highest rates of HIV among bisexual women than among either exclusively lesbian or heterosexual women [233] and others reporting higher seropositivity among women who strictly identify as lesbian over women who identify as bisexual or heterosexual [12]. Despite these discrepancies, studies are in agreement in the finding that women who have had female sexual partners have higher prevalence rates of HIV than strictly heterosexual women [12, 233, 306, 307], with one study from the US finding that women who had had any female sexual partners were significantly more likely to seroconvert during the six-month evaluation period [308].

3.5.2 Prevalence of WSW among IDU populations

Research from the US and Australia around the prevalence of WSW within the female IDU community has consistently found that a substantial portion of female IDU engage in same-sex behaviours with percentages ranging between 20-40% [12, 233, 296, 309-311]. These may actually be underestimates since some studies have found female IDU to be reluctant in disclosing their sexual orientation for fear of discrimination from service providers [312-314]. Beyond this fear there is also evidence that sexual identity may not always be congruent with sexual behaviour, meaning that just because a woman does not identify as ‘lesbian’ or ‘bisexual’ does not mean

that she does not engage in those sexual behaviours [315, 316] and her lack of identification with one of those groups would lead to an underrepresentation of the actual numbers of WSW.

The overlap of injecting and WSW behaviours was demonstrated in a study from the US of lesbian/bisexual women that found women who had had one or more female sexual partners were nearly twice as likely to inject drugs during the same period as women who had no female sexual partners [12], and by a study from Australia of lesbian/bisexual women which found that 23% of the interviewed women had injected drugs at some point [316]. There is no suggestion of causation within these studies between injection and WSW behaviour, and no explanation of the link was forwarded by either author. For the purposes of this current discussion, it is important to examine the apparently high prevalence of WSW sexual behaviours within the female IDU community as a contributor of the risks they may face and the impact that such behaviour may have on their lives and injection careers.

3.5.3 HIV risks of WSW IDU

3.5.3.1 *Sexual*

While the risk of woman-to-woman transmission appears to be lower than transmission via same-gender sex among men or sex between men and women [317], it is a mistake to focus solely on woman-to-woman sexual transmission as the factor that differentiates risks among lesbian and bisexual women from risk among heterosexual women [303]. For example, there is a significant body of literature to suggest that WSW may also have sex with men [12, 233, 308, 310, 315, 316, 318]. There is also evidence to suggest that when WSW engage in sex with men, the behaviours may be high risk, such as anal intercourse or transactional sex for money or drugs [12, 310, 318]. One study from the US also found that WSW were more likely than heterosexual women to engage in sex with MSM [319].

3.5.3.2 *Injection*

There is also evidence that WSW IDU may engage in higher risk injection practices than strictly heterosexual women [12, 310]. For example, a study in the US found that women who reported having had sex with women in the six months prior to interview were more likely to inject with only illicit syringes, rent used syringes, inject at drug dealers' houses and share syringes with more people than would female IDU with no female sexual partners [308].

It has been hypothesised that lesbian and bisexual IDU are at risk for HIV not only because of their sexual and injection behaviours, but sometimes also by the protection they believe is afforded by their 'low risk' lesbian identity [12]. The fact that WSW are seen by health promotion experts as a 'low risk' group means that WSW IDU may receive limited and often conflicting information

about the risk of sexual activities in which they engage and are not reached by or included in many research and education programs, particularly if they do not self-identify as lesbian/bisexual or are otherwise not in contact with lesbian/bisexual community programs [12, 320].

Where WSW also engage in sex with men, they may not see that as part of their identity and therefore not consider those behaviours in terms of their own risks, particularly where the sex with men is for money or drugs. In addition to the limited information they may receive, where they do present for services, it has been found that staff generally have little or no training in sexuality which can lead to inadvertent discrimination and a focus on their same-sex behaviour to the exclusion of their other risk factors [321].

There is an obvious need to work more closely with the WSW IDU community in a way that separates behaviours from issues of self-identification, and present complete information on potential risks in a non-discriminatory and accessible way.

3.6 Intimate partner violence

Intimate partner violence (IPV) is a reality in many IDU partnerships whether both partners are injectors or not. Some have argued that violence may simply occur as part of a drug sub-culture [322] and, while both male and female IDU report facing violence, it is a matter that particularly affects female IDU within their partnerships. IPV has been defined as psychological, physical and sexual coercion or abuse [323]. Meta-analysis of the current research found that the odds of intimate partner aggression are approximately three times greater when drug use and abuse are implicated [323]. Because alcohol and drug use are associated with both partner abuse and HIV infection, the prevalence of domestic violence among IDU partnerships is high [120, 324–326].

Partner violence is a particularly important issue for women who inject drugs; IPV is more commonly experienced by female IDU than women in the general population and has been found to be associated with HIV infection among IDU [327]. Prevalence of violence within IDU partnerships seems to be a common occurrence as evidenced by multiple US studies that found high reports of male lifetime and past year perpetration of physical violence and very high prevalence of female IDU reports of physical violence victimisation [256, 328, 329]. IPV particularly affects drug-involved women [108, 228, 261, 324, 330–335] where prevalence of IPV among women in substance treatment in the US has ranged from 25–57% [235, 331, 333, 334, 336], rates that are three to five times higher than the those found in general-community based samples in the US [337, 338]. One US study found that illicit drug use by both male and female partners was significantly associated with perpetration of severe sexual and physical IPV [339]. The low social status of women drug users may give their partners greater feelings of entitlement to abuse them [246, 340, 341].

Research from the US has found that experiencing IPV is associated with engaging in unprotected sex [108, 332, 335, 336, 340, 342–347], higher rates of STI [328, 348–350], having sex with multiple partners [340, 350, 351], trading sex for money or drugs [328, 352], having sex with IDU [340, 351], and having sex with HIV positive partners [336]. In addition, research from the US has found associations between perpetration of IPV and engaging in HIV risk behaviours among heterosexual men [256, 353, 354].

While female IDU have been found to be frequent victims of IPV, men in IDU partnerships have also been shown to be subjected to high levels of violence. Received violence is particularly common among male IDU and studies that do not include both male and female participants or do not examine violence outside of the partner/marital context result in a limited understanding of the gender-related issues that influence physical violence [355]. For example, a study of IDU in Vancouver found almost equivalent levels between men and women of lifetime reports of violence. Further, a US study of male IDU found a strong association between male and female perpetration of any type of physical abuse in an intimate relationship; however, a quarter of men and women who were abusive in their intimate relationships were never abused in turn by their opposite-sex partner [256]. Although male and female IDU may both be subjected to high levels of violence, the differences between the types of violence to which they are exposed is important.

A US study found that effect sizes for all forms of aggression were not significantly different across the sex of the perpetrator and the sex of the victim, showing that men and women had the same risk of being a perpetrator or a victim; however, it was noted that women more often reported their aggression as self-defence [323]. In another US study, women were found to be more likely than men to report being attacked by acquaintances, partners and sex trade clients and workers, while men were more likely to report being attacked by strangers or by the police; yet, despite the different sources of violence, there were overall similar levels of received violence [356]. While the sources of violence clearly differ, there is also evidence that the types of violence suffered may differ greatly dependent on cultural norms. For example, in the US, psychological aggression was significantly higher than sexual or physical aggression and it was postulated that this was because of the social sanctions and punishment that can result from these behaviours [323]. Further, in areas where injection by women may be particularly stigmatised, some partner violence has been shown to be linked to the general stigma of women using drugs [357].

Reports of IPV have been high among drug-involved women and also among drug-involved men who report high levels of perpetrating IPV against their female partners [336, 339]. A US study found that 58% of men in methadone treatment in New York City reported ever perpetrating physical and/or sexual IPV, 32% reported ever sexually coercing their female partners, 16% reported ever physically forcing their partners to have sex against their will, and

perpetration rates of IPV were higher among men who reported that their female partners were using drugs compared to those with non-drug using female partners [339]. Discrepancies in sexual desire while both male and female partners are under the influence of drugs may also create conflict that can result in sexual coercion [331].

3.6.1 Risk factors for IPV

There are several postulated risk factors about why IDU women are subjected to higher levels of violence; however, generally, women drug users' lives tend to be marked with physical, sexual and emotional abuse from childhood [358–361]. For example, a study of female IDU in five US cities who reported experiencing domestic violence found strong associations between childhood sexual abuse and lifetime domestic violence [182]. Further, a study of IDU in Vancouver found that variables positively associated with experiencing violence included sexual abuse, sex trade involvement and requiring help injecting [362], all factors that tend to be more common for women and especially for IDU women.

The expression of violence has traditionally been associated with male gender roles which may be partially responsible for the link between partner violence perpetuation and sexual risk behaviours [363]. For example, violence has been tied to partner requests to use condoms [362] and after adjusting for demographic factors and drug-use issues, men who reported abusing an intimate partner were found to be four times more likely to have more than one intimate partner, three times more likely to have unprotected anal sex and 2.6 times more likely to have sex with a drug-injecting sexual partner, showing a link between perpetrating violence against a partner and engaging in riskier sexual behaviours [256]. The increased sexual risks paired with the threat of violence may prove to be an additional barrier to women protecting themselves sexually from the possibility of HIV transmission.

3.6.2 Intimate partner violence and HIV risk

There are several potential implications of partner violence on the lives and health of female IDU. Research has found associations between intimate partner violence and a number of sexual HIV risk factors including engaging in unprotected sex [108, 263, 324, 330, 332, 335, 364], higher rates of STI [362], sex with multiple partners [263, 350, 362], unprotected anal sex [329], trading sex for money or drugs, visiting shooting galleries, living with someone with drug or alcohol abuse problems [261, 336] and injecting drugs [365].

A study in the US found that men who report perpetrating IPV are significantly more likely to report inconsistent or no condom use, forced unprotected sex and sex with multiple female

partners [354]. A study in the US of men in methadone treatment found that men who reported perpetrating IPV were more likely to have had more than one intimate partner and more likely to have had sex with a drug-injecting sexual partner [256].

