Chapter II: Drivers of the Epidemic: Major Risk Factors, Risk Behaviours, and Groups at Risk

Knowledge of epidemiological trends can only guide policy makers if the mechanisms by which HIV is transmitted from one individual to another, and the circumstances and behaviours that are conducive to the spread of the epidemic, are thoroughly understood. Such an understanding must begin with the identification of high-risk behaviours and environments. The former include unsafe use of injecting drug equipment, substance dependencies, unsafe homo- and heterosexual relations with multiple partners, and sex work. Environmental risks include poverty, migration, imprisonment, social exclusion, and discrimination on the basis of ethnic, sexual, and other criteria. This chapter explores information about the extent and consequences of such risk elements in the countries of Central and Eastern Europe and the Commonwealth of Independent States.

While substance dependency and other high-risk behaviours are often linked to poverty and socio-economic deprivation, claims of direct, causal links between poverty, substance abuse, and HIV/AIDS are simplifications. Groups and individuals with similar socio-economic characteristics can have significantly different risks of substance abuse, or of contracting HIV. Only a small percentage of the millions of people in the region who are living in poverty develop substance dependencies, and only a subset of these have contracted infectious diseases. In order to understand the drivers of epidemiological trends, combinations of mutually aggravating risk conditions that put otherwise similar individuals at different levels of vulnerability vis-á-vis HIV must be identified.

High Risk Behaviours and Environmental Factors

Economic hardship and insecurity, the erosion or relaxation of rigid social controls, and the armed conflicts that accompanied and followed the collapse of the Soviet Union and socialist Yugoslavia, combined with greater drug availability in the region to create propitious conditions for increases in injecting drug use since 1989. This is not an unprecedented historical phenomenon: large increases in drug use were recorded in Russia during the first world war and after the civil war of 1918-1920[48]. Nor is it unique to this region. Similar patterns of rapidly deteriorating health (particularly among adolescents and young adults), combined with sharp increases in substance dependencies and HIV and tuberculosis epidemics, have been documented in inner cities in the US and in urban centres in the UK. These phenomena have been described as 'societies fractured by changing circumstances' in which traditional values and support networks have been disrupted without being replaced with new ones. Such circumstances can produce large numbers of people, particularly young men, whose outlook is marked by futility, lack of purpose, and emotional emptiness and despair[49].

Claims of direct, causal links between poverty, substance abuse, and HIV/AIDS are simplifications

The available data strongly suggest that HIV risks in this region are multiple and heavily concentrated, socially, geographically, and demographically. Persons and groups most vulnerable to HIV/AIDS are generally exposed to other risks as well. Substance use, multiple sexual partnerships, infrequent condom use, and frequent sexually transmitted infections are

[48] Conroy, M.S. 'Abuse of drugs other than alcohol and tobacco in the Soviet Union', *Soviet Studies* 1990 42(3): 447-80.
[49] McKee, M. 'Substance use and social and economic transition: The need for evidence', *International Journal of Drug Policy* 13 (2002).

combined with social exclusion, discrimination and repressive legislation, and are concentrated in high risk groups.

Most HIV epidemics in industrialised countries start in high risk populations, and all European countries have experienced either low level or concentrated epidemics. Most new transmissions occur within high risk groups, with only limited 'spill over' into larger, lower risk populations. Prospects for a more generalised epidemic, in which risks to larger populations become significant, depend crucially on the characteristics of so-called 'bridging populations' and 'bridging behaviour'. The sexual partners of injecting drug users, female partners of bisexual men, and clients of sex workers (who are often drawn from certain migratory occupational groups, such as truck drivers) are examples of bridging groups. Use by sex workers of injecting drugs is an example of 'bridging behaviour'. The data in Table 3

