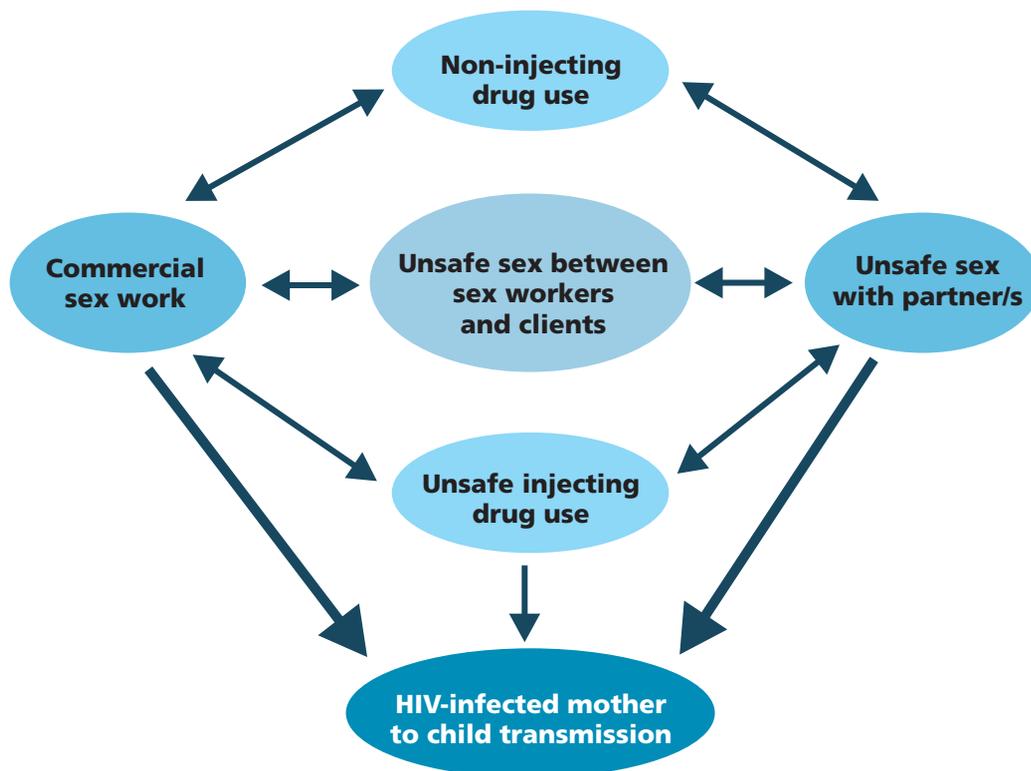


### 3. HIV/AIDS and Drugs

Globally, sexual transmission of HIV continues to be the most common way the virus is spread, but drug use is contributing to the pandemic in at least four ways. First, the most common and best-researched method of transmission is via the use of contaminated injection equipment among people who inject drugs. Second, there is sexual transmission of the virus between those who inject drugs and their sexual partners. The dual transmission risk in the case of sex workers who also inject drugs leads to epidemics that expand quickly and act as a bridge to the rest of the population. Third, non-injecting use of drugs such as cocaine and amphetamine-type stimulants leads to high-risk sexual

behaviour. And finally, HIV can be transmitted from an infected mother - a commercial sex worker, an injecting drug user and/or a sexual partner of a drug user - to her child. While very little systematic information is available on this particular mode of transmission related to drug use, anecdotal examples suggest that this could be a potential entry point for HIV to get into the general population. For example, during 1996–2001, most of the HIV-infected infants in the Russian Federation were born to mothers who were either injecting drug users or sexual partners of injecting drug users.

Fig. 1: HIV transmission routes related to drug abuse



### 3.1 Epidemiology of HIV/AIDS and drug use

Worldwide, more than 55 million people use opiates, cocaine and amphetamine-type stimulants, and an estimated 13.2 million people inject these drugs. Most (78%) injecting drug users live in developing and transitional countries.<sup>1</sup>

While the relationship between injecting drug use and HIV/AIDS is relatively well researched, little systematic epidemiological information is available on the extent and patterns of HIV transmission caused by non-injecting drug use. This is unfortunate because there is emerging evidence that the use of cocaine, crack and amphetamine-type stimulants increases sexual risk taking behaviour related to HIV transmission. Some of this information has been reviewed later in this chapter. However, to date, an epidemiological review of HIV/AIDS related to drug use still has to rely mostly on information related to injecting drug use, which undoubtedly underestimates the real impact of drug use on the HIV/AIDS epidemics. Consequently, prevention of HIV transmission related to drug use continues to focus mostly on injecting drug use, missing out the potential opportunities of primary and secondary drug use prevention for stopping the spread of the virus.

#### 3.1.1 Injecting drug use

In the early stages of the pandemic, HIV/AIDS among injecting drug users was largely viewed as self-limiting, affecting injectors and their immediate sexual partners

but not leading to a more generalised spread of the virus. Recent work on the Asian and Eastern European HIV/AIDS epidemics has proven this perspective to be incorrect.<sup>2</sup> Globally, it is estimated that 5% -10% of all HIV infections are attributable to injecting drug use, mostly via the use of contaminated injection equipment.<sup>3</sup> In many countries of Europe, Asia, the Middle East and the Southern Cone of South America, the use of non-sterile injection equipment has remained the most important mode of HIV transmission, accounting for 30%-80% of all reported infections.

The risk of HIV transmission in an injecting community is dependent, among other things, on the substances involved. Injection frequency is highly correlated with HIV transmission,<sup>4</sup> and there are differences in the rate of injection between drugs. Among heroin dependent individuals, it is common to inject 1 - 3 times a day. Cocaine, on the other hand, is commonly injected more than 10 times a day. This increases significantly the likelihood of HIV transmission as it reduces the chances of sterile injecting equipment being used each time.<sup>5</sup>

The context in which drugs are injected can also impact on the risk of transmission. "Shooting galleries" are communal drug use venues that are associated with a high risk of needle and syringe sharing. A needle or syringe in a shooting gallery may be used by hundreds of injection drug users. Frequenting shooting galleries to inject has been associated with a markedly higher risk of acquiring HIV.<sup>6</sup> "Syringe mediated drug sharing" is the use of a metered syringe to divide a drug among several users,<sup>7</sup> and occurs in many countries, being particularly prevalent in countries of the former Soviet Union.<sup>8</sup> In

1 Aceijas C, Stimson GV, Hickman M, Rhodes T. Global overview of injection drug use and HIV infection among injection drug users. London: Centre for Research on Drugs and Health Behaviour on behalf of the United Nations Reference Group on HIV/AIDS Prevention and Care among IDU in Developing and Transitional Countries, 2004.

2 WHO/ UNAIDS/ UNODC. *Advocacy Guide: HIV/AIDS Prevention Among Injecting Drug Users*. WHO, 2004.

3 UNAIDS, Institute OS, Agency CID. The Warsaw declaration: A framework for effective action on HIV/AIDS and injection drug use. 2nd International Policy Dialogue. Warsaw; WHO/ UNAIDS/ UNODC. *Advocacy Guide: op.cit.*

4 Bruneau J, Lamothe F, Soto J, Lachance N, Vincelette J, Vassal A, Franco EL. Sex-specific determinants of HIV infection among injection drug users in Montreal. *Cmaj* 2001;164:767-73.

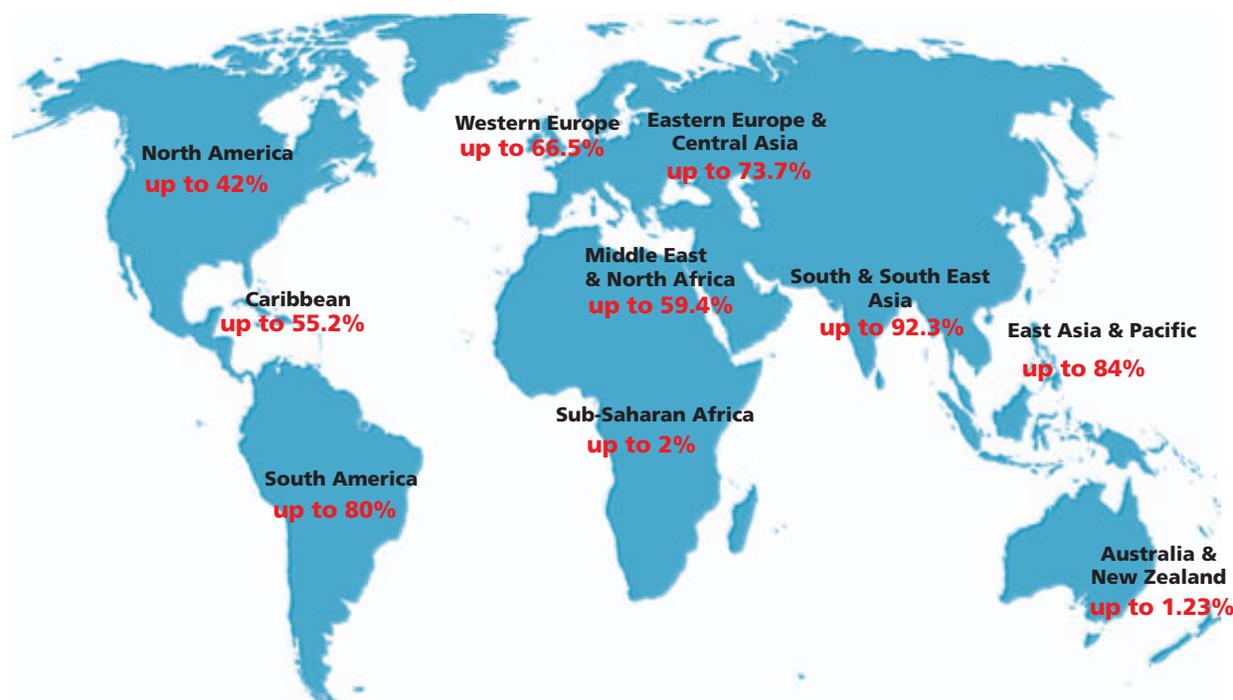
5 Chaisson RE, Bacchetti P, Osmond D, Brodie B, Sande MA, Moss AR. Cocaine use and HIV infection in intravenous drug users in San Francisco. *Jama* 1989;261:561-5; Strathdee SA, Galai N, Safaiean M, Celentano DD, Vlahov D, Johnson L, Nelson KE. Sex differences in risk factors for HIV seroconversion among injection drug users: a 10-year perspective. *Arch Intern Med* 2001;161:1281-8.