A US study found that the relationships between IPV and HIV risks are bidirectional [260, 353]. A US study found that *experiencing* IPV reduced the likelihood of always using condoms and requesting partners to use condoms [260, 366]. *Perpetrating* IPV was associated with having multiple intimate partners and buying sex while not using condoms; injecting drugs and sexual coercion were associated with subsequently perpetrating IPV [353]. Sexual coercion has been argued to create a context of male dominance and control that strips women of the power to negotiate their sexual health needs [328]. It has been hypothesised that requesting that condoms be used may also be seen as a signal of lack of trust or caring within the relationship [261, 334, 367–369] and, for some, it may imply that the female partner has engaged in risky behaviours and be perceived as a sign of infidelity on her part [261, 333]. A study in the US of men in methadone treatment who perpetrated IPV against their female partners all agreed that requesting condoms in a committed relationship creates mistrust and conflict between partners that can ignite IPV [328].

Research from the US suggests that sexual coercion is one of the major contexts associated with HIV transmission risks [352, 370, 371], especially for drug-involved women [372]. Studies in the US of women on methadone treatment have found that women who report experiencing sexual IPV were more likely to report never using condoms, compared to women who did not report such IPV [328, 334, 336]. Studies in India have found similar associations [352, 370–373]. Women who have experienced IPV may not request condom use for fear of provoking their partner into further violence [328, 334, 335]. There is a clear mandate for HIV prevention efforts to incorporate elements of IPV prevention [334–336, 345, 350, 370].

3.7 Summary

For women, having a partner who is an IDU has a range of consequences socially, physically and psychologically. Such consequences include increased risk of initiation to injection, a range of lifestyle and familial difficulties, increased risk for HIV and other blood-borne diseases, and increased risk of being exposed to IPV. These relationships, however, can also provide security, affection and protection for otherwise marginalised women. The complex nature of IDU relationships warrants further investigation in order to more accurately weigh the costs and examine the policy initiatives which could improve the overall health and happiness of women partnered with IDU.

3.8 Recommendations

- Develop intervention programs for male IDU in particular that emphasise their role in keeping their partner safe should they choose to assist their transition into injection.
- Given the high rates of IDU partner violence against women, domestic violence service information should be available through all outreach and harm minimisation services.
- Given the high rates of HIV among WSW IDU, targeted interventions should be implemented that focus on the disease risks that they may face through their injection and sexual behaviours to discount the traditional ‘low risk’ status.
- Given the importance of trust and intimacy that sexual behaviours play in IDU relationships, interventions should focus on encouraging safe sexual behaviours in both male and female IDU as a matter of caring and responsibility towards their partner.
- Given the high rates of sharing injection equipment both in and out of partnerships, outreach and harm reduction services should be expanded throughout the IDU community to ensure safe injection practices and reduce the potential spread of disease.
- Given the importance of cultural factors within relationships and around gender roles, appropriate targeted interventions should be created at a local level which empower women to care for themselves and their partners.

4. WOMEN, SEX WORK AND INJECTING DRUG USE

4.1 Introduction

There is an important overlap between the two recognised at-risk populations of female IDU and female sex workers (SW): many women who inject drugs engage in sex work and many women who engage in sex work inject drugs [6, 62, 239]. ‘Sex work’ can be defined as exchanging sexual activities for money, drugs or other items. This is distinguishable from transaction sex in which sexual activities are traded directly for necessities such as shelter, food or protection. While there may be some overlap between the two, the focus of this section is on sex work because it more often involves sex with multiple clients who may be generally unknown to the women and therefore may involve higher risks than transactional sex which often occurs with fewer individuals who are more often known to the women.

Studies have found that women are more likely to engage in sex work than their male counterparts [212, 246, 261, 374–376]. Women IDU are also more likely than their male counterparts to acquire HIV through sex transmission [218, 219]; sex work has been found to be an independent risk factor for HIV among female IDU [164].

There is a high prevalence of injecting drug use among women who engage in street-level sex work, with studies estimating that between 22–82% of SW are also IDU [377–381]. Estimates of female IDU engaged in sex work range between 15% and 66% in the US [382, 383]; 20–50% in Eastern Europe; 10–25% in Central Asia [384]; 49–84% in Russia, Kyrgyzstan, Georgia and Azerbaijan [10, 239]; and 21–57% in China [27, 385]. When examining the extent of sex work and injecting drug use, it is important to note that women may transition in and out of sex work, that sex work may be hidden or covert, and that women who engage in both injecting drug use and sex work may experience significantly greater marginalisation than both non-injecting SW and non-sex worker female injectors [386].

Further, studies from both the US and Vietnam have shown that the distinction between sex work and exchanging money or drugs for sex may cause confusion and underreporting of particular risk groups because not all females who inject drugs and engage in sex work will necessarily identify as an IDU and, likewise, not all IDU who will occasionally exchange sex for money will consider themselves as engaging in sex work [387, 388]. This is particularly important where these women may not see themselves as vulnerable to particular risks because of their lack of identification with these risk groups [389] and therefore may be left out of targeted interventions [386].

Participation in sex work has been associated with HIV risk behaviours such as syringe sharing and inconsistent condom use [10, 46, 176, 193] as well as significantly higher HIV seroprevalence rates among women who use drugs [36, 193]. A study from Canada found that working in the sex trade was an independent contributor to HIV infection among recently initiated IDU [44].

Female IDU SW are at heightened risk of sexually acquired HIV from exposure to multiple sexual partners, limited condom use with partners [82, 239, 249] and are also exposed to environmental risks from the perilous circumstances under which sex work often takes place where coercive sex may be common and condom use has been found to be infrequent [390–392]. Findings suggest that female SW have higher rates of illicit drug use [393], heavier use of alcohol and tobacco [393–395] and higher rates of sharing injecting equipment [10, 395] compared to women from the general community – all factors which put them at increased risk for contraction of HIV and other blood-borne diseases. While there is conflicting evidence whether female IDU SW are at higher risk of HIV from their risky injection [396] or sexual behaviours [249], both have been found to be compounded by an overlap of sex and drug networks among IDU, which enhances vulnerability to HIV among IDU SW and promotes HIV transmission among their sexual partners, both transactional and otherwise [174].

4.2 Links between drug injecting and sex work

There is a strong link between drug use, particularly injecting, and prohibited activities such as sex work [397–401] and a link between periods of heavy drug consumption and increased levels of engagement in prohibited activities [402–404]. Generally, where prohibited activities are used as an income source to procure drugs, high costs associated with illegal substances may deter and regulate drug use among certain individuals [405]; however, more dependent drug users may resort to various forms of prohibited activities, including sex work, to generate sufficient income to support their preferred level of drug consumption [406–410]. For those who become sex workers primarily to support their drug addiction, sex work has much in common with transactional sex, with the same absence of genuine choice regarding selection of clientele, insistence on safe sex practices, locations and times of exchanges, etc. in the face of urgent need [240].

Theories around the link between IDU and sex work tend to focus on a need for money to procure drugs as a primary motivator for engaging in sex work [246, 261, 411]; however, female IDU have reported providing sex as an exchange for housing, sustenance and protection [220, 240, 376]. Further studies in Taiwan, the US, Vietnam, China and India have found that poverty, an absence of employment opportunities, a need to support the daily lives of both themselves and their partners, and fewer years of education than their male injecting counterparts make transactional sex a survival strategy for some female IDU [56, 58, 93, 376, 411, 412]. In addition, while initial involvement in sex work may serve as a temporary means of supporting a drug habit, the psychological distress resulting from involvement in sex work may actually lead to increased drug use, creating a cyclical effect [413].

Some relatively positive effects of sex work have also been reported. Along with income generation opportunities, sex work can afford the opportunity to seek health care and education for

both the female IDU and her family in areas where there are otherwise limited employment opportunities for women [220]. Sex work has also been described as being a potential source of positive body image, job satisfaction, autonomy and empowerment [414] as well as pursuit or enjoyment of sex and the power or status of a successful sex work career [415].

4.3 HIV and other risks associated with sex work

It is important to note that much of the work around female IDU SW has focused on containing them as potential bridges of disease between the IDU and non-IDU populations via non-IDU clientele, instead of focusing on the health, safety and human rights of the drug using sex workers themselves [240]. Such work has typically not included strategies to reduce the harms faced by substance-using women in street-level sex work [416].

4.3.1 Non-HIV related risks and harms

Generally, female IDU SW are faced with significant health risks, threats of violence, and high social marginalisation [417, 418]. Importantly, many of the harms of commercial sex work are not directly related to sexual activity involved per se, but rather to the risky environments and the larger socio-legal context in which sex trade work occurs [419]. A primary risk for female IDU SW is their vulnerability to HIV [82] which is higher than non-IDU SW and non-SW IDU for a variety of reasons, both sexual and environmental [385, 420-422]. For example, a study of IDU in San Francisco found that women who reported having traded sex for money in the past year were 5.1 times more likely to seroconvert [82] and a study in New York of SW found that the women's drug use played a substantial role in their sex work and led to their lowering the price of the sex work exchanges, creating a hostile environment between SW and clients and sex workers, and increased the potential for high-risk sexual encounters and using drugs to facilitate the engagement of their sex work [412].

There are a number of studies that have also suggested that a history of sexual abuse is very prevalent among women IDU who also engage in sex work. A study of IDU street SW in the US found that the majority of women listed their first sexual experience as traumatic with most having been raped by a family member or friend [423]. A study in two Canadian cities of Aboriginal women who use drugs found that 76% of them currently involved in sex work reported ever being sexually abused versus 61% not engaged in sex work [424].

4.3.2 Sexually related HIV risk

The types of partners that female IDU SW take and the behaviours they are willing to engage in with those partners are primary sources of risk that may help explain the higher rates of HIV

among this population. The sexual risks taken by female IDU SW in regard to the types of clients they take may be higher due to their engagement in street-level sex work [377, 378] which they are forced into because they may be seen as undesirable or at high risk of HIV by brothel owners and therefore excluded from brothels which could otherwise provide protection and a system for imposing safer sex practices [425–427]. Being a street-based SW may imply having to take higher risk clients such as IDU who are unable to engage with SW in more structured settings. This was supported by studies in Vietnam, Pakistan and the US of street-based SW which found that female IDU SW accepted drug using clients who had been rejected by higher status SW [233, 425, 428].