Table 3: Estimated size of core population groups at high risk of HIV by country

Country	Injecting drug users (Prevalence in %)	Men having sex with men[50]	Sex workers (male and female)	Prisoners[51] (rate per 100,000)
Albania	10,000 (0.4)	40,000 – 50,000	6,000 – 8,000	3,000 (90)
Armenia	7,000 – 11,000 (0.18-0.3)	N/a	9,000 – 11,000	4,400 (114)
Azerbaijan	15,000 – 150,000 (0.2-2.0)	10,000-15,000 (Baku)	8,000 – 10,000 (Baku)	17,800 (217)
Belarus	41,000 – 51,000 (0.4-0.5)	45,000 – 77,000	10,000 – 25,000	55,000 (554)
Bosnia and Herzegovina	11,500 (0.5)	30,000-50,000	4,000 – 7,000	2,400 (60)
Bulgaria	30,000 (0.43)	20,000-30,000	30,000	9,500 (119)
Croatia	2,000 – 23,000 (0.04-0.5)	20,000 – 50,000	5,000 – 10,000	2,600 (59)
Czech Republic	25,000 – 30,000 (0.24-0.3)	50,000 – 100,000	12,000 – 21,000	16,600 (162)
Estonia	10,000 – 15,000 (0.72-1.1)	5,000 – 12,000	3,000 – 5,000	5,000 (361)
Georgia	40,000-50,000 (0.8-1.0)	10,000	10,000	7,400 (198)
Hungary	2,900 – 25,000 (0.03-0.25)	26,000 – 130,000	3,000 – 17,000	17,900 (176)
Kazakhstan	97,000 - 250,000 (0.6-1.55)	20,000 – 150,000	20,000 – 50,000	84,000 (522)
Kyrgyz Republic	19,000–100,000 (0.38-1.6)	50,000	3,300	19,500 (390)
Latvia	9,000 – 12,000 (0.4-0.5)	6,000 – 19,000	4,000 – 15,000	8,100 (352)
Lithuania	7,000 – 11,000 (0.2-0.3)	17,000 – 44,000	5,000 – 8,000	11,400 (327)
FYR Macedonia	6,000 – 10,000 (0.3-0.6)	5,000 – 17,000	3,000 – 5,000	1,300 (64)
Moldova	34,000 – 52,000 (0.12-0.18)	N/a	N/a	11,000 (300)
Poland	77,000 – 116,000 (0.2-0.3)	105,000 – 310,000	42,000 – 83,000	83,000 (215)
Romania	89,000 – 112,000 (0.4-0.5)	60,000 – 120,000	23,000 – 47,000	47,400 (212)
Russian Federation	1,500,000 – 3,500,000 (1.01-2.4)	400,000 – 2,000,000	150,000 – 300,000	875,000 (611)
Serbia and Montenegro	6,000-30,000 (0.05-0.3)	35,000 – 90,000	11,000 – 19,000	6,300 (70)
Slovakia	11,000 – 16,000 (0.2-0.3)	15,000 – 45,000	6,000 – 12,000	7,500 (138)
Slovenia	5,000 (0.25)	3,000 – 7,000	2,000 – 3,000	1,100 (56)
Tajikistan	2,000 – 62,000 (0.2-1.03)	60,000	5,000	11,000 (175)
Turkey	1,000 – 133,000 (0.0-0.2)	100,000-300,000	18,000 – 40,000	64,200 (90)
Turkmenistan	9,000 - 50,000 (0.2-1.0)	N/a	700 – 1,300	22,000 (489)
Ukraine	400,000 – 600,000 (0.78-1.17)	200,000	45,000 – 55,000	200,000 (413)
Uzbekistan	65,000 - 150,000 (0.3-0.6)	70,000 – 210,000	14,000 – 28,000	65,000 (255)

Source: WHO EURO data collection (2003)[52].

[50] Estimates of populations of men having sex with men can only be compared great caution. Some estimates are of the 'core' population (self-identified gay men), while others pertain to the total numbers of men who have had sexual contact with other men in their lifetime.
[51] International Centre for Prison Studies (2003), http://www.kcl.ac.uk/depsta/rel/icps/worldbrief/europe.html
[52] Data in the WHO EURO databases are drawn mainly from official national sources, and are generated by national surveillance, service providers, and NGOs, or by such international organisations as the UN Reference Group on injecting drug users. Where no published or official data are available, preliminary estimates made by national experts during a workshop on estimating and modelling the HIV/AIDS epidemic in Europe are used. This workshop was jointly organised by WHO EURO and UNAIDS in summer 2003.

show estimates of the size (and, in the case of injecting drug users, prevalence rates) of four key high risk groups: injecting drug users, men who have sex with men, sec workers, and prisoner.

The behaviours and environments identified above show significant overlaps. Many injecting drug users, particularly women, report receiving money for sex, while a significant share of homosexual men report using injecting drugs. Members of marginalised groups (the poor or ethnic minorities—groups that often coincide) who lack sustainable development opportunities are more likely to become sex workers or be involved in drug-related activities (both distribution and use). Links between these 'bridging groups' and their 'bridging behaviours' play an important role in helping HIV to spread from high risk groups to the general population. Prospects for a more widespread, self-sustaining, heterosexually transmitted epidemic are also linked to patterns of sexual activity and social networking, which in turn are often culturally conditioned.

Prospects for more generalised epidemics, in which risks to larger populations become significant, depend on the characteristics of 'bridging populations' and 'bridging behaviour'

Substance abuse and HIV/AIDS

Data on the relationship between substance abuse and HIV in the countries of Central and Eastern Europe and the CIS are limited. Most quantitative and qualitative research concerns injecting drug use, which is the dominant HIV-related risk behaviour in the region. Rapid growth in opium production in Afghanistan (the region's major supplier) has fuelled the growth of heroin markets in Central Asia, the Russian Federation, and Eastern Europe (UNDCP, 1997; UNODCCP, 1999; UNODC 2003). Opium production in Afghanistan is estimated to have grown steadily, from around 500 metric tons in the mid-1980s to over 4500 metric tons in 1999. There was a marked drop in production to 185 metric tons in 2001, but production apparently returned to pre-war levels in 2002.

A number of indicators suggest that CIS countries are playing growing roles in the transhipment of opiates from Afghanistan. Heroin seizures (which are thought to account for 10-20 percent of total shipment) in CIS countries continue to rise, while sharp declines since 2001 have been reported in heroin and opium seizures in countries along the 'southern' trafficking route (Pakistan: down 22 percent; Iran: down 53 percent; Turkey: down 41 percent). Heroin imported from Afghanistan has traditionally been cheap in CIS countries, and it remains more affordable than cocaine, amphetamines, and other drugs. For example, the wholesale price of Afghan heroin in Tajikistan reached an historic low of $1,200 per kilogram in early 2001. Heroin seizures at that time tripled in size, further indicating that Tajikistan had become a very significant outlet for Afghan heroin[53]. The security benefits to CIS (particularly Central Asian) countries associated with the military removal of the Taliban regime during 2001-2002 seem to have been offset by the human costs of substantial increases in the trafficking and use of opiates from Afghanistan.

Male-to-male Sex

Sex among men has been a key HIV transmission mode in Western Europe and in North America. While the data indicate that injecting drug use is playing this role in Central and Eastern Europe and the CIS, the stigmatisation (and in some countries criminalisation) of homosexuality ensures that HIV transmission via male-to-male sex is often underreported. The importance of this transmission mode is therefore underestimated in the region, probably significantly so.