6 Schoenbaum EE, Hartel D, Selwyn PA, Klein RS, Davenny K, Rogers M, Feiner C, Friedland G. Risk factors for human immunodeficiency virus infection in intravenous drug users. *N Engl J Med* 1989;321:874-9; Celentano DD, Vlahov D, Cohn S, Anthony JC, Solomon L, Nelson KE. Risk factors for shooting gallery use and cessation among intravenous drug users. *Am J Public Health* 1991;81:1291-5.

7 Grund JP, Friedman SR, Stern LS, Jose B, Neaigus A, Curtis R, Des Jarlais DC. Syringe-mediated drug sharing among injection drug users: patterns, social context and implications for transmission of blood-borne pathogens. *Soc Sci Med* 1996;42:691-703.

8 Green ST, Taylor A, Frischer M, Goldberg DJ. 'Frontloading' ('halving') among Glasgow drug injectors as a continuing risk behaviour for HIV transmission. *Addiction* 1993;88:1581-2; Van Ameijden EJ, Langendam MW, Notenboom J, Coutinho RA. Continuing injecting risk behaviour: results from the Amsterdam Cohort Study of drug users. *Addiction* 1999;94:1051-61; Hunter GM, Donoghoe MC, Stimson GV, Rhodes T, Chalmers CP. Changes in the injecting risk behaviour of injection drug users in London, 1990-1993. *Aids* 1995;9:493-501; Rodes A, Vall M, Casabona J, Nuez M, Rabella N, Mitrani L. [Prevalence of human immunodeficiency virus infection and behaviors associated with its transmission among parenteral drug users selected on the street]. *Med Clin (Barc)* 1998;111:372-7.

Fig. 2: HIV/AIDS prevalence (%) among injecting drug users (1998- 2003)



Source: UN Reference Group on HIV/AIDS prevention and care among IDUs, 2003

Asia, where needle and syringe sharing is common,<sup>9</sup> injection by “professional injectors” is widespread.<sup>10</sup> Professional injectors sell the drug and the injection (so that the drug user does not have to self-inject). Professional injectors tend to use the same needle and syringe repeatedly, multiplying the chance of HIV transmission dramatically.<sup>11</sup>

Epidemics driven by injecting drug use have different characteristics than epidemics where sexual transmission is the main mode of infection.<sup>12</sup> Most importantly, the efficiency of HIV transmission per injection is almost six times higher than for heterosexual acts. Most studies have also found that heroin injectors inject about 1-3 times per day, and cocaine users even more frequently, so the number of possible exposures is also greater. Due to the greater efficiency and higher frequency of risk-exposure associated with injecting drug use, these epi-

demics tend to spread more rapidly than those driven by sexual transmission. Soon after HIV is introduced into a community of injecting drug users, infection levels in these populations can rise from zero to 50–60% within 1–2 years.<sup>13</sup>

Most injectors are males, but the proportion of female injectors has risen rapidly, particularly in Asia and Eastern Europe. Female addicts may pay for their drugs through sex work, and this may lead to transmission of the virus to clients outside the injecting community.<sup>14</sup>

The epidemiology of HIV/AIDS in injecting drug user populations varies from country to country. Injecting drug use is well established in Western Europe and North America, where HIV/AIDS prevalence in injecting drug user populations is generally low, apart from Southern Europe, Western Canada and the eastern

9 Reid G, Costigan G. Revisiting ‘The Hidden Epidemic’: A situational assessment of drug use in Asia in the context of HIV/AIDS. Melbourne: Centre for Harm Reduction, 2002; Bezziccheri S, Bazant W. Drugs and HIV in South East Asia. Bangkok: UNODC Regional Centre for East Asia and the Pacific, 2004.

10 Reid G, Costigan G. Revisiting ‘The Hidden Epidemic’: A situational assessment of drug use in Asia in the context of HIV/AIDS. Melbourne: Centre for Harm Reduction, 2002.

11 Kral AH, Bluthenthal RN, Erringer EA, Lorvick J, Edlin BR. Risk factors among IDUs who give injections to or receive injections from other drug users. *Addiction* 1999;94:675-83.

12 Pisani E, Garnett GP, Grassly NC, Brown T, Stover J, Hankins C, Walker N, Ghys PD. Back to basics in HIV prevention: focus on exposure. *BMJ* 2003;326:1384-7.

13 WHO *Training Guide for HIV Prevention Outreach to Injection drug users*. Geneva. 2003.

14 WHO. Where sex work, drug injecting and HIV overlap (In Preparation).

seaboard of the United States. It is widespread throughout most countries of Asia, and Central and Eastern Europe. Injecting is an increasing form of illicit drug administration in Latin America and the Middle East. Africa and Central America face early stages of injecting drug use, though there are worrying trends of increases in many cities in these regions.<sup>15</sup>

## Asia

Injecting drug use is the most prevalent method of HIV transmission in Indonesia, Viet Nam, Malaysia, Myanmar, Nepal, China and parts of India:<sup>16</sup>

- Indonesia: In 2000, only 1% of known HIV infections were attributed to injecting drug use. In 2004, the figure was nearly 20%. In Jakarta and Bali, 35%- 56% of injecting drug users are HIV infected.<sup>17</sup>
- Viet Nam: The overall HIV/AIDS prevalence among injecting drug users is 32%,<sup>18</sup> but prevalence is much higher in Hai Phong (over 70%), Ho Chi Minh City (over 80%) and Binh Dinh (nearly 90%).<sup>19</sup>
- Thailand: The HIV/AIDS prevalence among injecting drug users is estimated at 54%, with an estimated annual incidence of 5 – 10% for the past 10 years.<sup>20</sup>
- Myanmar: HIV/AIDS prevalence among injecting drug users is estimated at 65%.<sup>21</sup>
- Nepal: HIV/AIDS prevalence among injecting drug users is estimated at 45%.<sup>22</sup>
- China: The use of contaminated injection equipment is the most common mode of HIV transmission in China. In 2002, there were 410,000 registered injectors in China, though the real size of the injecting drug use community is estimated to be several times larger.<sup>23</sup> Overall, it is estimated that 43% of injecting drug users are HIV positive,<sup>24</sup> although individual provinces show much higher rates, such as Xinjiang (84%), and Yunnan provinces (58%-80%).<sup>25</sup>
- India: HIV/AIDS prevalence among injecting drug users has been determined in several cities and regions, including Manipur (58%),<sup>26</sup> Delhi (14%), Karnataka (3%), Mumbai (25%), West Bengal (3%) and Chennai (64%).<sup>27</sup>

15 Archibald C, Bastos F, Beyrer C, Crofts N, Des Jarlais D, Grund J-P, Hacker M, Heimer R, Rhodes T and Saidel T. The nature and extent of HIV/AIDS among injecting drug users. Evidence For Action: Establishing the Evidence-Base for Effective HIV Prevention among Injecting Drug Users. WHO. Geneva (In preparation)

16 Costigan, G., Crofts, N., and Reid G. *Manual for Reducing Drug-Related Harm in Asia*. 2003, Centre for Harm Reduction and Asian Harm Reduction Network. Melbourne; Detels, R. HIV/AIDS in Asia: an introduction *AIDS Education and Prevention* 2004 Vol 16, Supp. A, June: p. 1-6; UNAIDS. Rhodes, T., Platt, L., Filatova, K., Sarang, A., Davis, M., and Renton, A. *Behavioural Risk Factors in HIV Transmission in Eastern Europe and Central Asia* Geneva: in press.

17 Costigan, G., Crofts, N., and Reid G. 2003 op. cit.

18 Hien, N.T., Long, N.T. and Huan, T.Q. HIV/AIDS epidemics in Vietnam: evolution and responses. *AIDS Education and Prevention* 2004 Vol 16, Supp. A, June: p.137-154.