Female IDU SW sexual behaviours and vulnerabilities can be understood to be related, to a large extent, to women's unequal socioeconomic status, power and increased levels of poverty, as well as to cultural contexts and practices associated with sexual relationships with men [429]. This means that sexual behaviours have to be examined in the specific cultural context in which they take place; however, regardless of cultural factors, it is a common feature that female IDU SW are exposed to risks such as low condom usage and equipment sharing with sexual partners [225, 376, 428]. In general, studies from Vietnam, China, Mexico and Central Asia have found that female IDU SW have more clients and use condoms less often than non-IDU SW [376, 385, 411, 425, 430]. For example, a study of IDU street SW in the US found that where clients were willing to offer more money or drugs, the women were often willing to engage in unsafe sexual practices citing their need for money or drugs as a greater concern than the possibility of disease [423].

It is important to note that the sexual risks behaviours taken by female SW IDU differ between regular partners and clients. For example, a study of female IDU SW in Vietnam found that the women were more likely to use a condom with a casual client than with a regular client and more likely to use a condom with a regular client than with a partner/lover [376]. Despite this apparent difference in risk behaviour, in general, female IDU are more likely than their male counterparts to have IDU sex partners which, as discussed in the 'Partners' section of this report, exposes them to both the injection and sexual risk behaviours of their partners [32, 63, 66, 207, 225, 227–231].

4.3.3 Injection related HIV risks

A study comparing sex working and non-sex working female IDU in the US found that SW were more likely to engage in risky injection practices such as renting, borrowing or sharing injecting equipment, had higher rates of injection and injecting in public places such as shooting galleries and dealer homes while non-sex workers were more likely to share equipment with a sex partner [272].

Evidence suggests that the injection risk behaviours of female IDU SW may put them at higher risk than their sexual practices [431]. Studies from Russia and Bangladesh have shown that IDU SW are more likely than non-sex worker IDU to engage in risky injection practices [396, 432]. However, the extent of these risks is debated because prevalence of higher injection risks among female IDU SW has been shown in studies from the US [433], but not in another study from Australia [434]. It is not suggested that injection or injection risk behaviours are a product of engagement in sex work; instead, it is postulated that engagement in sex work may include environmental factors that necessitate some of these risks and that those engaged in sex work may have higher levels of dependence that require more frequent and urgent injection. This is supported by findings from the US that female IDU SW's use is characterised by more frequent injection of larger amounts of drugs compared to women not in the sex trade [435–437]. Further, a study of female IDU SW in London found that 88% were injecting on a daily basis, self-reported high levels of dependence and 75% had used equipment after someone else as an outcome of the level of their dependence and not of sex work per se [438]. This supports the idea that dependent drug use may be a key factor in engaging in risk behaviours rather than sex work.

SW may be vulnerable to injection risks because of a number of environmental factors. Studies have shown that street-based SW may be more likely to share equipment because the circumstances of their work provide less opportunity to plan the injection and obtain equipment [272] and because of the settings in which they choose to inject, which are often dictated by temporal proximity, urgency and general proximity to their work sites [439–442]. This increases the likelihood that they will have to share equipment at the time of injection as demonstrated by studies from Vietnam and China which found high levels of equipment sharing within the SW IDU network [376, 411]. In addition, studies from the US have found that IDU SW are less likely to carry injecting equipment in places where there are criminal implications for possession and their engagement in sex work means they are at increased exposure and vulnerability to police intervention, all of which makes them less likely to use sterile or new equipment when injecting [272]. This is supported by a Canadian study, which found that female IDU engaged in sex work were more likely to report ever needing help injecting, borrowing needles and reporting difficulty in accessing clean needles [424]. In addition to the environmental factors that lead to needle-sharing, SW are also more likely to report injection-related problems such as abscesses, which may be a product of higher proportions of women engaging in sex work since women are twice as likely to report injection-related problems than men, and not an issue specifically attached to sex work [378].

4.4 Comparison of female IDU sex workers and non-sex working female IDU

4.4.1 Factors associated with female IDU initiating sex work

Studies have identified several personal characteristics which have been associated with female IDU who initiate into sex work, compare with female IDU not engaged in sex work:

- younger age [386];
- younger age of initiation to injecting [434];
- shorter injection careers [386];
- more likely to be married [386];
- reporting greater than once daily injections [386, 434]; and
- more likely to have been introduced to injection by their social network [432].

These characteristics are interesting because they emphasise the importance of social network on female IDU initiation to injection (discussed in section 1) and also possibly shed light onto the higher HIV prevalence faced by younger aged initiates to IDU (as discussed in section 1) because of the increased risk of sexual acquisition of HIV through sex work.

4.4.2 HIV risk factors associated with female IDU engagement in sex work

Studies have found several risk factors which have been associated with engagement in sex work for female IDU:

Injection-related factors

- injecting with borrowed, shared or used syringes and other equipment [386];
- reporting requiring help injecting [386];
- more likely to report injection-related problems [434];
- more likely to have spent money on drugs within 24 hours [434];
- more likely to spend higher amounts of money on drugs [434]; and
- more likely to have ever injected with someone known to be HIV or HCV positive [396].

Sexual factors

- more likely to have an IDU sexual partner [386];
- more sexual partners than non-SW female IDU [443];
- less likely to have regular sexual partners [264]; and
- more likely to have ever had an STI [396].

Treatment factors

- less likely than non-SW female IDU to be enrolled in methadone maintenance [386]; and
- less likely to have ever entered any drug treatment [443].

Lifestyle factors

- more likely to live in unstable housing [386];
- more likely to have ever been incarcerated [386]; and
- more likely to have ever experienced violence [432].

These factors all illuminate the vulnerable and risky environment in which female IDU SW live. That SW IDU face such compounded risks over and above what non-SW IDU face could be a product of higher levels of addiction amongst SW necessitating riskier activities in order to fund their preferred level of use, a necessity springing from household financial responsibilities, or a complex interaction within the general social instability that female IDU face.

4.4.3 Protective factors associated with female IDU engagement in sex work

Studies have found several factors that could be protective against acquisition of HIV for female IDU SW compared with female IDU who do not engage in sex work. Some of these factors conflict with risk factors that are listed above and may be a result of the regional or study sampling differences. It is important to note as well that these studies did not distinguish between brothel-based and street-based SW and there may be significant risk differences between these two groups. In general, studies have found that female IDU SW are:

- more likely to use condoms with regular and casual partners [386];
- less likely to have had an IDU partner [443];
- less likely to have tested positive for HIV [443]; and
- less likely to have injected with used syringes in the past 30 days [264].

4.5 Comparison between female SW who inject and those who do not

SW, independent of their IDU status, are exposed to many risks; however, IDU SW may experience additional risks and vulnerabilities than non-sex workers and non-IDU [396, 434].

4.5.1 Environmental risks

The environment of sex work differs between women who inject and women who do not. A study in the UK found a higher prevalence of injecting drug use and higher levels of problematic drug use among street SW as opposed to non-street SW and also found that many street SW were forced out of indoor markets due to their problematic drug use [444]. Studies from Asia, Russia and Ukraine have found that IDU SW are more likely than non-IDU SW to work on the street [427, 445] which may increase the likelihood that they will have IDU clients, [425, 446–448] and experience violence from their clients [449]. Street-based SW are also more likely to work nights and longer hours than their non-injecting counterparts [450] and are at higher risk for adverse contact with law enforcement, subject to physical assault, rape, kidnap and being threatened with a weapon [378, 451, 452]. This is particularly important because studies have found that rape, partner violence, homelessness, lack of mental health and drug services all influence and increase the sexual risk behaviours of SW [423].

4.5.2 Mental health

Mental health is an important issue among female IDU-SW. A study in two Canadian cities of Aboriginal women who use drugs found that 42% engaged in sex work and reported having attempted suicide at least once in their life (OR 1.00) [424]. Feelings of stigmatisation due to the nature and illegal status of the occupation are likely to contribute to significant psychological distress [391] which in turn may undermine the motivation and ability of SW to adopt safer sex behaviour [453–455]. A study of Puerto Rican SW found that the majority reported a high rate of depressive symptoms and street SW had much higher levels of depressive symptoms (86%) than brothel workers (45%) and half of the sample (47%) reported injecting and 90% of the injectors had depressive symptoms as opposed to 52% of the non-injectors [456].

4.6 Recommendations

- Given the high levels of sex work within the IDU community, harm minimisation services should be included in all sex work outreach programs and safer sex messages should be included with all IDU outreach programs.
- Given the increased risks that IDU street-based SW face safe places should be established where they can carry out their services while mitigating the environmental risks they are otherwise exposed to and targeted health interventions can be more effective at reaching an otherwise largely hidden population.

5. WOMEN IDUs, HIV PREVENTION AND DRUG TREATMENT

5.1 Limitations of current research

As with previous sections, it is important to note that the available information regarding injecting women and treatment is heavily weighted towards women in developed regions of the world, particularly North America and Australia [68], and that most research around treatment has focused on male subjects [457]. This means that in both the developed and developing regions of the world, the background information required for effective and appropriate planning and implementation of treatment services for IDU women may not be available. Where information does exist, it indicates that IDU women are underrepresented in treatment and it has been hypothesised that in some areas cultural norms may make it difficult for women to acknowledge injection problems or to leave their homes and families to seek treatment [68]. Even in countries such as the US where women seeking treatment may be more culturally acceptable, estimates have shown an underrepresentation of women entering treatment [458].

In addition to these barriers, evidence suggests that women who do access treatment may find that programs have been designed with male clients' needs most in mind [128]. This is important because significant differences, which will be discussed below, exist between the needs and expectations, as well as the types of preferred treatment, for women and men entering treatment and significant differences exist within both sexes in regards to the types of treatment sought [127].

With these limitations in mind, promoting the health of women through substance abuse treatment has an impact not only on the health of individual women, but also on the health and survival of their families and the community. The needs of women with substance use problems are varied and difficult to address, but women need to be informed and supported to assume responsibility for their own recovery.