Although homosexuality and male-to-male sex are no longer strictly criminalised in most of the region, legal and social factors continue to stigmatise and marginalise members of this vulnerable group. Since homosexuality in many countries was decriminalised as a result of external pressure (particularly from the Council of Europe), the extent of change in social attitudes and the behaviour of law enforcement agencies remains questionable. Men involved in male-to-male sex are still victims of violence, discrimination and social exclusion,

[53] *Global Illicit Drug Trends* 2002. UNODC, (2003).

making them more vulnerable to HIV/AIDS than would otherwise be the case.

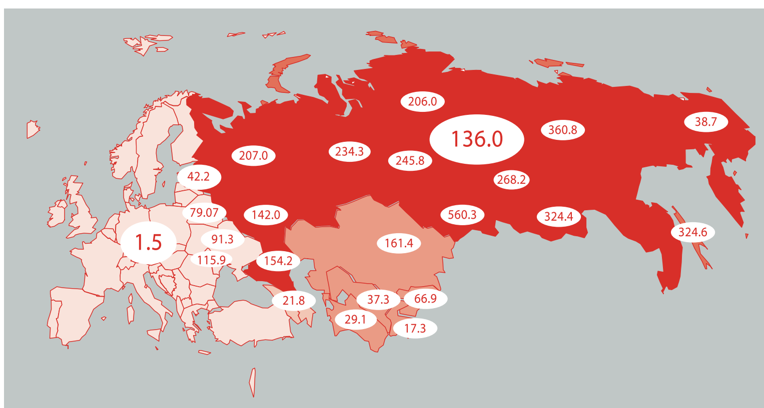
As with sex work, it is risky behaviour-chiefly unprotected anal intercourse-that carries with it the major risk of HIV transmission, rather than sexual identity. Additional risks are associated with sexually transmitted infections, multiple partners, substance use, and other factors described elsewhere in this chapter. These risks are often widespread, multiple, and simultaneous[54].

Very little research has been done on the extent of male-to-male sex in the region. In a national representative study in Russia, 2 percent of men self-identified as homosexual. Large-scale studies in Western countries show that 3-20 percent of men (sometimes more) have had some sexual experience with other men during their lifetime, and that 2-4 percent self-identify as homosexual[55]. Estimates of bisexuality vary greatly.

The limited data from the region that are available suggest that a high proportion of men who have sex with men also have female sexual partners, and thereby constitute a bridge to lower risk populations. In a study of 175 male sex workers in Moscow, only 52 percent of the respondents reported being sexually attracted exclusively to men. Some 10 percent were married to a woman and 16 percent had a steady female partner[56]. Surveys conducted in Belarus, Ukraine, the Kyrgyz Republic, Kazakhstan, Uzbekistan, Russia, and Tajikistan have documented the existence of extensive underground networks of men having sex with men. They also suggest that high risk forms of sexual behaviour are common. In St. Petersburg, in a study of 434 men attending any of the city's five gay nightclubs, the lifetime mean number of male partners was found to be 62. Only 43 percent of men surveyed who engaged in anal intercourse reported consistent condom use. In a Ukrainian study of men who have sex with men conducted in Kyiv, Mikolaiv, and Odesa in 2001, 41 percent did not use condoms because of cost; only 21 percent reported consistent condom use for anal sex.

More epidemiological research on male-to-male sex clearly needs to be done in this region, in order to design and implement effective prevention programmes. As in the case of injecting drug use and sex work, moralistic or repressive approaches generally reduce the effectiveness of HIV/AIDS prevention activities.

Figure 9:
Reported syphilis cases per 100,000 population, 2000-2001. Source: WHO/EURO, 2002



Sexually Transmitted Infections

Levels of sexually transmitted infections are an important indicator of risk or vulnerability to HIV. In addition to being a relatively good marker of unsafe sex, sexually transmitted infections facilitate the physiological transmission of HIV. Most of the available information about sexually transmitted infections in the region concerns syphilis and gonorrhoea, and takes the form of case reports. The data in Figure 9 show that rates of syphilis in some countries in the region are nearly 100 times higher than in Western Europe.

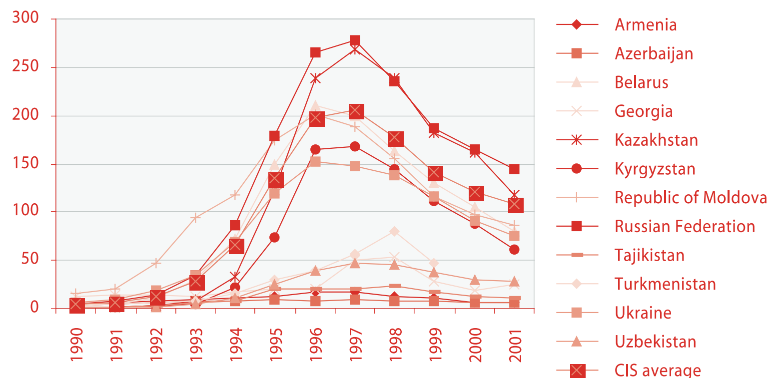
[54] J.A. Kelly, Y.A. Amirkhanian, P. Csepe, E. Kabakchieva, and T.L. McAuliffe: *High levels of HIV risk behaviour among men who have sex with men in Russia, Hungary, and Bulgaria* (2002).
[55] Vannappagari, Vani, and Robin Ryder. *Monitoring Sexual Behaviour in the Russian Federation. The Russia Longitudinal Monitoring Survey*. Report submitted to the U.S. Agency for International Development. Carolina Population Centre, University of North Carolina at Chapel Hill, North Carolina. April 2002. Online http://www.cpc.unc.edu/projects/rlms/papers/sex_01.pdf.
[56] *The Study of Sexual Behaviour of Male CSW's in Moscow*. PSI Russia (1999).