19 Hien, N. "HIV prevalence trends and risk behaviours among injection drug users in Vietnam". in *Global Research Network Meeting on HIV Prevention in Drug-Using Populations, 3rd Annual Meeting*. 2000. Durban, South Africa

20 Costigan, G., Crofts, N., and Reid G. 2003 op. cit.

21 Dehne, K., Adelekan, M., Chatterjee, A. and Weiler, G. The need for a global understanding of epidemiological data to inform human immunodeficiency virus (HIV) prevention among injection drug users. *Bulletin on Narcotics*, vol. LIV, Nos 1 and 2, 2002

22 Aceijas C et al 2004. op cit.; Burrows, D. *Policy and Environment Assessment: Illicit Drug Use, the Burden of Drug-related Harm, and HIV Vulnerability in Cambodia* The Policy Project, Phnom Penh. 2003

23 Reid and Costigan 2002. op.cit.

24 Wu, Z., Rou, K. and Cui, H. *The HIV/AIDS epidemic in China: history, current strategies and future challenges* *AIDS Education and Prevention* 2004 Vol 16, Supp. A, June: p. 7-17

25 UNAIDS. HIV/AIDS: *China's Titanic Peril, 2001 Update of the AIDS situation and Needs Assessment report.*, UN theme Group on HIV/AIDS in China. China, 2001.

26 Dorabjee, J. and L. Samson, A multi-centre rapid assessment of injection drug use in India. 2000. *Int J Drug Policy* 11(1-2): p. 99-112; Dorabjee, J., *Building the capacity of NGOs and other institutions to work with injecting drugs users in India*. 2002, Family Health International: New Delhi, India.

27 NACO (2004b). NACO, HIV Prevalence levels State wise: 1998 – 2003, accessed at <http://www.nacoonline.org/factsnfigures/Statewischiv.pdf>.

**Box 1: HIV/AIDS in China and India**

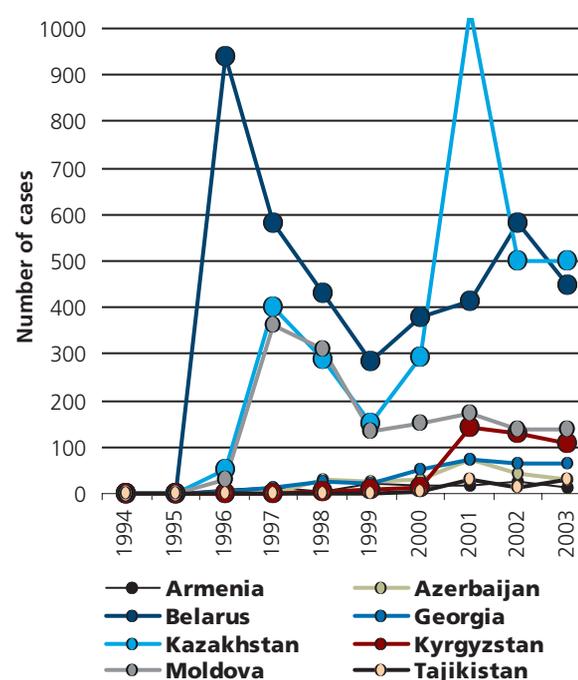
The HIV/AIDS epidemics in China and India are predicted to become two of the largest ever. In 2003, the Chinese Centre for Disease Control and Prevention, the National Centre for AIDS/STD Control and Prevention, WHO, UNAIDS and the US Centres for Disease Control and Prevention estimated that there are 840,000 people living with HIV/AIDS in China, a national prevalence rate of less than 0.1%. Between 1995 and 2000, HIV prevalence increased by about 30% each year. The rate of increase has been much greater in the first few years of the 21st century, reaching 122% in 2003. Most HIV infections are among injecting drug users. Heroin is the most commonly used drug, accounting for almost all drug treatment admissions, and use rates have been on the increase. The use of amphetamine-type stimulants is also expanding in China. A survey conducted in Guizhou province in 1999 found that heroin was the most commonly tried drug among school students in this region (3%), followed by ATS (0.7%) and then cannabis (0.3%). There are also reports that methamphetamine is injected.<sup>28</sup>

In India, an estimated 5.1 million people are HIV infected, a national prevalence rate of 0.9% among the general adult population in 2004.<sup>29</sup> UNODC has found that the use of a range of drugs, including ATS and cocaine, is increasing in parts of India, and that opiate users are switching from snorting or smoking heroin to injection of heroin and pharmaceutical drugs such as buprenorphine and dextropropoxyphene.<sup>30</sup>

**Central Asia and Eastern Europe**

Injecting drug use transmission accounts for the bulk of infections in the Russian Federation, Ukraine, Moldova, Belarus, Kazakhstan, Uzbekistan, Estonia, Latvia, Lithuania, Armenia, Azerbaijan, Georgia and Poland.<sup>31</sup> HIV prevalence above 50% among injecting drug users has been found in Svetlogorsk (Belarus) and Togliatti, Irkutsk, Tver and Kaliningrad (Russian Federation) Karaganda, Pavlodar (Kazakhstan); over 30% in Poltava (Ukraine), Rostov, Samara and Saint Petersburg (Russian Federation); and over 15% in Kharkiv (Ukraine), Ekaterinburg (Russian Federation), Minsk (Belarus), and Moldova.<sup>32</sup>

**Fig. 3: Newly registered HIV infections among injecting drug users, selected CIS countries (1994 – 2003)**



Source: EuroHIV, End-year report 2003

28 Wu Z, Rou K and Cui H. The HIV/AIDS Epidemic in China: current strategies and future challenges *AIDS Education and Prevention* 16 Suppl A: 7-17. 2004.

29 MAP 2004. op.cit.

30 *India Country Profile*. UN Office on Drugs and Crime. New Delhi 2003.

31 UN Development Program (UNDP). *HIV/AIDS in Eastern Europe and the Commonwealth of Independent States - Reversing the epidemic: Facts and policy options 2004*: Bratislava.

32 UNAIDS Rhodes T et al. In Press. op. cit.; Dehne et al 2002. op. cit.

**Fig. 4: Newly registered HIV infection among injecting drug users, Russian Federation and Ukraine (1994 – 2003)**



Source: EuroHIV, End-year report 2003

### Western Europe

The prevalence of HIV among injecting drug users in Finland, Germany, Greece, Iceland, Luxemburg, Slovenia, Switzerland, Austria and the United Kingdom is less than or near 5%, but is much higher in countries such as France (up to 19%), Italy (up to 65%), and Spain (up to 66%).<sup>33</sup>

### Middle East and North Africa

Injecting drug use is the most prevalent mode of HIV transmission in Iran, Bahrain and Libyan Arab Jamahiriya, and it is suspected of being prominent in several other countries such as Algeria, Egypt, Morocco, Tunisia and Sudan.<sup>34</sup>

- Iran: It is estimated that there are 1.2 million

opioid-dependent people and approximately 15,000 people living with HIV/AIDS; 60%-75% of these infections are attributable to the sharing of contaminated injection equipment.<sup>35</sup>

- Egypt: In Cairo, about 30% of heroin users inject, though the proportion is lower (16%) in other regions, and 59% of injecting drug users report sharing injection equipment. High-risk sexual behaviour is prevalent among drug users in Cairo, with 51% of heroin users reporting sex with a sex worker, 10% engaging in male-to-male sex, and 59% reporting that they never use condoms.<sup>36</sup>
- Libyan Arab Jamahiriya: Approximately 50% of heroin users seeking treatment are HIV infected.<sup>37</sup>

### Latin America

HIV infections among injecting drug users have been found in Uruguay (24%); Asunción, Paraguay (15%), Bogotá, Colombia (16%);<sup>38</sup> and Puerto Rico (30%-45%).<sup>39</sup> The dominance of crack cocaine as a drug of choice in some countries in the region and the emergence of an increasing supply of heroin have implications for injecting drug use and risk behaviour in the Southern Cone.

- Brazil: Injecting drug use, mainly of cocaine, played a major role in the first wave of HIV infection in the 1980s and early 1990s, as it is in new epidemics in the south and southwest of the country. High HIV infection prevalence among injecting drug users have been determined in Rio de Janeiro (25%) and in Sao Paulo (almost 75%) in 2000,<sup>40</sup> though the prevalence has fallen in these cities in recent years.<sup>41</sup>
- Argentina: In 2002, it was estimated that 12,000 and 34,000 injecting drug users were infected with HIV, and HIV prevalence among injecting drug users in treatment in 2003 was 39%.<sup>42</sup>

33 Archibald et al. In Preparation. Op. cit.

34 Alaei, K., Alaei, A., Saeydi, M., Mansoori, D. and Vaziri, S. *The adherence to antiretroviral therapy in HIV IDUs compared to non IDU HIV infected and non HIV infected cases.* in XV International AIDS Conference. 2004. Bangkok

35 Archibald et al. In Preparation. Op. cit.

36 El Shimi, T. UNODC Global Assessment Programme in Egypt, Cairo, 2003

37 Abdool, R. Mission report on Libya – drug abuse and HIV/AIDS, Nairobi, 2004

38 Aceijas C et al 2004. op cit.

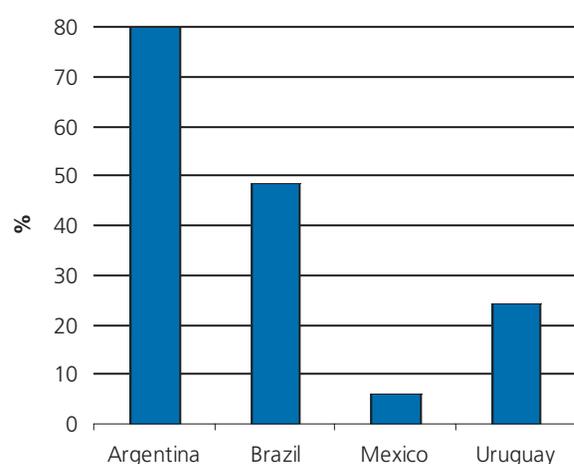
39 Monitoring the AIDS Pandemic (MAP) 2000. op. cit.