5.2 Introduction

Before exploring issues around treatment and prevention service provision that are specific for women, we will look briefly at drug treatment and related issues more broadly. There is no uniform approach to drug treatment for IDU, and often within a single country there will be wide variance among available types of treatment, best practice models and even legality of particular treatment types. Further, it needs to be acknowledged that a substantial proportion of people who inject drugs cease their drug use without receiving any formal drug treatment [459]. In general, evidence shows that treatment provides the opportunity to reduce individual exposures to the

potential harms of injection, in particular OST (including methadone and buprenorphine), has been associated in the US and Australia with decreased drug use and reductions in other HIV-related risk behaviours [460–462], such as injection frequency, needle-sharing, criminal behaviour [463–480] and in some cases reduced sexual risk behaviours [481, 482]. Methadone maintenance has also been associated with decreases in HIV incidence [74, 463, 483].

There are many different kinds of treatment interventions used around the globe. For example, drug treatment in Russia from 2000 included inpatient and outpatient care concentrating on short-term medical care of withdrawal symptoms [484] while substitution therapy such as methadone is illegal and is discouraged [485, 486]. In China, there are compulsory and voluntary detoxification centres [487] where drug users spend three to six months, or up to a year (compulsory) or seven to 30 days (voluntary) receiving detoxification treatment, physical exercise, manual labour and education [487, 488] while methadone has been available since 2004 [489]. Bangladesh opened two women-specific drop-in centres in 2004 where women could undertake detoxification [432]. Scotland has drop-in centres for street-based female IDU SW where they can access general health and IDU-specific services [377]. The fact that the types of treatment vary so widely from country to country may be a product of political, economic, religious or cultural differences as opposed to a product of best practice research and development.

5.3 Characteristics of women entering treatment

Significant differences exist between female IDU who choose to access treatment services and both male IDU entering treatment and female IDU who choose not to enter treatment. In relation to female IDU in comparison to male IDU entering treatment, studies from the US, Taiwan, Brazil and the UK have found that female IDU enter treatment at a younger age, are less educated, have higher rates of unemployment, lower incomes, shorter periods of time between initiation to injection and entry into treatment [18, 22, 93, 127, 490–497], are more likely to be married or living with a de facto [18, 22, 492–497], to report higher levels of daily injecting [498], and are more likely to have dependent children in their household for which they are responsible [18, 22, 127, 492–497, 499, 500]. Many of these characteristics may not be surprising, given that women initiate into injection at a younger age and have a faster transition to dependence than do men, as examined in the Initiation section of this report. Further, female IDU entering treatment are more likely to present with higher levels of physical issues such as respiratory, heart, or digestive problems [127] and psychological problems such as anxiety, depression or suicidal thoughts [93, 128] than male IDU. This increased level of reported physiological and psychological issues among female IDU may reflect a real increase of these issues over male IDU, a higher willingness amongst female IDU to report these symptoms, or a way of reporting them that male IDU do not use which leads to medical diagnosis.

Very little work has been done comparing characteristics of female IDU entering different treatment modality types; however, a study from the US found that women entering short-term inpatient programs were older, newer to treatment, had more education, more likely to have non-street based employment and more likely to report suicidal symptoms. Women entering long-term residential treatment were younger, had the lowest levels of education and employment, greater criminal history and more episodes of previous treatment [127]. A study comparing female IDU in treatment to female IDU accessing outreach programs in the US found that women in treatment reported higher frequencies of injecting drug use and HIV risk behaviours such as sharing equipment [501].

5.4 Motivations for women who inject drugs to enter treatment

Understanding the motivations behind female IDU choosing to enter treatment, or conversely behind their decision to continue to inject or trying to quit on their own, may be a crucial factor in developing more targeted and effective interventions and may provide a clue as to the type of treatment most likely to succeed based on the aims and concerns of the individual [197]. Motivation has been described as comprising of three elements: drug problem recognition, desire for help, and treatment readiness [502-504]. Along these lines, the United Nations Office on Drugs and Crime (UNODC) has recommended that a comprehensive assessment upon treatment entry should include an evaluation of the client's readiness to participate in treatment [68] in order to tailor the treatment modality to match in the hopes of improving completion rates. This is supported by studies in North America which have found associations between motivation and treatment enrolment [505, 506], positive therapeutic engagement and treatment completion [503, 507, 508]. Exploring the motivations for female IDU to enter treatment may provide a way to determine when individuals may be most successfully engaged in treatment and to tailor treatment programs to meet them when and where they are ready.

5.4.1 Pregnancy and parenthood

There seems to be a varied impact of pregnancy on female IDU's motivations to enter treatment. In some countries, such as the US, where injection substance use during pregnancy can result in criminal charges and/or imprisonment and where infants may be taken away from the mother directly after birth [68], pregnant IDU may avoid treatment entry for fear of the repercussions for themselves and their child. Further, where women may assume that because of their pregnancy, treatment will necessitate abstinence, they may feel discouraged from seeking treatment services for fear of withdrawal or inability to quit [509]. Despite these potentially inhibiting aspects to pregnancy, there is a good deal of evidence to support the notion that pregnancy can be a substantial

motivator for entering treatment. For example, one US study of women entering treatment found that pregnant women were four times as likely as non-pregnant women to express a desire for treatment [510]. Another study in the US found that the treatment modalities most likely to be entered by pregnant women were methadone and long-term residential programs [127], which is significant because these treatment modalities require a greater level of commitment than outpatient or detoxification programs. It is possible to imply from these findings that pregnant women may approach treatment with a more serious long-term motivation than their non-pregnant counterparts.

Studies from the US and the UK have found that becoming a parent was a primary motivating factor for female IDU to enter treatment [511-513]; however, in the same way that pregnancy has conflicting impacts on motivation to enter treatment, and parenthood seems to display the same complex interaction. Some studies have found that female IDU may enter treatment for fear that their children will be taken by social services if they do not stop injecting [63, 514]. Other mothers report avoiding entering treatment because it conflicts with their perceived obligations to their children by taking them away for prolonged periods of time [515]. Further, studies from the US, South Africa and the UK have found that women may withhold from entering treatment for fear that they will be perceived as bad mothers and have their children taken away for admitting substance use [511, 514-518]. Overall it is clear that pregnancy and parenthood are important points for treatment intervention for female IDU because their motivations are increased. However, to optimise this opportunity it is necessary to decriminalise and destigmatise entry into treatment so their fear of losing their children is not stronger than their desire to seek help. It is also necessary to remove the barrier of child-care by providing facilities for women to care for their children while completing treatment.

5.4.2 Partnership impacts

We have discussed at length the role that partners potentially play in a female IDU's injecting career from initiation, sexual and injection risks, to the maintenance of injection career. It is therefore unsurprising that partnerships have been shown to play a significant role in a woman's motivation to transition away from injection. There seems to be a less complex interaction around partnership than exists for pregnancy/parenthood. Studies from the US, Canada and Australia have shown that female IDU are more likely to enter and remain in treatment when their IDU partners do the same [237, 515, 519-523] or where they do not have an IDU partner [234]. There has been a suggestion that female IDU are more influenced by their partner's treatment readiness and motivation than are male IDU [237, 519, 520] which may be a reflection of the importance to women of the implied meanings and intimacy tied to injecting together as discussed in the 'partner' section of this work.

Just as partner readiness for treatment can be a motivating factor for female IDU to seek treatment services, conversely the conflicts and delays of one partner may result in similar delays for

the other [237]. It has been shown that one partner ceasing injection is a destabilising factor in the relationship [246], which is particularly important for female IDU because of the importance they place on their relationships often to the exclusion of their own health or safety, as discussed in the ‘partners’ section of this report. This may mean that, despite a personal desire to seek treatment, women may continue to inject in order to maintain the stability of their relationship with a partner not similarly motivated to stop injecting. Women who are in a relationship with a drug-using partner therefore may experience a barrier to abstinence, unless the partner agrees to go to treatment at the same time, and with the same degree of commitment [247]. However, the importance of partner influence on treatment entry and also treatment success has led to an acknowledgement that couples should be allowed to enter treatment sites together wherever possible [237, 523] to increase their chances for success. In some countries, such as the US, couples are not allowed to enter treatment together because there is a standing policy view that such partnerships may be unhealthy and contrary to treatment goals [237].

5.4.3 Housing status

Several studies have found that having stable housing is a factor positively associated with entry into treatment [512, 524]. One study found that compared to individuals who lived alone or in a controlled or non-stable environment, injectors who lived with a partner or with family/friends were three times more likely to enter treatment [512].

5.4.4 Length of injecting career

Studies from Australia and the US have found that motivation to stop injecting is positively associated with longer injection careers [524, 525]. One example is a US study which found a significant effect for years of drug use such that for each additional year of drug use there was a 12% increase in the likelihood of membership in the higher motivation for treatment group. It was postulated that female injectors who have used drugs for longer periods of time may have experienced more adverse events associated with their drug use and may be therefore more motivated to enter treatment [510].

5.4.5 Health concerns

Studies have found associations between significant health concerns and motivation to stop injecting. For example, transition to non-injecting drug use has been associated in Australia with vascular damage [99], in Brazil and Spain with fear of HIV [526, 527], and in the US with HIV seropositivity [234]. This would definitely vary between individuals; however, as a study from Canada found that having HIV-positive status was negatively associated with injection cessation [528]. It may be that health concerns that are significant but have a chance of being improved or controlled can motivate some IDU towards change, while for others there may be a certain sense of fatalism around a diagnosis such as HIV-positivity that makes change seem unnecessary or pointless.

5.5 Nature of treatment

Three decades of research points to the need for gender sensitivity in drug treatment [529]. There are some substantial limitations in evaluating which treatment modalities and characteristics are most effective for women. Most treatment programs have been designed with men in mind as they have been identified as making up the more substantial proportion of the IDU population, meaning that women's specific needs may not be an integral part of the existing treatment strategies. This is particularly important, given our discussion around the likely underestimation of female IDU globally in the introduction of this report. Further many of the female-specific treatment approaches have been created in the context of the developed world, which means their viability in regards to necessary resources and cultural adaptations necessary to implement them in different cultural and political climates have not been adequately considered [68].