Fortunately, as Figure 10 shows, systematic declines in rates of sexually transmitted infections have been observed across the region now for six years. But these rates are still very high in comparison with other parts of Europe. These declining trends in reported syphilis cases may well depict actual decreases in incidence resulting from better diagnostic and treatment programmes. But these declines could also be a reflection of the natural cycle of the epidemic. In some countries, they could indicate growing underreporting by deficient surveillance systems. Growing numbers of patients may for example be seeking treatment in the private health clinics, which are less likely to report detected cases than are state-run facilities.

The monitoring of sexually transmitted infections by surveillance systems in the region is often even less sophisticated than those for monitoring HIV/AIDS. Data collected through case reporting are insufficient for monitoring outbreaks or for detailed analysis. Background information on sexually transmitted infections, including gender, behavioural risks, age, and geographic distribution, is generally poor and incomplete.

Significant improvements in the surveillance of sexually transmitted infections are needed in almost all of the countries, in order to better understand and monitor risks associated with sexual behaviour. In Western Europe, the incidence of sexually transmitted infections in such population sub-groups as gay men or immigrants is monitored, and extensive epidemiological contact tracing helps to identify situations and environments in which transmission risks are high and where intensified preventive interventions would be most beneficial. Such case management and surveillance practices are rare in Central and East European and CIS countries, or at least the associated data are not publicised or analysed. Likewise, few countries have national programmes to prevent sexually transmitted infections. Some countries in the region have started to adopt WHO recommended policies and practices on prevention and care, and are gradually shifting from punitive to more user-friendly approaches.

Figure 10:
Rates of reported syphilis cases per 100,000 population, NIS. Source: WHO/EURO, 2002



Mother-to-child transmission of HIV

HIV can be transmitted from mothers to children during pregnancy, labour, delivery, and breastfeeding. Initially large numbers of paediatric HIV cases in Western Europe significantly decreased after 1995 with the large scale introduction of prevention techniques. But despite this knowledge of how to prevent mother-to-child transmission, rapidly growing numbers of HIV-infected women in East European and CIS countries have caused sharp increases in mother-to-child transmissions since 1996. These have been recorded mostly in Ukraine and Russia, which together account for over 78 percent of all reported mother-to-child transmission HIV cases in Europe since the beginning of the epidemic. Growing mother-to-child-transmission is beginning to change the gender profile of the epidemic[57] in these countries: UNAIDS reports that the share of women (including new born girls) in total numbers of new HIV diagnoses in Russia rose from 24 percent in 2002 to 33 percent in 2003[58].

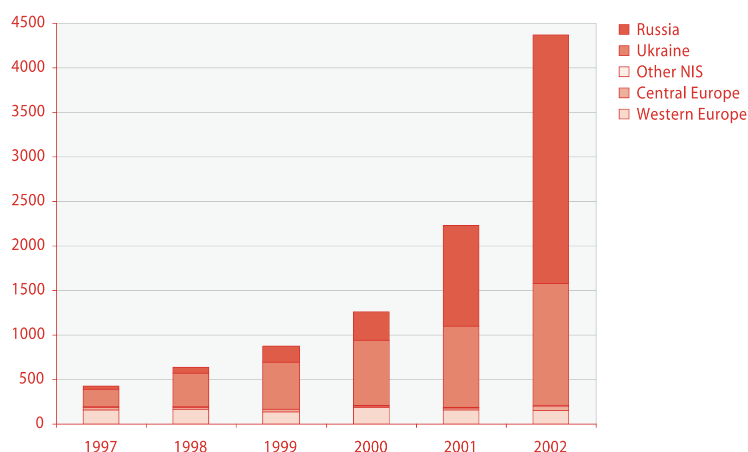
Rapidly growing numbers of HIV-infected women in East European and CIS countries have caused sharp increases in mother-to-child transmissions since 1996

Large scale interventions to prevent mother-to-child transmission have been introduced in Ukraine and in some parts of the Russian Federation. The introduction of modified surveillance of mother-to-child transmission, in line with the case reporting and definitions used in

[57] EuroHIV, 2003.
[58] UNAIDS, *AIDS Epidemic Update*, December 2003, Geneva, p. 15.

the rest of Europe[59], would help to show the impact of these interventions and provide an accurate picture of mother-to-child transmission in these countries.

Figure 11:
Newly reported HIV infections through mother-to-child transmission in Western, Central, and Eastern Europe, 1997-2002. Source: EuroHIV (2003)



Treatment and care for people living with HIV/AIDS are integral parts of a comprehensive response to the epidemic

HIV transmission through blood transfusions, infected blood products, and unsafe health care practices were key drivers in the early years of the epidemic in the region. Equitable access to safe blood products is necessary to prevent the spread of such serious blood-borne diseases such as syphilis and hepatitis B and C, as well as HIV. Romania's dramatic HIV epidemic among children in the early 1990s, which was due to fatally unsafe health care practices, is a graphic example of what can happen if blood safety and safe injecting are not taken seriously.

Treatment and care for people living with HIV/AIDS are integral parts of a comprehensive response to the epidemic. Prevention of HIV infection, and treatment and care for those already infected, are often mutually reinforcing and complementary activities. People living with AIDS require access to health care facilities, particularly in order to receive correct regimes and dosages of antiretroviral drugs. Inadequacies in health care infrastructures can therefore constitute another source of health system related risk.