40 Monitoring the AIDS Pandemic (MAP). *HIV and AIDS in the Americas: an epidemic with many faces.* 2000. Monitoring the AIDS Pandemic Network.

41 Bastos, F.I., de Pina, Md.F. and Szwarcwald C.L. The social geography of HIV/AIDS among injection drug users in Brazil *International Journal of Drug Policy* 2002 13: 137-144.

42 Sosa-Estani, S., Rossi, D. and Weissenbacher, M. *Epidemiology of human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome in injection drug users in Argentina: high seroprevalence of HIV infection.* Clin Infect Dis, 2003. 37 Suppl 5: p. S338-42.

**Fig. 5: Estimated maximum proportion of HIV infected injecting drug users, selected countries, Latin America (1998-2003)**



Source: UN Reference Group on HIV/AIDS Prevention and Care among IDUs, 2003

### North America

HIV spread rapidly among injecting drug users in the northeast United States in the 1980s, reaching levels of 50% or more in New York City and Newark, New Jersey, and urban areas directly connected with these centres such as San Juan, Puerto Rico. By contrast, HIV prevalence outside the region has remained lower, with the lowest prevalence found west of the Mississippi River in cities such as Houston, Denver, Los Angeles, and Seattle. In each of these cities, HIV prevalence among injectors has remained below 10%.<sup>43</sup> Various studies have concluded that between 14% and 47% of injecting drug users are HIV positive in Canada.<sup>44</sup>

### Africa

The epidemics of sub-Saharan Africa have been dominated by sexual transmission of the virus, but injecting drug use is becoming more common in a number of countries in the region:

- Nigeria: HIV prevalence among the general population was found to be much lower in Kano state (3.8%) and River State (7.7%) than among injecting drug users in these same states (14.3%). Despite 95% of interviewed injecting drug users being aware of the modes of HIV transmission,

sharing of needles and syringes was common and only 20% used condoms.<sup>45</sup>

- Kenya: The national HIV/AIDS prevalence among adult population is 6.7%-9%, but it is estimated that in the injecting population prevalence is 68%-88%. In Mombassa, a sero-prevalence study among injecting drug users found that 49.5% were HIV positive and 70% had hepatitis C; six out of every seven female injecting drug users were HIV infected.<sup>46</sup>

### Vulnerable Groups

Although all injecting drug users using potentially contaminated injecting equipment are at high risk of HIV infection, specific populations are especially susceptible to infection. These include young injecting drug users because of inexperience in obtaining clean injecting equipment (see Box 3); female injecting drug users because of sexual risk and injecting practices over which they may have less control; and the increasing number of drug-injecting sex workers, both male and female. Similarly, prisoners are at an increased risk of HIV infection because they lack access to preventive and care services).

<sup>43</sup> Archibald et al. In Preparation. op. cit.

<sup>44</sup> Aceijas C et al. 2004. op cit.

<sup>45</sup> Lawal, R. UNODC study on drugs and HIV/AIDS in Nigeria, 2003

<sup>46</sup> Ndeti, D. UNODC study on the linkages between drug use, injecting drug use and HIV/AIDS in Kenya, University of Nairobi, 2004

**Box 2: Drug abuse and HIV/AIDS in prison settings**

Prisons are a high-risk environment for HIV transmission. Drug use in general, and injection drug use in particular, as well as violence and sex between men are widespread in prisons. Drug users are often over-represented in prison populations and may continue using drugs while incarcerated. A significant proportion of drug users have a history of incarceration, often for drug-related crimes.

Frequent sharing of contaminated drug injection equipment is the predominant mode of HIV transmission among prisoners.<sup>47</sup> HIV is also transmitted in prisons through unsafe sexual behaviour, sometimes associated with sexual violence. Prison overcrowding, gang violence, lack of protection for the youngest inmates, corruption and poor prison management increase significantly the vulnerability to HIV transmission among inmates.

High turnover rates (worldwide at any given time, there are 10 million) prison inmates, with an annual turnover of 30 million also fuel the spread of HIV and other blood-borne infections. After release, prisoners return to social networks in the general community, thereby facilitating the spread of HIV infections to the non-incarcerated community.

**Box 3: The decreasing age of initiation into drug abuse and drug injecting**

The age at which people begin to use drugs varies considerably and depends on factors such as social cohesion, norms and drug availability. In the Commonwealth of Independent States, for example, injecting is especially common among young people, with initiation starting as early as 12 years of age. Transition to injecting drug use is an important step in increasing HIV risk to an individual. The most common reasons for making the transition are perceived superior effectiveness and superior efficiency of drug administration.<sup>48</sup> Among women, having a partner who injects is associated with initiation,<sup>49</sup> whereas in men it is the peer group that is the major social influence. Low socioeconomic status, homelessness, low educational attainment, a younger age of substance use initiation and polysubstance use are all associated with transition to injecting.<sup>50</sup> Heroin is the most common drug first injected.<sup>51</sup>

The initiation phase into drug injecting is associated with higher levels of risk behaviour because the technique has to be learnt, generally in a communal injecting environment. For example, in northern Viet Nam, once individuals were comfortable with administering the injection themselves, injectors reported engaging in fewer circumstances conducive to sharing. However, even after the initiation phase, requiring help to inject is a risk factor for HIV transmission.<sup>52</sup> A review of HIV transmission related to injecting drug use in the countries of Central and Eastern Europe, the Baltic States and Commonwealth of Independent States found that young people in this region engage in two of the highest risk behaviours for acquiring HIV – sharing injecting equipment among injecting drug users and having unprotected sex with sex workers and other sexual partners – at a higher rate than in many other parts of the world.<sup>53</sup>

47 Martin V, Cayla JA, Moris ML, Alonso LE, Perez R. Predictive factors of HIV-infection in injection drug users upon incarceration. *Eur J Epidemiol* 1998;14:327-31.

48 Bravo MJ, Barrio G, de la Fuente L, Royuela L, Domingo L, Silva T. Reasons for selecting an initial route of heroin administration and for subsequent transitions during a severe HIV epidemic. *Addiction* 2003;98:749-60; Swift W, Maher L, Sunjic S. Transitions between routes of heroin administration: a study of Caucasian and Indochinese heroin users in south-western Sydney, Australia. *Addiction* 1999;94:71-82.

49 Archibald et al. In Preparation. op. cit.

50 Dunn J, Laranjeira RR. Transitions in the route of cocaine administration—characteristics, direction and associated variables. *Addiction* 1999;94:813-24; Crofts N, Louie R, Rosenthal D, Jolley D. The first hit: circumstances surrounding initiation into injecting. *Addiction* 1996;91:1187-96.

51 Crofts N, Louie R, Rosenthal D, Jolley D. The first hit: circumstances surrounding initiation into injecting. *Addiction* 1996;91:1187-96; Des Jarlais DC, Casriel C, Friedman SR, Rosenblum A. AIDS and the transition to illicit drug injection—results of a randomized trial prevention program. *Br J Addict* 1992;87:493-8.

52 O'Connell JM, Spittal P, Li K, Tyndall MW, Hogg RS, Schechter MT, Wood E. Requiring help injecting independently predicts incident HIV infection in a prospective cohort study of injection drug users. Proceedings of the XVth International AIDS Conference. Bangkok, 2004.

53 UNICEF. *Walking on two legs* 2001. op. cit.

### 3.2 Drug use, sexual behaviour and HIV/AIDS

The relationship between drug abuse and sexual behaviour is complex, and it is more difficult to quantify HIV transmission related to this drug abuse-sexual behaviour interaction than it is for equipment sharing among drug injectors. Different drugs affect sexual behaviours differently, and the context of use is clearly important. HIV is transmitted sexually through a range of practices, some more effective in transmission than others. High-risk sexual behaviour includes engaging in unprotected sex (penetrative sex without the use of a condom),<sup>54</sup> exchanging sex for drugs or money,<sup>55</sup> and having multiple sex partners.<sup>56</sup>

While most HIV transmission among injectors worldwide is related to the sharing of injection equipment, in some areas, sexual behaviour is primarily responsible for HIV transmission among injecting drug users. Interventions aimed at reducing risky injection practice may not be as effective at reducing risky sexual behaviour.<sup>57</sup> There is also increasing evidence of the link between HIV epidemics among injecting drug users and other drug users and of the spread of HIV epidemics in the general population through sexual networks.<sup>58</sup>

The learned behaviour of associating drugs with sex makes it difficult to reduce high-risk sexual behaviour.<sup>59</sup> Frequency of drug abuse correlates with increased sexual activity, as does the frequency of high-risk sex.<sup>60</sup> Rates of condom use among drug users vary widely. In a study

of 26,982 injecting drug users and crack users from 22 cities in the United States, over 80% reported having unprotected sex within the last 30 days.<sup>61</sup> A study of injecting drug users in Brazil found that only 12.5% always used a condom, whereas 77.7% reported they always used a clean needle and syringe.<sup>62</sup> However, in France in 2003, 64% of injecting drug users used condoms as their primary form of contraception compared to 10% of the general population, indicating that injecting drug users are more aware of the risk of HIV transmission in that country.<sup>63</sup>

There are also strong links between drug use, particularly crack use,<sup>64</sup> injecting drug use and risky sexual behaviour.<sup>65</sup> HIV transmission increases in populations with high-risk behaviours related to both drug injecting and sex. This appears to be true of all drugs, but is especially so for cocaine injectors. There also appears to be a link among these high-risk behaviours. Injecting drug users who inject with a needle and syringe known to have been previously used by another injector (without any attempt to disinfect it) are more likely to report non-use of condoms than injecting drug users who attempt to protect themselves from injection-related HIV infection.<sup>66</sup> HIV infection among injecting drug users in one study was associated with injection of cocaine, more frequent injection, needle sharing, and injection in a shooting gallery. Sexual behaviour variables associated with HIV incidence include a sexually transmitted infection, male homosexual behaviour, and sex with another injecting drug user.<sup>67</sup>

54 Watkins KE, Metzger D, Woody G, McLellan AT. Determinants of condom use among intravenous drug users. *Aids* 1993;7:719-23; Saxon AJ, Calsyn DA, Whittaker S, Freeman G, Jr. Sexual behaviors of intravenous drug users in treatment. *J Acquir Immune Defic Syndr* 1991;4:938-44.