Generally, female IDU have different needs in the treatment setting than men. Because women are more likely to be the caretakers within a household and to carry significant domestic responsibilities, outpatient programs and services should take into account the timing of those domestic responsibilities, convenience, safety and discretion of the locations of the services, have child care services, flexible hours and regulations and short waiting periods to reach and retain women [240].

Further, there is a need for women-only education and counselling services since a survey of women in drug treatment counselling found the women felt they could not discuss many issues they considered central to their recovery, such as child-rearing, sexuality and relationships, when men were present [530] and, indeed, in many contexts it would not be considered culturally appropriate for women to discuss these issues with men present. Continuity in care providers has also been found to be particularly important to female IDU because it allows them to establish trust, a critical factor, particularly for IDU who are involved in sex work or are living in violent situations [68].

There are three main types of treatment we will discuss: residential, outpatient and low threshold. Residential treatment is good for some women who require 24-hour monitoring and support because the severity of their substance use and associated health/psychological problems, which cannot be afforded by an outpatient setting. Some women may also require a residential setting to escape their current circumstances, which may involve domestic violence, living in a substance-using environment or homelessness.

Community-based outpatient or day treatment provides a more accessible and lower-cost treatment option for women who have sufficient support in their social networks to manage without supervision between treatment sessions [68]. A study in the UK described the five most effective types of outreach work: home visiting, particularly for women with children or women who are pregnant; pre-care and aftercare for women preparing to enter or just having left residential treatment; services aimed at SW; providing drug services on the premises of other community-

based services; and working with women involved in court proceedings [531]. The focus of these outreach services is on reaching women otherwise not in contact with other services and who may otherwise be marginalised, hidden or simply unaware of how to access services [68].

Low-threshold services are designed to reach vulnerable clients who may need a safe place away from violence, as well as other practical supports such as clean injecting equipment, safer sex aids, food, shelter and clothing [68]. Low-threshold services are designed to maximise contact and access by not requiring clients to stop using, determining where substance users gather, offering drop-in rather than appointment-based services, not requiring clients to identify themselves, offering basic 'survival' services and opening at convenient times [68]. These services along with medication-assisted treatment with mobile delivery or take-home doses has been found to be particularly valuable for female IDU, whose household and familial responsibilities may make it difficult to visit a clinic every day at a fixed time, and whose attendance at a methadone or buprenorphine clinic may be especially stigmatising or dangerous [240].

5.6 Treatment for pregnant women

Abstinence from opioids and other drugs during pregnancy is considered the ideal goal, but may be difficult and unrealistic placing undue stress on pregnant women [509]. Studies have shown that most opioid-dependent women cannot stay drug-free for the duration of their pregnancy [532, 533] which indicates that many women may relapse to use. A resulting cycle of intoxication and withdrawal, which causes variations in blood opioid levels, can result in foetal distress. OST is the recommended treatment approach for opioid dependent injectors during pregnancy, and there appear to be few developmental or other effects on the infants in the long term [68, 509].

Methadone in the context of comprehensive care is associated with more prenatal care, increased foetal growth and less neonatal morbidity and mortality than continued opioid abuse [532, 534, 535]. The results of methadone maintenance during pregnancy are well documented in the US and include improvement of the medical condition in the pregnant woman, standardised pre-delivery care, prevention of premature birth and prevention of underweight babies [534, 536-539]. A review of pregnant women on opioid treatment found that women enrolled in methadone maintenance treatment (MMT) should receive the same dose (up to 100mg) irrespective of pregnancy unless otherwise indicated [540].

Although methadone is clearly beneficial, it has been estimated that 60-87% of infants born to methadone-maintained mothers need treatment for Neonatal Abstinence Syndrome [532, 534, 541-544]. Buprenorphine demonstrates safety for mother and child and shows effectiveness in the treatment of opioid-dependence during pregnancy [509]. Results generally suggest that treatment with buprenorphine provides the same benefits to the mother as methadone but more

importantly, may attenuate NAS [534, 535, 543]. Studies on the safety and efficacy of methadone in comparison to buprenorphine have indicated the safety of both substances for the pregnant women and the comparability in the efficacy for retaining patients in treatment and in regard to concomitant consumption of illicit drugs [532, 534].

5.7 HIV prevention

There is considerable discussion of the risks for HIV faced by women who inject drugs found throughout this report. The primary measures for HIV prevention have been well summarised elsewhere [545]. Many of the difficulties faced by women IDU concern access to services, including HIV prevention services (see below).

Some countries have taken a harm-reduction approach as a step towards improving the health and safety of IDU and also as a potential bridge into treatment services. In a joint technical guide, the World Health Organization (WHO), UNODC, and Joint United Nations Programme on HIV/AIDS (UNAIDS) recommend universal access to NSP, OST, HIV testing and counselling, antiretroviral therapy, STI treatment and prevention, condom programs for IDU and their partners, hepatitis vaccination and treatment and tuberculosis prevention and treatment [545]. Other harm-reduction services range from needle exchanges to programs to change route of administration away from injection [528]. Comparative evidence between the US, who explicitly rejected harm-minimisation services, and Australia who embraced them shows that HIV prevalence among IDU can be largely contained and managed when harm-minimisation is vigorously adopted [547]. Many harm-minimisation services, particularly needle exchange programs, have been shown to reduce HIV incidence in IDU [548].

Several countries have implemented successful harm-minimisation efforts. For example, Canada and Australia both have medically supervised safer injection facilities where IDU can inject pre-obtained illicit drugs under the supervision of medical staff and can access information about other health services including various treatment options [549-551]. Bangladesh runs harm-minimisation services with high-risk groups in its capital, including brothel- and street-based SW and IDU [552, 553]. Nepal also has harm-reduction programs for the provision of sterile injection equipment and general education programs [554]. Additionally, studies from the Vancouver safer injection facility have found that facility use is associated with increased rates of detoxification service use as well as increased methadone and other addiction treatment services [555, 556]. There is evidence, however, that even where harm-minimisation services exist, the current programs may be difficult for women to access. For example, studies in Ukraine, Russia and Georgia found several female specific barriers to accessing harm-reduction services including home responsibilities, stigma from male IDU around the appropriateness of females attending such services and dependence on male partners to obtain supplies [239].

In Australia, research studies have repeatedly found that young (18–25 years) female IDU are some of the main clients making this a particularly important HIV prevention and intervention option [549] and creating the possibility of sustained contact between the health care system and a population normally highly marginalised and historically very difficult to access [555].

In regards to pregnant HIV positive injectors, antenatal transmission of HIV infection occurs in up to 25% of cases where the woman has not received anti-retroviral (ARV) treatment, reducing to about 2% if ARV treatment is given during pregnancy to reduce HIV transmission [509]. Assuming a prevalence of HCV among female IDU of 30–60% and mother-to-baby infection rate of 5–12%, between 15 and 70 babies per 1,000 pregnancies among female IDU will be infected with HCV; however, no studies provide reliable information on the extent of mother to baby transmission of HCV [509].

5.8 Access to treatment

Studies in the US have found that being female [557], lengthy duration of drug use (more than 10 years) [558], HIV-risk injecting behaviour [558, 559], desire for treatment [558, 559] and prior treatment experience [557–559] are all variables directly associated with treatment entry. A number of obstacles exist for women considering entry to treatment. These include fear of being left by their partners, fear of substance withdrawal, fear of exploitation in treatment, fear of losing their children, not seeing addiction as an illness, concerns about not being understood as a female injector, lack of female specific programs and programs for pregnant women, and lack of information about treatment options [68, 239]. Further, the low status of female IDU within general society and within the IDU community may deter them from accessing treatment and prevention services [63].

A study of IDU in England and the US found that IDU reported a need for increased service provisions such as substance abuse and mental health counsellors; more needle exchanges; more outreach and home visits for new parents (particularly in rural and isolated communities); better operation of current services including increased hours of operation (preferably 24-hour services); assistance with transportation, job-seeking and housing; decreased waiting times; and staff-related improvements, including decreasing what was perceived as judgmental behaviour.

5.8.1 Barriers to access

UNODC divides barriers to treatment for women into several categories: systemic, structural, social, cultural and personal [68].

5.8.1.1 Systemic barriers

Systemic barriers include lack of decision-making power for women over their entry into treatment, limited awareness of gender differences in factors that determine health status outcomes, lack of knowledge of women with substance use problems and their treatment needs relevant to different socio-cultural and political circumstances, lack of appropriate gender responsive and low-cost treatment models, differences in the organisation and funding of health services. Judgement and stigma are also important systemic barriers. For example, judgemental staff has been linked to leaving and failing to access treatment services in many countries. For example, a study in South Africa that found that women were afraid of being judged by treatment providers which created a significant barrier to treatment entry [518]; this is supported by findings of negative perceptions of women who use substances by health professionals and community-based organisations [560, 561]. Social stigma attached to women injecting may also reinforce women's perceptions of the need to remain hidden, contributing to a reduced rate of treatment demand [518, 562-564]. A study in South Africa found that women with substance use disorders may face particular stigma because of negative associations between female intoxication and sexual availability [564]. Specifically, stigma around women drug users stereotyped them as engaging in deviant sexual behaviours, as being 'bad women' and as being incapable of caring for their children and families [518]. Fear of stigma, negative perceptions of the quality of treatment services available and negative images of individuals with substance use disorders acted as the primary barriers to treatment entry.

5.8.1.2 Structural barriers

Structural barriers include lack of childcare, lack of services for pregnant women, location and cost of treatment programs, rigid program schedules, waiting lists and immediate response capacity, physical safety, harm-reduction programming, service co-ordination, lack of identification, referral and intervention.

The main structural barrier to seeking treatment is insufficient service provision for injectors [565-567] or, more simply, there are not enough services [565, 568-571]. Related to this is poor information about treatment availability, meaning that injectors do not always know about the full range of provision available to them [572, 573]. Studies have identified IDU concerns about the effectiveness and confidentiality of substance abuse treatment as barriers to seeking treatment [571, 574, 575]. Specifically relating to quality of treatment, the major concerns were that treatment is ineffective and punitive in nature [518] which mirrors findings from US studies [571, 576].