Major Groups at Risk

The risk factors and behaviours outlined above may appear in different combinations among different groups. For example, injecting drug usage can be safe or unsafe, from an HIV/AIDS perspective. It can occur among relative well educated casual drug users, or in prisons with appalling sanitary conditions. Different combinations of risk factors among different groups require differentiated approaches to analysing the particular groups exposed to major risks.

Injecting Drug Users

According to UNODC estimates, heroin use in the region significantly exceeds levels reported in North America and Western Europe[60]. National data suggest that, on average, 60-90 percent of drug users inject heroin, albeit with great variations between countries and individual cities. Rates of heroin smoking are also more than twice as high as those in Western Europe. UNODC estimates that 2.7 million people in this region were using opiates in the late 1990s (1 percent of the total population over the age of 15), mostly via injection[61].

Estimating the number of injecting drug users is difficult, since the stigmatisation and criminalisation of drug use ensures that it often remains hidden. It nonetheless seems clear that, until the late 1980s, injecting drug use in this region was relatively infrequent. Its subsequent growth use reflects not only overall increases in drug supply, but also changes in local production and consumption patterns, and the effects of increased travel and migrati-

[59] Both Russia and Ukraine report to EuroHIV the number of children born to HIV positive mothers. This deviates from standard international practice (which features the reporting of positively diagnosed HIV infected infants) and somewhat distorts the epidemiological picture. But even with the average 20-25 percent transmission rates observed elsewhere, the Russian Federation and Ukraine would have the disproportionate burden of 2,000-3,000 HIV infected infants annually.
[60] *Global Illicit Drug Trends 2002*, UNODC, 2003, Vienna.
[61] *Ibid.*

on. The region has also experienced dramatic social and political changes and armed conflicts, which in many countries have entailed sharp declines in living standards. Unemployment has increased, while access to housing, health care and social services has deteriorated in many countries (especially in the CIS). Mortality rates in many CIS countries have increased, as has incidence of cholera, tuberculosis, diphtheria, and sexually transmitted infections. Socio-economic pressures have encouraged the growth of informal and illicit economic activities, including drug trafficking. The breakdown of old social orders has also contributed to increased drug consumption and promoted risky sexual behaviour. The proximity of many CIS countries to West Asian areas of drug cultivation or trafficking routes has made drugs more available.

In many countries in the region, 'home made' opiates and stimulants for injecting use are produced, trafficked, and consumed, following in the tradition of home-brewed vodka, brandies, and other heavy liquors. Opium poppies and poppy straw are processed with household chemicals to produce opium alkaloid solutions, which are then injected. In Central Asia, and in parts of the Caucasus and Western CIS, smoking and ingesting opium are traditional among older people.

For most EU counties, AIDS incidence related to injecting drug usage seems to have peaked around 1993-1994. HIV prevalence is accordingly stable or declining in most EU countries. But while the available data suggest that many Central and East European countries may now be following the same trend, the dubious quality of some of these data, and the scale of the region's development challenges, argue against complacency.

Although some surveys have been conducted at the sub-national or city level, most data for HIV prevalence among injecting drug users come from country-wide diagnostic testing[62]. Behavioural and serological surveillance of injecting drug users is, at best, incomplete for most countries in the region. Prevalence studies suggest that there are strong differences in injecting drug use and related HIV epidemiological trends between the western and eastern parts of the region, between countries within the same sub-region, and between cities and rural areas within countries.

Broadly speaking, HIV epidemics related to injecting drug use have developed in a number of countries (most notably in Belarus, Estonia, Russia and Ukraine) and in specific geographic locations within those countries (Svetlogorsk in Belarus, Narva in Estonia, Irkutsk, Moscow, Togliatti, and Rostov-na-Donu in the Russian Federation, and Odesa and Mikolaiv in Ukraine). While few HIV prevalence studies among injecting drug users have been conducted, the testing that has been done points to consistently high levels of HIV infection—a result that is consistent with available information on unsafe injection practices. Even fewer data are available on risk behaviours of injecting drug users (e.g., the scope of needle and syringe sharing, syringe hygiene, numbers and types of sexual partners). Syringe sharing appears to be widespread, and the common use of other paraphernalia (cookers, filters, etc.) and other unsafe injection practices seem too frequent. Common usage of a single container while injecting home-made drugs is a special cause for concern. A synthesis of 63 rapid assessment studies conducted during 1998-2000 in Russia yielded rates of syringe sharing in the 40-60 percent range. In 2001 in Togliatti (Russia), 84 percent of injecting drug users reported syringe sharing. In 2000, 22 percent of drug users undergoing treatment in Estonia reported sharing syringes in the previous month. In Ekaterinburg (Russia) in 1998, 86 percent of drug users had shared injection equipment in the past month[63], in Moscow, 35-41 percent of injecting drug users reported sharing equipment.

Epidemiological models for the region and empirical data from other regions point to the increasing importance of sexual transmission of HIV among injec-

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[62] Hammers, F. and Downs A., *HIV in Central and Eastern Europe*, Lancet 2003; 361: 1035-44.
[63] A.A. Golubkova et al., 'Behaviour of injecting drug users that leads to HIV infection', *Epidemiology of Infectious Disease* (2000) 4:32-35.