55 Astemborski J, Vlahov D, Warren D, Solomon L, Nelson KE. The trading of sex for drugs or money and HIV seropositivity among female intravenous drug users. *Am J Public Health* 1994;84:382-7; Kim MY, Marmor M, Dubin N, Wolfe H. HIV risk-related sexual behaviors among heterosexuals in New York City: associations with race, sex, and intravenous drug use. *Aids* 1993;7:409-14.

56 Calsyn DA, Saxon AJ, Wells EA, Greenberg DM. Longitudinal sexual behavior changes in injecting drug users. *Aids* 1992;6:1207-11.

57 Booth RE, Watters JK. How effective are risk-reduction interventions targeting injecting drug users? *Aids* 1994;8:1515-24; Welp EA, Lodder AC, Langendam MW, Coutinho RA, van Ameijden EJ. HIV prevalence and risk behaviour in young drug users in Amsterdam. *Aids* 2002;16:1279-84.

58 Lowndes, C.M., Renton, A., Alary, M., Rhodes, T., Garnett, G. and Stimson G. Conditions for widespread heterosexual spread of HIV in the Russian Federation: implications for research, monitoring and prevention. *International Journal of Drug Policy* 14 (2003): 45-62

59 Paul JP, Stall R, Davis F. Sexual risk for HIV transmission among gay/bisexual men in substance-abuse treatment. *AIDS Educ Prev* 1993;5:11-24.

60 Archibald et al. In Preparation. Op. cit.

61 Ibid.

62 Telles PR, Bastos FI, Guydish J, Inciardi JA, Surratt HL, Pearl M, Hearst N. Risk behavior and HIV seroprevalence among injecting drug users in Rio de Janeiro, Brazil. *Aids* 1997;11 Suppl 1:S35-42.

63 Vidal-Trecan G, Warszawski J, Coste J, Bajos N, Delamare N, Grenier-Sennelier C, Boissonnas A. Contraceptive practices of non-HIV-seropositive injecting drug users. *Eur J Epidemiol* 2003;18:863-9.

64 Booth RE, Kwiakowski CF, Chitwood DD. Sex related HIV risk behaviors: differential risks among injection drug users, crack smokers, and injection drug users who smoke crack. *Drug Alcohol Depend* 2000;58:219-26.

65 Booth RE, Watters JK, Chitwood DD. HIV risk-related sex behaviors among injection drug users, crack smokers, and injection drug users who smoke crack. *Am J Public Health* 1993;83:1144-8.

66 Booth RE. Gender differences in high-risk sex behaviours among heterosexual drug injectors and crack smokers. *Am J Drug Alcohol Abuse* 1995;21:419-32.

67 Archibald et al. In Preparation. Op. cit.

### 3.2.1 Cocaine and crack, and sexual HIV transmission

There is a clear association between the use of cocaine and/or crack and HIV infection.<sup>68</sup> Cocaine and crack are drugs highly associated with an increase in sexual activity<sup>69</sup>. This is linked to perceived increases in libido, the trade of drugs for sex, and the binge pattern of consumption associated with these drugs.

A United States study of 6,291 injecting and non-injecting drug users found that, compared to heroin injectors, cocaine injectors reported a higher rate of risky sexual behaviour such as sex with multiple partners.<sup>70</sup> A study of Spanish and Brazilian injecting drug users found sexual abstinence and consistent condom use among heroin injectors, but these behaviours were less common among cocaine injectors, who also had a higher number of casual partners and partners who inject themselves. Cocaine injectors also reported sharing injection equipment more frequently.<sup>71</sup>

Crack users are more likely to engage in higher levels of risky sexual activity than other drug users,<sup>72</sup> and the use of crack is linked with sex work.<sup>73</sup> A United States study found that, after controlling for a range of variables, current crack users were over five times more likely than non-crack using drug users to exchange sex for drugs or money.<sup>74</sup> Female crack users in another United States study who traded sex for drugs reported 13 times more partners a month than those that did not trade sex for drugs. They were also substantially more likely to report a history of sexually transmitted infections.<sup>75</sup> A study of

African American residents of two communities in Houston revealed that a history of crack use significantly predicted the trading of sex for money and drugs, and sellers of sex were more likely to have engaged in recent high-risk sexual behaviour than those who had never sold sex.<sup>76</sup> An analysis of in-depth interviews of crack users in Portland (United States) found that sexual activity involving multiple anonymous partners often takes place within the context of crack use.<sup>77</sup> An analysis of in-depth interviews with crack users in Trinidad and Tobago also found high rates of trading sex for drugs.<sup>78</sup> People who both use crack and inject drugs were found to be more likely to engage in sex with multiple partners, trade sex for drugs, have unprotected sex, and have sex with other injection drug users.<sup>79</sup>

### 3.2.2 Amphetamine use and sexual transmission of HIV

There is a significant body of literature associating the use of amphetamines with sexual activity and risky sexual behaviour. Amphetamines are used during the sexual act to prolong stamina and increase pleasure.<sup>80</sup> In the United States, HIV infected amphetamine users were found to have an average of more than nine sexual partners in two months. The average number of unprotected vaginal, anal, and oral sex acts over the two month period were 21, 6 and 42, respectively.<sup>81</sup> Only 50% used a condom during these acts. In Ethiopia, a study of 561 young people aged 15-24 years found the use of khat (a local amphetamine-type stimulant) predicted the likelihood of having ever engaged in sexual

68 Grella CE, Anglin MD, Wugalter SE. Cocaine and crack use and HIV risk behaviors among high-risk methadone maintenance clients. *Drug Alcohol Depend* 1995;37:15-21.

69 Murray JB. An overview of cocaine use and use. *Psychol Rep* 1986;59:243-64.

70 Hudgins R, McCusker J, Stoddard A. Cocaine use and risky injection and sexual behaviors. *Drug Alcohol Depend* 1995;37:7-14.

71 Bastos FI, Perez C, Telles PR, Rodes A, Hacker M, Casabona J. Sexual and injecting habits of cocaine and heroine in two different settings. Cross-cultural insights from Rio de Janeiro (RJ), Brazil, and Barcelona (BCN), Spain Proceedings of the XIV International AIDS Conference. Barcelona, July 7 - 12, 2002.

72 Archibald et al. In Preparation. Op. cit.

73 Carlson RG, Siegal HA. The crack life: an ethnographic overview of crack use and sexual behavior among African-Americans in a midwest metropolitan city. *J Psychoactive Drugs* 1991;23:11-20.

74 Archibald et al. In Preparation. Op. cit.

75 Logan TK, Leukefeld C. Sexual and drug use behaviors among female crack users: a multi-site sample. *Drug Alcohol Depend* 2000;58:237-45.

76 Baseman J, Ross M, Williams M. Sale of sex for drugs and drugs for sex: an economic context of sexual risk behavior for STDs. *Sex Transm Dis* 1999;26:444-9.

77 Balshem M, Oxman G, van Rooyen D, Girod K. Syphilis, sex and crack cocaine: images of risk and morality. *Soc Sci Med* 1992;35:147-60.

78 Djumalieva D, Imamshah W, Wagner U, Razum O. Drug use and HIV risk in Trinidad and Tobago: qualitative study. *Int J STD AIDS* 2002;13:633-9.

79 Hoffman JA, Klein H, Eber M, Crosby H. Frequency and intensity of crack use as predictors of women's involvement in HIV-related sexual risk behaviors. *Drug Alcohol Depend* 2000;58:227-36.

80 von MC, Brecht ML, Anglin MD. Use ecology and drug use motivations of methamphetamine users admitted to substance use treatment facilities in Los Angeles: an emerging profile. *J Addict Dis* 2002;21:45-60; Kall K, Nilsson A. Preference for sex on amphetamine: a marker for HIV risk behaviour among male intravenous amphetamine users in Stockholm. *AIDS Care* 1995;7:171-88.