Bureaucratic hurdles [577], long waiting lists [568, 578], limited opening hours [566, 579], lack of childcare [577, 580] and stigmatising by negative or unsympathetic staff attitudes [564, 568] also provide barriers to service access. In terms of individual barriers, research from the US has

shown that being a woman [568, 573], homelessness [569] or living in a rural area [569, 581] can be a particular problem when trying to secure treatment.

Services need to be situated in locations accessible and practical for IDU but also provide enough anonymity so that IDU, particularly women, feel comfortable in using the service. Services should also wherever possible engage in outreach which enables greater access to women who may be reluctant to visit a fixed NSP site, but otherwise willing to use the services the NSP provides [389].

5.8.1.3 *Social, cultural and personal barriers*

Social, cultural and personal barriers include disadvantaged life circumstances, stigma, fear of losing custody, lack of family support, lack of confidence in treatment options [68]. Risk of partner violence is another personal barrier that may heighten upon a woman's entry into drug treatment because her partner may perceive her abandonment of drugs as a personal abandonment [330, 334], as evidenced by a study in the US where female IDU reported being prevented from entering treatment by their partners [334, 336, 341].

Access to drug treatment, particularly for those responsible for children, can be difficult [239, 573]. Studies from Australia, India, Canada, Austria, France, Germany, Italy, Portugal, Russia, Ukraine, Georgia and Spain about barriers to treatment have some consistent themes such as family and relationship issues, fear of losing custody of children, childcare concerns, needing their partner's permission to attend treatment, fear their partner will leave them, stigma and shame issues, treatment issues such as fear of withdrawal, fear of exploitation, concern that service providers will not understand their needs as women, concern about lack of services for pregnant women, lack of information about treatment options and waiting time [239, 514, 564, 582-586].

Finances can be another important barrier for treatment entry. A survey in India found that women are often the sole breadwinners of their family, making use of long-term in-house rehabilitation services virtually impossible [144]. In the US, structural barriers, such as the need to pay back bills, and to 'prove' at least a two-year history of heroin use hinders access to outpatient methadone maintenance programs [587].

5.8.2 *Gender friendly services*

Gender integration of service delivery means servicing the sexual/reproductive needs of drug users such as consultations, screening STI treatment, contraception and pregnancy care as well as involving police in addressing violence and IPV through prevention, recognition of signs, legal and social support [588].

Women have reported barriers to drug treatment entry in Australia including childcare concerns [571, 573]. Few treatment services provide childcare and in some cultures it is very difficult for women to leave their homes and family responsibilities to seek treatment [68]. With potentially little emotional support or independent financial resources to pay for treatment, childcare or transportation, women may find it difficult to enter or remain in treatment [68]. In some cases women may have to wait longer than men to enter treatment, particularly residential treatment, because of the time required to set up separate facilities which may lead to women being lost to treatment because of an inability to provide immediate response following initial contact [68].

Flexible program scheduling, options for day/weekend/evening access, and mobile facilities to carry out outreach programs for more marginalised or hidden women can improve access to harm minimisation and drug treatment services [68]. Gender responsive services have been promoted at the international level through inclusion in national drug strategies, development of treatment best-practices, guidelines and standards and through the dissemination of information on model programs [68].

Where treatment programs provide childcare services, improved retention in treatment, better drug use outcomes and lower levels of depression have eventuated [580, 589-592]. One Australian study found that specialist women's programs were significantly more likely to attract women with dependent children, lesbians, women with a maternal history of drug or alcohol problems, and women who had suffered sexual abuse in childhood, suggesting that these services may be attracting women who might not otherwise have sought treatment [593].

Women-only services may be applicable only for those treatment modes which require interaction with other clients such as residential treatments. They are less likely to be warranted for treatments modes which require only minimal interaction with other clients and for which childcare considerations are less demanding, such as OST [472].

5.8.3 Location of service

The hours of operation may greatly affect the accessibility of treatment, particularly for women who may have household responsibilities or are engaged in sex work and may find it impossible to access services that are only open from 9am until 5pm [517]. The locations where services are provided can be a significant hindrance to women accessing treatment if the locations are in places where it may not be safe or appropriate for women to come alone [517].

Access to health services and syringes is impacted at the geographic level by avoidance of physical settings, such as violence and policing of women involved in street-level sex work [594]. Extra services for women (i.e. childcare, women-only counselling groups, women-only areas in treatment centres, transportation, sexual and reproductive health services) should be provided as a part of harm-reduction programs).

Within refugee camps in Pakistan for Afghani communities, Purdah is strictly observed and women are not allowed to go to other places or houses alone. Therefore, women with substance problems are either referred to treatment centres in Pakistan with separate facilities for women or they are detoxified at home [68].

Effective outpatient treatment interferes as little as possible with childcare, work and household responsibilities [240]. A study of women entering treatment found that across modalities and drug types, women were much more concerned than men that drug treatment would affect custody and they reported other custody concerns more frequently than men [127]. Client perceptions about treatment are important; they influence an individual's treatment entry, compliance, and outcomes [530, 595, 596].

5.9 Treatment outcomes

5.9.1 Effectiveness

There is not an extensive body of work comparing treatment effectiveness differences between female and male IDU and the evidence that does exist measuring effectiveness is often conflicting. For example, a Canadian study found that across genders, neither current addiction treatment, including methadone, nor lifetime cumulative experience in treatment was associated with injection cessation [528]. In contrast, an Australian study found support for the importance of treatment stability in that fewer treatment episodes was associated with one-month abstinence from heroin, and having participated in more treatment episodes was related to heroin dependence, injection-related health problems and recent criminal involvement [17]. An important measure for treatment effectiveness is relapse rates. Again, there has not been a great deal of work done comparing relapse rates for female IDU across treatment modalities; however, there is evidence that generally women relapse less often than do men [597, 598] and, where monitored, women from India and the US listed their desire to reconnect with their IDU partner, partner violence and interpersonal stress as the major factors for relapse [144, 599, 600].

5.9.2 Individual characteristics

There has also been very little work done evaluating the personal characteristics that may lead to more successful treatment and how those may vary between female and male IDU. A US study found equivalent and high rates (74% for both genders) of prior treatment across genders for injectors entering outpatient methadone programs and while rates of prior treatment were

high across all modalities, women had the highest rates of prior treatment across all modalities, particularly in outpatient and long-term residential programs [127]. Several studies, also from the US, have found reduced injection-sharing behaviours and injection cessation to occur more frequently in HIV positive versus HIV negative IDU [601–604]; however, several studies also conflict with these findings [605–607]. While there is a gap in knowledge around comparison of male and female factors that lead to effective treatment, there has been some work done on the effectiveness of particular treatment modalities.

5.9.3 Detoxification

There is some conflicting evidence around the effectiveness of detoxification; however, detoxification alone is not sufficient and should be followed by psychosocial treatment and possibly rehabilitation [68]. While some Australian studies have found positive short-term treatment outcomes on heroin use for those entering detoxification [466, 608], other studies from Australia and China have showed that time spent in detoxification was not associated with any positive long-term outcomes [17, 92]. For example, studies from the UK, China and the US have found that more time spent in detoxification was associated with poor mental health [17], high levels of dependence [17] and was not associated with one-month abstinence [17], HIV/AIDS knowledge, perceived vulnerability of HIV infection, sexual behaviour and drug practices [609] and increased overdose mortality due to loss of tolerance [610], demonstrating ineffectiveness not only in abstinence but in reduction of harmful practices. The only exception was that, amongst female IDU, those who had received multiple detoxification treatments were less likely to have had more than nine sexual partners [609]. In addition, there is evidence from China and the US that detoxification alone does not prevent rapid relapse with an approximated 95% relapsing to drug use within a year of finishing detoxification [611, 612].

5.9.4 Opioid substitution treatment

The evidence around methadone maintenance is much more consistent. In Australia, the UK, Spain and the US, spending time in methadone maintenance has been associated with positive outcomes such as reduced drug use, improved mental and physical health [17, 613–619], significantly improved health of both IDU mothers and their infants [620], one-month abstinence from heroin [17], while spending less time in methadone maintenance was associated with heroin dependence, needle-sharing, injection-related health problems and recent criminal involvement [17].

5.9.5 Residential treatment

Similarly, consistently positive treatment outcomes have been found with residential treatment. In Australia, the UK and Spain, spending more time in residential treatment facilities was associated with reduced drug use, improved mental and physical health and one-month abstinence [17, 613–619], while spending less time in residential rehabilitation was associated with heroin dependence, needle-sharing, injection-related health problems, and recent criminal involvement. In an Australian study, residential treatment was the only treatment modality to have improvements across all measured domains and it was hypothesised that these improvements were the product of the holistic nature of residential treatments which takes into account multiple aspects of the clients' lives beyond their drug use [17].

5.10 Recommendations

- Given the special needs and concerns of women entering drug treatment and the safety issues that are often listed as a concern around treatment services, there is a need to provide culturally sensitive female-only services where they can safely address different issues including education and counselling in an environment where they feel comfortable.
- Given that many female IDU have domestic responsibilities and that female IDU may require a higher degree of discretion in their service provision because of the increased stigma that female drug users face, drug treatment services should accommodate these needs by having flexible hours of operation, short waiting times, no need for appointments, childcare services for women and outreach/mobile services to make services more accessible to women with children and who are engaged in sex work.
- Given the hidden nature of female IDU, provide means for them to access services through community-based options such as home visits, particularly for women with children or women who are pregnant, pre-care and aftercare for women preparing to enter or just having left residential treatment, services aimed at SW, providing drug services on the premises of other community-based services, and working with women who are involved in court proceedings.
- Given the importance of partnerships in the overall success of treatment, where it is culturally appropriate, couples treatment should be provided.

- Given the structural barriers to entering treatment and the importance of service provider attitudes to female IDU, services should be provided in a supportive, culturally sensitive and non-judgemental environment by all personnel.
- Given the hidden nature of injecting drug use and the difficulty in reaching female IDU in particular, mainstream health providers, such as primary care, adolescent care, obstetrician-gynaecologists, psychiatrists, psychologists and social workers should be trained in the signs and risks of injecting drug use and how to offer accurate information on harm minimisation, referral to services and, if desired, to drug treatment.