Sex work is highly stigmatised and criminalised in the countries of Central and Eastern Europe and the CIS. Because of this, many sex workers are victims of violence and police harassment

ting drug users as the epidemic progresses. Sexual contact can become the dominant transmission mode in mature epidemics. The growing importance of the sexual transmission of HIV in this region is the inevitable result of rising HIV prevalence among injecting drug users. In addition, some female injecting drug users rely on sex work to supplement their incomes.

Sex Workers

Sex work is highly stigmatised and criminalised in the countries of Central and Eastern Europe and the CIS. Because of this, many sex workers are victims of violence and police harassment. Such attitudes on the part of law enforcement agencies (and societies more broadly) make sex workers more vulnerable to HIV/AIDS than would otherwise be the case, and increase the likelihood that their clients will transmit HIV to broader population groups. This increases the probability of wider, self-sustaining heterosexual epidemics—as has occurred in other regions.

The vast majority of those who exchange sex for money, favours, or drugs are women, although fragmentary data from the region suggest that 5-10 percent of sex workers are male. As with male-to-male sex and injecting drug use, sex work is not a risk factor in and of itself. The risk is instead a reflection of the legal, cultural, health, and socio-economic conditions in which sex workers find themselves.

There is relatively little systematic data on sex work in the region, and the figures that are available show great variety across locations and studies. Still, most of these data, such as those shown in Table 4 above, suggest that the extent of sex work in the region should be cause for concern, particularly in CIS countries. They also point to a co-mingling of risk factors associated with sexual behaviour and injecting drug use. In Kazakhstan, 14 percent of injecting drug users reported engaging in sex work in the previous six months[64]. In Togliatti (Russia), one study found that 43 percent of injecting drug users were also sex workers, while in St Petersburg 28 percent of injecting drug users reported receiving money for sex. A survey of injecting drug users in six Russian regions found that one quarter to one third of all injecting drug users surveyed had had sex with a sex worker in the past year, and that 10-15 percent of injecting drug users surveyed exchanged sex for drugs or money. Fortunately, those surveyed reported significantly higher (up to 50 percent more often) condom use rates than did respondents with casual sexual partners[65]. A survey of men who have sex with men conducted in gay venues in Budapest in 2001 found that 17 percent of those surveyed exchanged sex for money[66]. Data on condom use also vary greatly. Results of the Russian longitudinal survey shows that 36 percent of 21-30 year-olds and 44 percent of 41-49 year-olds used condoms when sex was exchanged for money or gifts—a lower frequency than when having non-commercial sex[67]. HIV prevalence among sex workers is not surprisingly often high, and evidence suggests that it is increasing.

Prisoners

HIV spreads quickly through sex and shared needles in the region's prisons. The risk and incidence of HIV are higher in prison than in the general population for at least three reasons. First, the prevalence of sexually transmitted infections, which encourage the spread of HIV, is higher in prisons in this region (as in other parts of the world). Second, a relatively high percentage of prisoners are incarcerated for sex work and drug use that increase their likelihood of contracting HIV. Third, risk

[64] Centre on public opinion research, *Behavioural Surveillance among Injecting Drug Users in Nine Cities in Kazakhstan*, Almaty, 2002.
[65] UNAIDS *et al., The Technical Report: Development, adaptation and field testing of the tools for measuring of biological and behavioural markers used in HIV surveillance in the groups of injecting drug users in the selected cities of the Russian Federation*. St. Petersburg, 2002.
[66] Csepe P. *et. al.*, 'HIV risk behaviour among gay and bisexual men in Budapest, Hungary', *International Journal of Sexually Transmitted Diseases and AIDS* (March 2002), 13(3):192-200.
[67] Vannappagari, Vani, and Robin Ryder. *Monitoring Sexual Behaviour in the Russian Federation. The Russia Longitudinal Monitoring Survey*. Report submitted to the U.S. Agency for International Development. Carolina Population Center, University of North Carolina at Chapel Hill, North Carolina. April 2002. Online http://www.cpc.unc.edu/projects/rlms/papers/sex_01.pdf.

behaviours in prison, such as sharing needles and forced or voluntary sex between men, involve a high risk of infection.

There were some 1.7 million inmates in the region's penal systems in early 2003[68]. The vast majority of these inmates are young men, who statistically are the most vulnerable to HIV in this region. Incarceration, whether in temporary detention facilities or longer term in prison, is a high-risk environment with dire consequences for people's health in Eastern Europe and the CIS. The prevalence of tuberculosis, HIV, and sexually transmitted infections in these institutions is often orders of magnitude greater than that found outside of the penal system. Overcrowding, poor nutrition, appalling physical facilities, and inadequate medical care—combined with underpaid, poorly trained staff who do not enjoy public respect and are themselves susceptible to corruption—create an environment conducive to poor health in general and violence, substance abuse, and other forms of high-risk behaviours.

The region's limited penal capacities have to cope with some of the highest incarceration rates in the world. The Russian Federation with its 875,000 prisoners (611 per 100,000 population) has the world's second highest incarceration after the United States (2.02 million prisoners, or 702 per 100,000), and the third largest prison population after the US and China (1.5 million prisoners, or 117 per 100,000). Twenty out of 28 countries in this region have incarceration rates higher than China's. In addition to Russia, Belarus, Kazakhstan, Turkmenistan, and Ukraine have more than 400 prisoners per 100,000 population. Only Albania, Bosnia-Herzegovina, Croatia, Macedonia, Poland, Serbia and Montenegro, Slovenia, and Turkey have less than 100 inmates per 100,000, rates similar to those observed in the majority of West European countries.