81 Semple SJ, Patterson TL, Grant I. The context of sexual risk behavior among heterosexual methamphetamine users. *Addict Behav* 2004;29:807-10.

activity.<sup>82</sup> In a study of men in Northern Thailand found that those reporting a history of sexually transmitted infections were more likely to have used amphetamines.<sup>83</sup>

In a study of HIV infected men who have sex with men,<sup>84</sup> it was found that methamphetamine use was associated with high rates of anal sex, low rates of condom use, multiple sex partners, and anonymous sex. Users reported using the drug to promote sexual pleasure and to reduce negative feelings associated with being HIV infected. This was also demonstrated in a study of male homosexual and heterosexual non-injecting amphetamine users attending HIV clinics in California.<sup>85</sup> In contrast, being HIV infected has been shown to be associated with condom use among amphetamine injectors in Sweden.<sup>86</sup>

There is evidence of a link between amphetamine use and risky sexual behaviour in East and Southeast Asia, and thus the recent increase in the availability of these drugs in the region has implications for HIV control.<sup>87</sup> In an HIV vaccine trial among injecting drug users in Bangkok, amphetamines use was associated with unprotected vaginal intercourse.<sup>88</sup>

Ecstasy use has mainly been studied in industrialised countries. Compared to those who use amphetamines but not ecstasy, ecstasy users tend to be of a higher socioeconomic status and have more same sex partners.<sup>89</sup> There is evidence that ecstasy use is associated with unsafe sexual activity. For example, in a study of young homosexual and bisexual men in New York City, ecstasy use was associated with having more male partners, more visits to bars, clubs, sex clubs or bathhouses, and greater likelihood of having unprotected anal sex.<sup>90</sup>

### 3.2.3 Opioid use and sexual HIV transmission

Heroin is believed to reduce sexual activity and impair sexual arousal.<sup>92</sup> However, there is significant evidence that heroin dependent individuals engage in sexual activity. In a study of predominantly heroin injecting drug users in London, 80% had been sexually active within the preceding six months, with an average of 2.1 non-commercial opposite sex partners. Two-thirds

#### Box 4: Increasing abuse of amphetamine type substances in South-East Asia

The increase in the use of amphetamine-type substances (ATS), mainly methamphetamine, in the East Asia Pacific region began in the mid-1990s and has spread even to those countries where opioid use has traditionally been widespread. Methamphetamine pills are the main form of ATS found in Thailand, Myanmar, Cambodia, Viet Nam and the Lao People's Democratic Republic, while crystalline methamphetamine predominates in Japan, Philippines, Singapore, Brunei Darussalam and Malaysia. Methamphetamine use continued to increase during 2003-2004 in many countries in the region, although it stabilized in Brunei Darussalam, Japan, the Philippines and declined in Thailand. Methamphetamine was the primary drug for which people sought drug treatment in the Philippines in 2002, accounting for 3,466 (58%) of the 5,965 admissions to drug treatment that year.<sup>91</sup>

82 Taffa N, Klepp KI, Sundby J, Bjune G. Psychosocial determinants of sexual activity and condom use intention among youth in Addis Ababa, Ethiopia. *Int J STD AIDS* 2002;13:714-9.

83 Melbye K, Khamboonruang C, Kunawarak P, Celentano DD, Prapamontol T, Nelson KE, Natpratan C, Beyrer C. Lifetime correlates associated with amphetamine use among northern Thai men attending STD and HIV anonymous test sites. *Drug Alcohol Depend* 2002;68:245-53.

84 Semple SJ, Patterson TL, Grant I. Motivations associated with methamphetamine use among HIV+ men who have sex with men. *J Subst Use Treat* 2002;22:149-56.

85 Molitor F, Truax SR, Ruiz JD, Sun RK. Association of methamphetamine use during sex with risky sexual behaviors and HIV infection among non-injection drug users. *West J Med* 1998;168:93-7.

86 Kall K. The risk of HIV infection for noninjecting sex partners of injection drug users in Stockholm. *AIDS Educ Prev* 1994;6:351-64.

87 Archibald et al. In Preparation. Op. cit.

88 Vanichseni S, Des Jarlais DC, Choopanya K, Mock PA, Kitayaporn D, Sangkhum U, Prasithphol B, Hu DJ, Van Griensven F, Mastro TD, Tappero JW. Sexual Risk Reduction in a Cohort of Injection drug users in Bangkok, Thailand. *J Acquir Immune Defic Syndr* 2004;37:1170-1179.

89 Archibald et al. In Preparation. Op. cit.

90 Klitzman RL, Greenberg JD, Pollack LM, Dolezal C. MDMA ('ecstasy') use, and its association with high risk behaviors, mental health, and other factors among gay/bisexual men in New York City. *Drug Alcohol Dependence* 2002;66:115-25.

91 Information in this text box is drawn from UNODC *Amphetamine-type Stimulants in East Asia and the Pacific: Analysis of 2003 regional ATS questionnaire: regional and national overviews of ATS and other drug trends and related data collection systems* United Nations Office on Drugs and Crime Regional Centre for East Asia and the Pacific. Bangkok. Publication 3/2004

(66%) had vaginal intercourse at least once a week. There was a high level of risky sexual behaviour, with 68% never using condoms with primary partners and 34% never using condoms with casual partners. Those having sexual intercourse most often were least likely to use condoms. About 10% of the study group were HIV infected.<sup>93</sup>

Across most studies, there is a clear link between the regularity of sexual intercourse with the primary sexual partner and the frequency of condom use. Condom use is low with regular partners of heroin users, especially within marriage,<sup>94</sup> and higher with casual partners.<sup>95</sup> The severity of opioid dependence usually increases the likelihood of risky sexual behaviour.<sup>96</sup> Severe dependence can also lead to an increase in commercial sex work, and, consequently, reduced use of condoms.<sup>97</sup>

### 3.2.4 Female sex workers

Sex workers who inject drugs are more likely than non-injecting sex workers to:

- Work in ways that offer least possibility to protect themselves from HIV infection (for example, street or highway sex work);
- Have unprotected sex for additional payment;
- Have more clients per week;
- Have sex partners who are also injecting drug users;
- Share injection equipment with injecting partners or clients in sex-for-drug transactions.<sup>98</sup>

Sex work and injecting drug use are highly associated in some areas. In Moscow, 31% of sex workers are also injecting drug users.<sup>99</sup> In Togliatti in the Russian Federation, 50% of female injecting drug users reported

having exchanged sex for goods or money in the past and of these, 86% were currently active sex workers.<sup>100</sup> Estimates of the proportion of female sex workers who inject drugs in the Russian Federation as a whole vary between 25% and 90%,<sup>101</sup> and it is estimated that approximately 30% of female sex workers across the Newly Independent States (NIS) of the former Soviet Union are injecting drug users.<sup>102</sup> While data are limited, studies of female injecting drug users in Eastern Europe estimate that between 20% and 50% are involved in sex work, and in Central Asia, the proportion is between 10% and 25%.<sup>103</sup>

One study in Viet Nam found that in Ho Chi Minh City, over 15% of street-based female sex workers reported injecting drugs within the last six months. In Hanoi, high rates of injecting were found among street-based sex workers and sharing injecting equipment was common, especially with the primary sexual partner. In this group, drug use began after becoming a sex worker. Some subjects of the study reported drug use as a 'trend' among sex workers. 'Partnering' with a male injecting drug user was common, with the female earning to support the couple's drug habit. In return, the male provided protection, transport and accommodation.<sup>104</sup>

In many countries, a higher proportion of sex-working injecting drug users are found at the street level than in brothels, bars, hotels and other settings.<sup>105</sup> In some settings, drug injecting is stigmatised in brothels; in others, pimps or others associated with the sex industry may be drug users or dealers.

Sex workers who use drugs show higher HIV/AIDS prevalence in some studies. A study of 400 street-based sex workers in Ho Chi Minh City, Viet Nam, found that infection was associated with injecting by the sex

92 Smith DE, Moser C, Wesson DR, Apter M, Buxton ME, Davison JV, Orgel M, Buffum J. A clinical guide to the diagnosis and treatment of heroin-related sexual dysfunction. *J Psychoactive Drugs* 1982;14:91-9.

93 Rhodes T, Donoghoe M, Hunter G, Soteri A, Stimson GV. Sexual behaviour of drug injectors in London: implications for HIV transmission and HIV prevention. *Addiction* 1994;89:1085-96.

94 Archibald et al. In Preparation. Op. cit.

95 Archibald et al. In Preparation. Op. cit; Klee H, Faugier J, Hayes C, Morris J. Risk reduction among injection drug users: changes in the sharing of injecting equipment and in condom use. *AIDS Care* 1991;3:63-73.

96 Archibald et al. In Preparation. Op. cit

97 Gossop M, Griffiths P, Powis B, Strang J. Severity of heroin dependence and HIV risk. II. Sharing injecting equipment. *AIDS Care* 1993;5:159-68.

98 WHO/ UNAIDS/ UNODC. *Advocacy Guide* 2004. op.cit.

99 UNICEF *Walking on Two Legs* 2001. op.cit.

100 Lowndes, C.M., Rhodes, T., Judd, A., Mikhailova, L., Sarang, A., Rylkov, A., Tichonov, M., Platt, L. and Renton, A. Female injection drug users who practise sex work in Togliatti City, Russian Federation: HIV prevalence and risk behaviour. Abstract MoPeC3501. XIV International AIDS Conference, Barcelona July 7-12, 2002.

101 Lowndes et al 2003. op.cit.

102 Dehne, K. Sex work and injection drug use in Eastern Europe and Central Asia: Epidemiological Overview. Paper presented at 13th International Conference of the Reduction of Drug-Related Harm, Ljubljana 3-7 March 2002.