7. APPENDIX A – LITERATURE REVIEW METHODOLOGY

7.1 Systematic search for literature

A systematic search for literature was undertaken utilising three main search strategies: search of the peer-reviewed literature using electronic bibliographic databases; online searches for non-peer reviewed ('grey') literature; and expert consultation.

7.1.1 Peer-reviewed literature

Four peer-reviewed literature databases were selected for searching through consultation with qualified archivists: Medline; BioMed Central; PsychINFO and the Project Cork database. Specific search strategies were developed for each database.

Citations from these searches were imported into Endnote X2 and duplicates deleted. The resulting citations were then reviewed by title and full-text versions of the documents judged useful were retrieved via the UNSW and NDARC library services.

Reference lists of review articles were searched and any potentially useful articles identified were retrieved.

The search strategies developed for each of the four databases are outlined below along with the number of citations resulting from these searches.

7.1.1.1 Medline

Medline was searched using the Ovid platform with the following search terms in various combinations with Boolean operators and search limits:

Women and initiation to injection:		
#	Searches	Results
1	(IDU or IDUs or 'injecting drug' or 'intravenous drug' or 'intravenous substance' or 'injecting substance').mp. or exp substance abuse, intravenous/	14913
2	limit 1 to humans	14322
3	('women' or 'female' or 'gender' or 'girl').mp. or exp female/	5272112
4	limit 3 to humans	4485380
5	4 and 2	9138
6	(HIV or AIDS).mp. or HIV/aids or 'Human Immunodeficiency Virus'.mp. or 'Human immune deficiency virus'.mp. or 'Acquired Immunodeficiency Syndrome'.mp. or 'Acquired Immune deficiency syndrome'.mp. or exp HIV/ or exp HIV-1/ or exp HIV-2/ or exp HIV infections/ or exp acquired immunodeficiency syndrome/ or HIV seropositivity/ or exp HIV seroprevalence/ or exp AIDS serodiagnosis/	268598
7	limit 6 to humans	241762
8	7 and 5	6260
9	Initiat* to inject*.mp. [mp=title, original title, abstract, name of substance word, subject heading word]	13
10	(Initiat* adj1 inject*).mp. [mp=title, original title, abstract, name of substance word, subject heading word]	83
11	limit 10 to humans	53
12	11 and 2	39
13	11 and 5	34
14	(first adj1 inject*).mp. [mp=title, original title, abstract, name of substance word, subject heading word]	2440
15	2 and 14	58
16	14 and 5	50
	Endnote Library: Initiation	107 (pre culling)

Sub-population: Migration		
#	Searches	Results
1	(IDU or IDUs or 'injecting drug' or 'intravenous drug' or 'intravenous substance' or 'injecting substance').mp. or exp substance abuse, intravenous/	14913
2	limit 1 to humans	14322
3	('women' or 'female' or 'gender' or 'girl').mp. or exp female/	5272112
4	limit 3 to humans	4485380
5	4 and 2	9138
6	(HIV or AIDS).mp. or HIV/aids or 'Human Immunodeficiency Virus'.mp. or 'Human immune deficiency virus'.mp. or 'Acquired Immunodeficiency Syndrome'.mp. or 'Acquired Immune deficiency syndrome'.mp. or exp HIV/ or exp HIV-1/ or exp HIV-2/ or exp HIV infections/ or exp acquired immunodeficiency syndrome/ or HIV seropositivity/ or exp HIV seroprevalence/ or exp AIDS serodiagnosis/	268598
7	limit 6 to humans	241762
8	7 and 5	6260
9	exp 'Emigration and Immigration'/ or exp Refugees/ or exp 'Transients and Migrants'/	
10	8 and 9	74
11	(refugee* or force* migrat* or mobile population or migrant or immigrant).mp. [mp=title, original title, abstract, name of substance word, subject heading word]	13642
12	5 and 17	46
	Endnote Library: Migration	74 (pre culling)

Sub-population: Sex workers		
#	Searches	Results
1	(IDU or IDUs or 'injecting drug' or 'intravenous drug' or 'intravenous substance' or 'injecting substance').mp. or exp substance abuse, intravenous/	14913
2	limit 1 to humans	14322
3	('women' or 'female' or 'gender' or 'girl').mp. or exp female/	5272112
4	limit 3 to humans	4485380
5	4 and 2	9138
6	(HIV or AIDS).mp. or HIV/aids or 'Human Immunodeficiency Virus'.mp. or 'Human immune deficiency virus'.mp. or 'Acquired Immunodeficiency Syndrome'.mp. or 'Acquired Immune deficiency syndrome'.mp. or exp HIV/ or exp HIV-1/ or exp HIV-2/ or exp HIV infections/ or exp acquired immunodeficiency syndrome/ or HIV seropositivity/ or exp HIV seroprevalence/ or exp AIDS serodiagnosis/	268598
7	limit 6 to humans	241762
8	7 and 5	6260
9	exp Commercial sex work/	3856
10	Prostitute.mp. [mp=title, original title, abstract, name of substance word, subject heading word]	378
11	exp extramarital relations/ or exp commercial sex work/ or exp safe sex/ or exp unsafe sex/	6155
12	*Substance Abuse, Intravenous/	5824
13	Commercial sex work.mp. [mp=title, original title, abstract, name of substance word, subject heading word]	78
14	Call girl.mp. [mp=title, original title, abstract, name of substance word, subject heading word]	2
15	concubine.mp. [mp=title, original title, abstract, name of substance word, subject heading word]	5
16	escort.mp. [mp=title, original title, abstract, name of substance word, subject heading word]	474
17	sex vendor.mp. [mp=title, original title, abstract, name of substance word, subject heading word]	0
18	11 or 16 or 13 or 10 or 9 or 17 or 15 or 14	6838
19	18 and 5	582
20	19 and 12	206
	Endnote Library: Migration	206 (pre culling)

Partner sexual transmission		
#	Searches	Results
1	(IDU or IDUs or 'injecting drug' or 'intravenous drug' or 'intravenous substance' or 'injecting substance').mp. or exp substance abuse, intravenous/	14913
2	limit 1 to humans	14322
3	('women' or 'female' or 'gender' or 'girl').mp. or exp female/	5272112
4	limit 3 to humans	4485380
5	4 and 2	9138
6	(HIV or AIDS).mp. or HIV/aids or 'Human Immunodeficiency Virus'.mp. or 'Human immune deficiency virus'.mp. or 'Acquired Immunodeficiency Syndrome'.mp. or 'Acquired Immune deficiency syndrome'.mp. or exp HIV/ or exp HIV-1/ or exp HIV-2/ or exp HIV infections/ or exp acquired immunodeficiency syndrome/ or HIV seropositivity/ or exp HIV seroprevalence/ or exp AIDS serodiagnosis/	268598
7	limit 6 to humans	241762
8	7 and 5	6260
9	exp Spouses/ or exp marriage/ or exp sexual partners/ or 'spouse'.mp. or 'spous*'.mp. or 'partner'.mp. or 'sexual partner'.mp. [mp=title, original title, abstract, name of substance word, subject heading word]	57794
10	9 and 2	816
11	7 and 9 and 2	698
12	(IDU adj1 partner*).mp. [mp=title, original title, abstract, name of substance word, subject heading word]	16
13	*Substance Abuse, Intravenous/	5824
14	11 and 13	324
	Endnote Library: Partner Sexual Transmission	324 (pre culling)

Risk behaviours		
#	Searches	Results
1	(IDU or IDUs or 'injecting drug' or 'intravenous drug' or 'intravenous substance' or 'injecting substance').mp. or exp substance abuse, intravenous/	14913
2	limit 1 to humans	14322
3	('women' or 'female' or 'gender' or 'girl').mp. or exp female/	5272112
4	limit 3 to humans	4485380
5	4 and 2	9138
6	(HIV or AIDS).mp. or HIV/aids or 'Human Immunodeficiency Virus'.mp. or 'Human immune deficiency virus'.mp. or 'Acquired Immunodeficiency Syndrome'.mp. or 'Acquired Immune deficiency syndrome'.mp. or exp HIV/ or exp HIV-1/ or exp HIV-2/ or exp HIV infections/ or exp acquired immunodeficiency syndrome/ or HIV seropositivity/ or exp HIV seroprevalence/ or exp AIDS serodiagnosis/	268598
7	limit 6 to humans	241762
8	7 and 5	6260
9	(Risk behavior or sharing).mp. [mp=title, original title, abstract, name of substance word, subject heading word]	24005
10	9 and 5	1308
11	(shar* adj1 equipment).mp. [mp=title, original title, abstract, name of substance word, subject heading word]	91
12	(shar* adj1 syringe).mp. [mp=title, original title, abstract, name of substance word, subject heading word]	148
13	(shar* adj1 needle).mp. [mp=title, original title, abstract, name of substance word, subject heading word]	1442
14	exp Needle Sharing/	1017
15	11 or 13 or 12 or 14	1556
16	15 and 5	842
17	11 and 13 and 12 and 14	4
18	13 and 12 and 14	85
	Endnote Library- Risk Behaviour (focus here on sharing)	85 (pre culled)

Treatment access		
#	Searches	Results
1	(IDU or IDUs or 'injecting drug' or 'intravenous drug' or 'intravenous substance' or 'injecting substance').mp. or exp substance abuse, intravenous/	14913
2	limit 1 to humans	14322
3	('women' or 'female' or 'gender' or 'girl').mp. or exp female/	5272112
4	limit 3 to humans	4485380
5	4 and 2	9138
6	(HIV or AIDS).mp. or HIV/aids or 'Human Immunodeficiency Virus'.mp. or 'Human immune deficiency virus'.mp. or 'Acquired Immunodeficiency Syndrome'.mp. or 'Acquired Immune deficiency syndrome'.mp. or exp HIV/ or exp HIV-1/ or exp HIV-2/ or exp HIV infections/ or exp acquired immunodeficiency syndrome/ or HIV seropositivity/ or exp HIV seroprevalence/ or exp AIDS serodiagnosis/	268598
7	limit 6 to humans	241762
8	7 and 5	6260
9	(Access and Treatment).mp. [mp=title, original title, abstract, name of substance word, subject heading word]	19906
10	9 and 5	179
11	*Harm Reduction/	336
12	*Health Services Accessibility/	15182
13	exp Substance Abuse Treatment Centers/ut [Utilization]	336
14	exp Substance Abuse, Intravenous/	9481
15	11 and 13 and 12 and 14 and 5	1
16	11 or 13 or 12 or 14	25073
17	16 and 5	5938
18	13 and 5	38
	Endnote Library: Treatment Access	38