Prison overcrowding in the region is sometimes so serious that inmates have to sleep in shifts. In the Russian Federation, the average prison space per detainee in 2002 was about two square meters. The slow pace at which the wheels of justice turn means that large numbers of detainees experience months of pre-trial detention. While awaiting trial or sentencing they are exposed to traditional and multi-drug resistant strains of tuberculosis and sexually transmitted infections, as well as HIV. These protracted periods of detention combined with poor prison conditions magnify the risk of contracting deadly diseases, and have been criticised as a form of cruel and unusual punishment prohibited by international law[69]. Since sexual relations and drug use in prisons are prohibited—but often continue anyway—condoms and sterile injecting equipment are generally unavailable. From an epidemiological perspective, the region's penal systems are functioning as incubators for HIV and other infectious diseases.

The risk and incidence of HIV are higher in prison than in the general population

Health data on prison populations are scarce, and in some of the region they are completely unavailable. But the information that is published illustrates the gravity of the problem. In Ukraine, which has one of the highest HIV growth rates in the region, 7 percent of prisoners in 1999 were infected with HIV[70]. This number has almost certainly grown in the four years that have elapsed since then. Prison offici

Table 4: Prisoner population and diagnostic HIV screening in the penitentiary system of the Russian Federation, 1995-2002

	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total number of prisoners (thousands)	929	1017	1052	1010	1014	1060	924	965	875
Prisoners living with HIV	7	13	240	1,460	2,300	4,100	15,100	33,000	36,850
Prisoners living with HIV (per 1000 inmates)	0.008	0.013	0.23	1.44	2.3	3.9	16.3	34.2	42.1

Source: AIDS Foundation East-West (2003).

[68] International Centre for Prison Studies (2003), http://www.kcl.ac.uk/depsta/rel/icps/worldbrief/europe.html
[69] *The CPT Standards*. Council of Europe, European Committee for the Prevention of Torture (2001).
[70] Mikolaiv Charitable Foundation (Blagodijnist), Ukraine, 'Prevention of the HIV/STD Spread,' proposal submitted to the Open Society Institute's International Harm Reduction Development Programme (IHRD), 1999.

Box 2: Prisons as HIV Incubators

Criminal justice systems that throw non-violent injecting drug users into overcrowded, inhumane prisons, where HIV spreads quickly through sex and shared needles, are having disastrous public health consequences in many East European and CIS countries. The region's prison overcrowding both promotes the easy transmission of HIV inside prisons and makes inevitable the eventual release to society of prisoners living with HIV/AIDS. This can completely offset efforts to combat the epidemic outside of prisons. Non-violent drug offenders—many of whom need not be imprisoned in the first place—require better access to harm reduction services, in order to limit the negative consequences of drug use for themselves, other prisoners, and ultimately the public.

Prisons and detention facilities in many East European and CIS countries function as HIV incubators. In Ukraine, which has one of the highest HIV growth rates, 7 percent of prisoners were infected with HIV in 1999, a figure that has almost certainly risen since then[74]. Prison officials in Poland estimate that 20 percent of the country's nearly 7,000 HIV-infected individuals at some point in their lives spent time either in prison or in pre-trial detention. Substandard nutrition, shortages of basic medical equipment, and inadequate light and ventilation are common. Overcrowding is particularly severe: occupancy rates in Romania's prisons, for instance, run from 150 to 700 percent over intended capacity, according to the General Directorate of Penitentiaries; and 20 people share each toilet[75]. In Russia, cells meant for 28 hold up to 110 people, who sleep in shifts while others stand. The manager of Russia's Butyrka prison said, 'Every day I plead with God for bad weather, because when it is too hot, epidemics and deaths are unavoidable' [76]. Violence between prisoners is rife and drugs are available.

Few treatment programmes (if any) exist in these grossly understaffed detention and correctional institutions, and staff are not trained in harm reduction methods. Financial constraints make it hard to find qualified doctors, not to mention psychologists and other specialists.

(Continued on page 35)

als in Poland estimate that 20 percent of the country's nearly 7,000 HIV-infected persons spent time in prison or pre-trial detention at some point in their lives. In Latvia, a fifth of the country's known HIV cases are persons in prison. Half of the new cases reported in Latvia each year are persons that are or have been in the penitentiary system.

In Russia the number of persons imprisoned for non-medical drug use increased five-fold over a three-year period. In seven Russian prisons studied in 2000, 43 percent of inmates had injected drugs, and 13.5 percent started doing so while in prison[71]. About 1 percent of all prisoners reported injecting drugs for the first time while in prison. The results showed that 50 percent of all imprisoned injecting drug users shared needles and syringes, and 10 percent had penetrative sexual intercourse with other prisoners. Similar results have been obtained from other studies, suggesting that up to 20 percent of prisoners use injecting drugs while incarcerated, and shared needles and syringes regularly[72].

Some 37,000 prisoners in the Russian Federation's prison system in 2002 were diagnosed as living with HIV, or about 4 percent of the total prison population. As the data in Table 4 show, this is a sharp increase over rates reported five years earlier. Moreover, about 10 percent of all Russian inmates have been diagnosed as having active tuberculosis, and rates of multi-drug resistant tuberculosis strains among them are as high as 20 percent. Reported syphilis rates in Russian prisons varied between 3 and 4 percent during 1997-2000[73].

Reasonable people may disagree in the abstract about the appropriate balance of punishment and rehabilitation in criminal justice systems. From a practical public health perspective, however, tens of thousands of prisoners are released from the region's overcrowded prisons / epidemiological incubators annually. These individuals are a bridging population that poses a major threat in terms of spreading HIV to the general population. This suggests that initiatives to make prison conditions more humane and to introduce HIV prevention programmes are of critical importance.