103 UNAIDS Rhodes et al In Press.op.cit.

104 Thao, L.T.L., Giang, L., Bain, D.L. and Lindan, C.P. The Evolving HIV Epidemic in Ho Chi Minh City, Vietnam. in XIV International AIDS Conference. 2002. Barcelona, Spain; Tran et al 2004 op.cit.

worker, injecting by the regular sex partners of the sex worker or by their partners, and with younger (under 26) sex workers.<sup>106</sup> In Nepal in 1999, HIV prevalence was approximately 20% among sex workers, 50% among injecting drug users and 75% among sex workers who inject drugs.<sup>107</sup> In Manipur (India), the prevalence of HIV among the sex workers who inject drugs was 57%, compared with 20% of those who did not inject.<sup>108</sup>

Evidence suggests that sex workers who inject drugs face increased risk of sexual HIV transmission because they often have a higher number of clients, are more willing to engage in unprotected sex, and have sexual partners who also inject drugs. Sex workers who inject may also be more likely to pass on HIV if infected. Lower levels of condom use have been shown among those injecting drugs and selling or buying sex. For example, only 10% of injecting drug users from three cities in Indonesia, many of who had multiple commercial sex and other partners, reported condom use.<sup>109</sup> Among injecting drug users in Vancouver, Canada, and in several cities of the United States, condom use with all types of sexual partners (paying, casual, and primary partners) is rare or low among those exchanging sex for drugs or money.<sup>110</sup>

Female drug users are more likely than male drug users to trade sex for drugs. In an analysis of 1,055 drug users in the United States, female users were more than three times more likely to engage in trading sex for drugs than male users. Between 6% and 11% of male users traded sex for drugs. Homelessness, unemployment and the use of crack (in order of decreasing correlation) were all associated with trading sex for drugs.<sup>111</sup> The exchange of sex for drugs is a risk factor for HIV infection.<sup>112</sup>

### 3.2.5 Male sex workers

Risk behaviours among male sex workers are relatively under-researched. A 1994 study found important differences between male street sex workers and those working at home. Street-workers were more likely to inject drugs, to have a heterosexual preference, to have no other occupation, to have more clients, and to have a more negative working attitude. The study also found that male sex workers were more likely to engage in anal intercourse with steady clients, with clients whom they trusted regarding condom use, with clients they felt sexually attracted to, or when in dire need of drugs. Of those who had anal intercourse in the previous year, a majority had consistently used condoms. The same factors that encourage anal intercourse also appear conducive to unprotected intercourse.<sup>113</sup>

### 3.2.6 Sexual partners of drug users

Sexual partners of injecting drug users are at risk for acquiring HIV infection, and it is this link that is said to be responsible for the generalised epidemics in Asia and Eastern Europe. Partners of injecting drug users are not necessarily injectors themselves, and therefore the risk is predominantly sexual. For example, a study of 516 injecting drug users and their partners in London found that 62% of respondents' primary and casual partners did not inject drugs. In a study of 650 male injecting drug users in three cities in Indonesia, 68% had been sexually active within the last year. Of the total study group, 24% had engaged in sexual activity with a regular partner, 40% with a sex worker, 29% with a casual female partner, 48% with multiple partners, and

105 Ibid; Jenkins, C. "Injecting sex workers or sex working injectors: crossing risk zones." In *National Institute on Drug Use. 2001 Global Research Network Meeting on HIV Prevention in Drug-Using Populations: Fourth Annual Meeting Report October 11-12 2001 Melbourne Australia* Bethesda: 2002.

106 Tuan, N.A., Hien, N.T., Chi, P.K., Giang, L.T., Thang, B.D., Long, H.T., Sidel, T. and Detels, R. Injection drug use among street-based sex workers: A high risk behaviour for HIV transmission. Abstract C10772. XIV International AIDS Conference, Barcelona July 7-12, 2002.

107 Jenkins 2002. op.cit.

108 Panda, S., Bijaya, L., Sadhana Devi, N., Foley, E., Chatterjee, A., Banerjee, D., Naik, T.N., Saha, M.K. and Bhattacharya, S.K. Interface between drug use and sex work in Manipur. *Natl Med J India*, 2001. 14(4): p. 209-11.

109 Pisani, E., Dadun, Suahya, P.K., Kamil, O. and Jazan, S. *Sexual behavior among injection drug users in 3 Indonesian cities carries a high potential for HIV spread to non-injectors*. Journal of Acquired Immune Deficiency Syndrome. 2003;34(4):403-406

110 Weeks, M.R., Grier, M., Romero-Daza, N., Puglisi-Vasquez, M.J. and Singer, M. *Streets, drugs, and the economy of sex in the age of AIDS. Women's Health*. 1998;27(1-2):205-229; Paone, D., Cooper, H., Alperen, J., Shi, Q. and Des Jarlais, D.C. *HIV risk behaviours of current sex workers attending syringe exchange: the experiences of women in five US cities*. *AIDS Care*. 1999;11(3):269-280.

111 Elwood WN, Williams ML, Bell DC, Richard AJ. Powerlessness and HIV prevention among people who trade sex for drugs ('strawberries'). *AIDS Care* 1997;9:273-84.

112 Tortu S, Beardsley M, Deren S, Williams M, McCoy HV, Stark M, Estrada A, Goldstein M. HIV infection and patterns of risk among women drug injectors and crack users in low and high sero-prevalence sites. *AIDS Care* 2000;12:65-76.

113 De Graaf 1994. op.cit.

**Box 5: Female injecting drug users**

In the World Health Organization Multi-City Study on Drug Injecting and Risk of HIV Infection during 1989-1992, analysis was conducted on the basis of gender. The share of injecting drug users who were female ranged from 5% in Bangkok to 44% in Berlin, with a mean of 25%.<sup>114</sup> It is estimated that women account for approximately 17% of the estimated 1 million injection drug users reported in China, and in some provinces, this can reach up to 40%.<sup>115</sup> The average age of female drug users (between 22 and 27) in China is considerably lower than male drug users and approximately half of female drug users have engaged in sex work. Syphilis rates among female drug users vary between 1% and 29%.<sup>116</sup>

Women injecting drug users are at greater risk of acquiring HIV than male injecting drug users, partly due to the large proportion of women injectors who are also sex workers, and partly due to their combination of injection-related and sexual risks:<sup>117</sup>

- Female injecting drug users are more likely than men to report being injected by another person and to have assistance injecting.<sup>118</sup> Being injected by another person or being helped to inject is a predictor of HIV infection.<sup>119</sup> Also, many female injecting drug users are dependent on their sexual partners to obtain drugs, which compromises their ability to negotiate safer sex or safer injecting practices.<sup>120</sup>
- Men will usually inject first if a male-female couple is sharing injecting equipment, again leading to greater likelihood of women acquiring HIV from contaminated injecting equipment.<sup>121</sup>
- Women's access to services of all kinds is lower than that of male injectors. This has been found among HIV prevention programmes in Central and Eastern Europe and South-East Asia, and among drug dependence treatment programmes in South Asia.

Various social and cultural norms force women more than men to hide their drug use. More so than for men, drug use, sex work, and HIV infection carry great social stigmas for women. The very invisibility of women injecting drug users increases their risk of acquiring HIV. It is difficult for interventions to target this group and, therefore, they may not receive education, information, and prevention materials as readily or as often as male injecting drug users.<sup>122</sup>

The interaction between injecting drug use and participation in the sex industry is complex. Drug use may lead to sex work due to financial needs.<sup>123</sup> Sex work can lead to injecting drug use<sup>124</sup> because drug use is often used as a means to cope with the emotional demands of sex work.<sup>125</sup>

In at least some countries, female injecting drug users are more likely to be in a sexual relationship with another injecting drug user than are male injecting drug users. A woman in partnership with a male injecting drug user tends to default to sex work in order to support both her and her partner's drug dependence.<sup>126</sup>

114 Malliori, M., Zunzunegui, M.V., Rodriguez-Arenas, A. and Goldberg, D. "Drug injecting and HIV-1 infection: major findings from the Multi-City Study" in G Stimson, DC Des Jarlais and A Ball *Drug injecting and HIV infection 1998* WHO/ UCL Press. Geneva/London.

115 *Xinhua News Agency* Female IDUs, key population for fighting AIDS in China: experts Friday, June 25, 2004.

116 Khoshnood, K. and Weber, S. Social Vulnerability of Injection Drug Users to HIV/AIDS in China: Determinants and Responses *The Yale-China Health Journal* Autumn 2003 Volume 2.

117 Bronzan, R.N., Zhussupov, B., Favorov, M., Kryukova, V., Muratbayeva, G., Kuznetsov, N., Shakarishvili, A. and Ryan, C.A. *Risk factors for HIV infection among injection drug users in Kazakhstan: implications for prevention intervention*. in XV International AIDS Conference. Bangkok, 2004. 2004. Bangkok.

118 Gore-Felton, C., Somlai, A.M., Benotsch, E.G., Kelley, J.A., Ostrovski, D. and Kozlov, A. *The influence of gender on factors associated with HIV transmission risk among young Russian injection drug users*. *Am J Drug Alcohol Use*, 2003. 29(4): p. 881-94; MacRae, R. and E. Aalto, *Gendered power dynamics and HIV risk in drug-using sexual relationships*. *AIDS Care*, 2000. 12(4): p. 505-15; O'Connell, J.M., Spittal, P. Li, K., Tyndall, M.W., Hogg, R.S., Schechter, M.T. and Wood, E. *Requiring help injecting independently predicts incident HIV infection in a prospective cohort study of injection drug users*. in XV International AIDS Conference. 2004. Bangkok.