Adverse consequences		
#	Searches	Results
1	(IDU or IDUs or 'injecting drug' or 'intravenous drug' or 'intravenous substance' or 'injecting substance').mp. or exp substance abuse, intravenous/	14913
2	limit 1 to humans	14322
3	('women' or 'female' or 'gender' or 'girl').mp. or exp female/	5272112
4	limit 3 to humans	4485380
5	4 and 2	9138
6	(HIV or AIDS).mp. or HIV/aids or 'Human Immunodeficiency Virus'.mp. or 'Human immune deficiency virus'.mp. or 'Acquired Immunodeficiency Syndrome'.mp. or 'Acquired Immune deficiency syndrome'.mp. or exp HIV/ or exp HIV-1/ or exp HIV-2/ or exp HIV infections/ or exp acquired immunodeficiency syndrome/ or HIV seropositivity/ or exp HIV seroprevalence/ or exp AIDS serodiagnosis/	268598
7	limit 6 to humans	241762
8	7 and 5	6260
9	exp Substance Abuse Treatment Centers/ut [Utilization]	336
10	exp Substance Abuse, Intravenous/	9481
11	Treatment Outcome/	352873
12	Drug treatment.mp.	17289
13	12 or 11	368919
14	exp Substance Abuse, Intravenous/th, rh, pc, dt, et [Therapy, Rehabilitation, Prevention & Control, Drug Therapy, Etiology]	1561
15	Rehabilitation.mp. or Rehabilitation/	81379
16	15 or 14 or 12 or 11	444695
17	exp Substance Abuse Treatment Centers/ut, td [Utilization, Trends]	395
18	17 and 11	38
	Endnote Library: Treatment Outcome	38

Social consequences		
#	Searches	Results
1	(IDU or IDUs or 'injecting drug' or 'intravenous drug' or 'intravenous substance' or 'injecting substance').mp. or exp substance abuse, intravenous/	14913
2	limit 1 to humans	14322
3	('women' or 'female' or 'gender' or 'girl').mp. or exp female/	5272112
4	limit 3 to humans	4485380
5	4 and 2	9138
6	(HIV or AIDS).mp. or HIV/aids or 'Human Immunodeficiency Virus'.mp. or 'Human immune deficiency virus'.mp. or 'Acquired Immunodeficiency Syndrome'.mp. or 'Acquired Immune deficiency syndrome'.mp. or exp HIV/ or exp HIV-1/ or exp HIV-2/ or exp HIV infections/ or exp acquired immunodeficiency syndrome/ or HIV seropositivity/ or exp HIV seroprevalence/ or exp AIDS serodiagnosis/	268598
7	limit 6 to humans	241762
8	7 and 5	6260
9	exp social isolation/ or exp social problems/	183050
10	Social consequences.mp.	1233
11	10 or 9	184137
12	11 and 5	1232
13	social problems/ or exp crime/	85442
14	13 and 5	132
15	social problems/ or exp divorce/	9679
16	15 and 5	11
17	social problems/ or exp dangerous behavior/	8670
18	17 and 5	17
19	social problems/ or exp violence/	56484
20	19 and 5	67
21	social problems/ or exp suicide/	42986
22	21 and 5	59
23	social problems/ or exp social behavior disorders/	10280
24	23 and 5	13
25	social problems/ or exp runaway behavior/	6418
26	25 and 5	14
27	social problems/ or exp poverty/	26722
28	27 and 5	72
29	social problems/ or exp human rights abuses/	6366
30	29 and 5	10
31	exp Social Isolation/	10868
32	31 and 5	13
	Endnote Library: Social consequences	408

7.1.1.2 BioMed central searches

BioMed Central was searched using the following search terms.

Search Terms	Results
General	
Women AND IDU	84
Women AND Injecting Drug Use	175
Initiation to injection	
Women AND Initiat* AND IDU	56
Women AND Context AND Initiat* AND IDU	36
Sex work	
IDU AND (sex work OR Prostitut* OR call girl)	115
Migration	
Women AND IDU AND (Migration OR refugee OR displaced person)	13
Partner and sexual transmission	
Women AND IDU AND (sexual transmission)	59
Women AND IDU AND (partner OR spouse OR married OR widow)	48
Risk behaviour	
Women AND IDU AND (risk behaviour OR shar* OR needle OR syringe OR equipment)	79
Treatment outcomes	
women AND Injecting drug use AND treatment outcome	79
Treatment access	
Women AND IDU AND treatment access	72
Social consequences	
Women AND IDU AND social consequences	14
All BioMed Central searches combined	
	238 (duplicates removed)

7.1.1.3 Project Cork bibliographies

The following topic specific Project Cork bibliographies were reviewed and relevant documents identified:

- ‘Commercial sex work’ bibliography (N=96): **11 selected**
- ‘Adolescents initiation of alcohol and drug use’ bibliography (N=63): **selected**
- ‘Substance use and women’ bibliography (N=107): **5 selected**
- ‘Treatment outcome, drugs’ bibliography (N=86): **2 selected**

- ‘Substance use, treatment access’ bibliography (N=46): **3 selected**
- ‘Syringe/needle exchange’ bibliography (N=55): **0 selected**
- ‘Heroin and opiates’ bibliography (N=203): **9 selected**
- ‘Intravenous use’ bibliography (N=140): **16 selected**
- ‘Harm reduction’ bibliography (N=129): **14 selected**
- In total 925 considered and **70 selected**.

7.1.1.3 PsycInfo searches:

Search Terms	Results
Initiation to injection	
(Initiation AND IDU):Any Field AND Intravenous Drug Usage:Index Term	11
Sex work	
(IDU AND Sex work):Any Field	24
(IDU AND prostitut*):Any Field Commercial sex work:Index Term	11
(Drug injection AND Sex work):Any Field AND Female:Population Group	49
Migration	
(Drug injection AND Migration):Any Field AND Intravenous Drug Usage:Index Term	6
Partner and sexual transmission	
(Sexual transmission OR partner AND IDU):Any Field AND Intravenous Drug Usage:Index Term AND Sexual Risk Taking:Index Term AND Disease Transmission:Index Term (saved as ‘disease transmission’)	5
(Sexual transmission OR partner AND IDU):Any Field AND Intravenous Drug Usage:Index Term AND Sexual Risk Taking:Index Term: (saved as ‘sex risk taking’)	38
(Sexual transmission OR partner AND IDU):Any Field AND Intravenous Drug Usage:Index Term: (saved as ‘sexual transmission’)	90
(Sexual transmission OR partner AND IDU):Any Field	121
Risk behaviours	
(Drug injection AND Needle sharing):Any Field AND Intravenous Drug Usage:Index Term AND Needle Sharing:Index Term (saved as ‘needle sharing’)	151

Treatment	
(Drug injection AND Treatment outcomes):Any Field AND Intravenous Drug Usage:Index Term AND Female:Population Group (saved as 'Treatment outcomes')	36
(Drug injection AND Treatment Access):Any Field AND Intravenous Drug Usage:Index Term AND Female:Population Group (saved as 'Treatment access')	39
(IDU AND Treatment Access):Any Field AND Female:Population Group (saved as 'IDU & access')	17
All PsychINFO searches	399 (duplicates removed)

7.1.2 Online searches for non-peer reviewed literature

Online searches of major NGO and UN websites were undertaken using the *Google Advanced search* function employing search terms related to <injecting drug use> and <females> as used for the peer-reviewed literature search (see 7.1.1). Key sites searched were identified by members of the Reference Group and Secretariat (and from links from sites previously searched) are listed below. Where further information was required key personal from the organisations operating these websites were contacted:

- **Gender Health: (www.genderhealth.org)** contacted authors on the site (Colombia and Brown) for further information on an article
- **UNICEF:** 5 documents selected
- **Open Society Institute:** 11 documents selected
- **PSI:** No documents selected as no female specific information available
- **Family Health International:** 31 documents selected and organisation contacted
- **International Women's Health Coalition-** 2 documents selected and organisation contacted
- **WHO** - 5 documents selected
- **Institute for Women's Policy Research:** No documents selected but organisation contacted
- **Athena Network:** No IDU specific information
- **Cadre:** No IDU specific information; focus is on sexual transmission
- **International Community of Women living with HIV/AIDS:** Took 3

- **Living Hope Org:** No IDU specific information
- **National Pediatric AIDS Network:** 4 documents selected
- **Panos Global AIDS Program:** No IDU specific information
- **Positive Women:** No IDU specific information
- **Sister love:** No IDU specific information
- **Sisters for Live International:** Suspended site
- **Society for Women and AIDS in Africa:** No IDU specific information
- **Female Health Company:** Female condom; no IDU specific information
- **International Women's Health Coalition:** 1 document selected
- **The Well Project:** More information for IDU than information about IDU (i.e. how to clean needles, etc)
- **World YWCA:** No IDU specific information
- **International Labour Organization:** no relevant information (other than data previously found elsewhere)

7.1.3 Expert consultation

Reference Group members and other identified experts in the field were contacted and requesting relevant documents and referral to appropriate websites for online searching for grey literature (see 7.1.2).

7.2 Data extraction

Documents were reviewed and relevant information was extracted and entered into a *Google document* to allow for simultaneous drafts and updates and to accommodate the international nature of the working group.

Drafts of extracted and collated data were passed along to experts to identify and fill gaps in information.

Roberts, A., Mathers, B., and Degenhardt, L. (2010).
Women who inject drugs: A review of their risks, experiences and needs.
The Reference Group to the United Nations on HIV and Injecting Drug Use.

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