119 O'Connell, J.M. 2004 op.cit.

120 Bronzan, R.N. 2004 op.cit.; Osimani, M.L., *The challenge of implementation of preventive programs in a developing country: experiences, situations, and perspectives in Uruguay*. *Clin Infect Dis*, 2003. 37 Suppl 5: p. S422-6.

121 Strathdee, S.A. and Sherman, S.G. 2003 op.cit.

122 Osimani 2003. op.cit.

123 de Graaf R, Vanwesenbeeck I, van Zessen G, Straver CJ, Visser JH. Male prostitutes and safe sex: different settings, different risks. *AIDS Care* 1994;6:277-88.

124 Tran TN, Detels R, Hien NT, Long HT, Nga PTH. Drug use, sexual behaviours and practices among female sex workers in Ha Noi, Viet Nam - a qualitative study. *Int J Drug Policy* 2004;15:189 - 195.

125 Alegria M, Vera M, Freeman DH, Jr., Robles R, Santos MC, Rivera CL. HIV infection, risk behaviors, and depressive symptoms among Puerto Rican sex workers. *Am J Public Health* 1994;84:2000-2.

126 Bronzan, R.N. 2004 op.cit.; Osimani 2003. op.cit.; MacRae, R. and E. Aalto 2003. op.cit.

1.5% with a male partner. Thirty-five percent had had unprotected commercial sex.<sup>127</sup>

A study in Sao Paulo, Brazil, found that 40% of HIV infected females were infected through unsafe sexual activity with injecting drug users.<sup>128</sup> A study of the wives of HIV positive male injecting drug users in Manipur, India, revealed that 45% were HIV infected, although none reported ever injecting, and 97% reported having sexual relations only with their husbands. Only 15% reported using condoms at least half the time within the last year. An association was also established between the husband reporting a sexually transmitted infection and HIV prevalence in wives, suggesting either that sexually transmitted infections are a marker of unsafe sexual activity or that they facilitate the transmission of HIV.<sup>129</sup> Studies have found that 8% of sexual partners of HIV infected injecting drug users in the Russian Federation have been infected, compared to 6% in Ukraine and a similar percentage in Belarus. In Argentina, it is estimated that 12% of all HIV infections in women result from unsafe sexual activity with a male injecting drug user.<sup>130</sup>

A consistent characteristic across studies is that injecting drug users are less likely to use condoms with primary sexual partners. In situations where the partner also injects, injecting drug users are also more likely to share injecting equipment with their primary partner. This is illustrated by a study of injecting drug users at needle-syringe programmes in the north-eastern United States, where 54% said they never used a condom with their primary sexual partner compared with 33%, who never used one with non-primary partners. Twice as many injecting drug users reported that they shared injecting equipment with their primary sexual partner as compared with a non-primary partner.<sup>131</sup>

### 3.2.7 Men and women who have same sex partners

Having sex with another man creates additional risk of HIV transmission for male injecting drug users. A survey of this population in Denver in the United States demonstrated high-risk sexual behaviours with multiple partners of both genders. Over 80% had more than one male partner, 20% had non-primary female partners, and 15% exchanged sex for money or drugs. Condom use was inconsistent and infrequent for all types of sex (vaginal, anal and oral) and with all types of partners; 90% injected cocaine and 59% used methamphetamine - drugs associated with risky injecting and sexual practices; 45% of this sample was HIV infected. Significantly, in this study, men who had sex with men and who injected did not identify strongly with either men who have sex with men or injecting drug users.<sup>132</sup> Other studies have shown that men who have sex with men and inject identify most strongly with their drug use rather than their sexual practice.<sup>133</sup>

In a 10-year analysis of the “AIDS Linked to the Intravenous Experiences” (ALIVE) project in Baltimore, the United States, having sex with another man nearly doubled the risk of HIV sero-conversion among injecting drug users.<sup>134</sup> In a study of Latino injecting drug users in New York, compared with heterosexual men, gay men were significantly more likely to have received money or drugs for sex (64% versus 33%), and women who have sex with women were significantly more likely to have had unprotected sex with an injecting drug user.<sup>135</sup>

In Canada, men who have sex with men and who inject were found to be younger than other men who have sex with men and are more likely to be HIV infected,

127 Pisani E, Dadun, Suchaya PK, Kamil O, Jazan S. Sexual behavior among injection drug users in 3 Indonesian cities carries a high potential for HIV spread to noninjectors. *J Acquir Immune Defic Syndr* 2003;34:403-6.

128 Araujo PJ, Andreatzi RC, Gomes RR, Theodosio SBC, Francatto GHF, Zuniga V, Anselmo L, Oliveira MA, Sanches MS, Karter J, Lima JRR, Maerawi IE. Intervention using female condom in a harm reduction project. Proceeding of the XVth International AIDS Conference. Bangkok, 2004.

129 Panda S, Chatterjee A, Bhattacharya SK, Manna B, Singh PN, Sarkar S, Naik TN, Chakrabarti S, Detels R. Transmission of HIV from injection drug users to their wives in India. *Int J STD AIDS* 2000;11:468-73.

130 Sosa-Estani S, Rossi D, Weissenbacher M. Epidemiology of human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome in injection drug users in Argentina: high seroprevalence of HIV infection. *Clin Infect Dis* 2003;37 Suppl 5:S338-42.

131 Rosengard C, Anderson B, Stein MD. Intravenous drug users' HIV-risk behaviors with primary/other partners. *Am J Drug Alcohol Use* 2004;30:225-36.

132 Bull SS, Piper P, Rietmeijer C. Men who have sex with men and also inject drugs-profiles of risk related to the synergy of sex and drug injection behaviors. *J Homosex* 2002;42:31-51.

133 Rhodes F, Deren S, Wood MM, Shedlin MG, Carlson RG, Lambert EY, Kochems LM, Stark MJ, Falck RS, Wright-DeAguero L, Weir B, Cottler L, Rourke KM, Trotter RT, 2nd. Understanding HIV risks of chronic drug-using men who have sex with men. *AIDS Care* 1999;11:629-48.

134 Archibald et al. In Preparation. Op. cit.

135 Diaz T, Vlahov D, Greenberg B, Cuevas Y, Garfein R. Sexual orientation and HIV infection prevalence among young Latino injection drug users in Harlem. *J Womens Health Gen Based Med* 2001;10:371-80.

indigenous, economically disadvantaged, engaged in the trade of sex for money or drugs, and to report having female sexual partners. Marginalisation of this group is compounded by HIV prevention and treatment services, which have a propensity to target either men who have sex with men or injecting drug users but not the intersection between these two groups.<sup>136</sup> In a study of injecting drug users in Montreal, men who had sex with other men were 2.5 times more likely than injectors who did not, to have HIV at study entry.<sup>137</sup>

### 3.3 Conclusions

Despite insufficiencies of data, particularly on non-injecting drug use, there is no doubt that the use of drugs, whether injected or taken otherwise, increases the risk of becoming infected with HIV. If injected, the use of contaminated injection equipment can lead to the rapid spread of the virus in the injecting community and beyond. Certain drugs that are not injected can also increase HIV transmission due to their impact on sexual risk-taking behaviour. The sexual partners of drug users, whether drugs users themselves or not, can spread the virus to the larger community, particularly if they are commercial sex workers.

Consequently, many researchers and analysts believe that the role of primary drug abuse prevention is widely underestimated and neglected for HIV/AIDS prevention. Also important are interventions to prevent non-injecting drug users from becoming injectors, and to encourage those who inject to consider non-injecting alternatives such as substitution treatment.

For example, in Eastern Europe and Central Asia, drug use starts at a very early age and traditional HIV prevention strategies addressing injecting drug use may not be appropriate. In countries of Latin America, where crack use is widespread, interventions addressing injecting drug use may miss the role this drug plays in the

sexual transmission of HIV. In South and South-East Asia, we are currently witnessing a large epidemic of ATS use, but we know very little about how this will impact the HIV situation in the region. The number of injection drug users in China and India is on the increase, as are the HIV/AIDS rates among these drug users, which indicates that not enough is being done in primary and secondary drug use prevention. And even in the advanced HIV epidemics of Africa, increased drug use and injection drug use could diminish the impact of prevention campaigns aimed at sexual behaviour.

Worldwide, we are witnessing a feminization of the HIV/AIDS epidemics, meaning that the share of people living with HIV/AIDS who are women is steadily increasing. Unfortunately, there appears to be a parallel process among drug users. The number of female drug users, particularly of injecting drug users, is increasing in many parts of the world. Some of them are partners of male drug users, some are sex workers using drugs to cope with the strains of their profession. Interventions for female drug users face a number of dilemmas, because they are particularly hard-to-reach, highly stigmatized and extremely vulnerable to HIV infection. Interventions have been developed mainly for male injecting drug users, and these interventions do not take into account the particular needs and characteristics of female drug users. While there is increasing knowledge on what needs to be done, good intervention modalities have still not been developed and implemented on a sufficient scale. The information from this chapter, however, indicates that there is an urgent need to develop these interventions.

The message of this chapter is clear. Both injection and non-injection drug use need to be targeted in efforts to reduce the spread of HIV. To be able to do so effectively, more information on non-injection drug use and its implication for HIV transmission is needed urgently.

<sup>136</sup> Choi KH, Coates TJ. Prevention of HIV infection. *Aids* 1994;8:1371-89.

<sup>137</sup> Archibald et al. In Preparation. Op. cit.