[71] Médecins sans Frontières, *Heath Promotion in the Russian Prison System: Prisoner Survey 2000*, Holland, November 2000.
[72] Moscow Helsinki Group, http://www.mhg.ru/english/1F4F76C.
[73] WHO EURO (2002).
[74] Mikolaiv Charitable Foundation (Blagodijnist), Ukraine, 'Prevention of the HIV/STD Spread,' proposal submitted to the Open Society Institute's International Harm Reduction Development Programme, 1999.
[75] General Directorate of Penitentiaries, Romania, 'Education for HIV Prevention in Prisons,' proposal submitted to the Open Society Institute's International Harm Reduction Development Programme, 2000.
[76] Stern, Vivien, *A Sin Against the Future: Imprisonment in the World*, Northeastern University Press, 1998, Boston, p. 75.

Migrants and Displaced Persons

Although published data are scarce, available evidence strongly suggests that migration increases the risk of HIV. The links between them range from statistically significant relationships between travel away from place of permanent residence (often abroad) and increased rates of sexually transmitted infections, to the trafficking of sex workers from the region to Western Europe[77].

At the end of 2001, some 3.7 million people were classified as refugees, internally displaced persons, asylum seekers, stateless persons and forced migrants in Central and Eastern Europe and the CIS, some 18 percent of the global total. Armenia, Azerbaijan, Bosnia-Herzegovina, Georgia, Kazakhstan, Russia, and Serbia and Montenegro each reported between 100,000 and a million migrants in those categories[78]. Additional millions are temporarily migrating in search of work within and outside of the region.

Migration and displacement are often associated with difficult living conditions, which can facilitate risk behaviour in terms of sex and drug use. As such they increase vulnerability to HIV/AIDS. These groups generally have less access to prevention, treatment, and care services. A recent UN study (reviewing national progress on the implementation of the Declaration of the UN General Assembly Special Session on HIV/AIDS[79]), found that 40 percent of the Central and East European and CIS countries had not introduced national policies to provide HIV/AIDS and health information to migrants.

Box 2 *(continued from page 34)*

While the extent of HIV in prisons is not known, it appears that the risk of HIV infection is higher in prison than in the general population. A recent study by Médecins Sans Fronti_res discovered that 43 percent of the inmates in seven Russian prisons had injected drugs, and of those 13,5 percent had started doing so in prison[80].

Even when prisoners do not start out as users, the prison environment can help them to become users. One fifth of Latvia's known HIV cases are in prison, and half of the new annually reported cases are coming out of the penitentiary system. While the total number of HIV cases in Latvian prisons is low, it is telling that of them 87 percent are injecting drug users[81].

Prison overcrowding in the region is partly due to unbalanced 'zero tolerance' drug policies that emphasise criminalisation over public health concerns. Poland in October 2000 passed zero tolerance legislation that led to increased prosecution of and longer criminal sentences for drug users. This has been reflected by a change in attitude, away from treatment toward punitive discipline[82]. In Russia, which already has the highest imprisonment rate in the world, the number of people imprisoned for non-medical drug use has increased five-fold during a three year period in the late 1990s[83].

Zero tolerance is a recipe for sending more non-violent drug users into prisons/HIV incubators. It may or may not reduce drug use. But a less effective approach to slowing or halting the spread of HIV is difficult to imagine.

A major rebalancing in criminal justice and public health approaches to drug use—one that emphasises harm reduction activities like needle exchanges and methadone substitution therapy—is therefore needed. Opponents of this rebalancing are in this sense complicit in the spread of the epidemic.

Box based on contribution from Kasia Malinowska-Sempruch

The migration of sex workers is a particular concern. In the past decade, Ukraine, Moldova, and Russia have become significant 'exporters' of sex workers destined for Western, Central and South Eastern Europe. The majority of these are women, and

[77] Wilson, T.E., A. Uuskula, J. Feldman, S. Holman, J. Dehovitz, 'A Case-control Study of Beliefs and Behaviours Associated with Sexually Transmitted Disease Occurrence in Estonia', *Sexually Transmitted Diseases* 2001;28:624-629.
[78] *2002 UNHCR Population Statistics*, United Nations High Commission for Refugees, 2003, Geneva.
[79] *Report of the Secretary General: Progress towards implementation of the Declaration of Commitment on HIV/AIDS*, UN General Assembly, 58th session, 25 July 2003, New York, p. 14.
[80] Médecins sans Frontières, *Heath Promotion in the Russian Prison System: Prisoner Survey 2000*, Holland, November 2000.
[81] Ibid.
[82] Krakow Association for Drug Users Support, Poland, 'Polish Prison Project,' proposal submitted to the Open Society Institute's International Harm Reduction Development Programme, 2000.
[83] Pskovian Anti-AIDS Initiative, Russia, proposal submitted to the Open Society Institute's International Harm Reduction Development Programme, 2000.

many come from countries with high prevalence of HIV and sexually transmitted infections, and therefore represent—along with their clients—a bridging population that can spread those diseases. These individuals are themselves vulnerable to infection. They have very limited or no access to health care services or to other forms of protection from infection, and suffer abuse at the hands of their clients and pimps. More data about the relationship between migration and HIV would be very helpful in designing appropriate policies in this respect.

Conclusions and recommendations

Members of at-risk groups are generally victims of social exclusion, due to poverty (sex workers, injecting drug users), stigmatisation (men who have sex with men), or incarceration (prisoners)

Data from the region about people and behaviours with higher risks of contracting HIV unambiguously point to the socio-economic and governance dimensions of the epidemic. Members of at-risk groups are generally victims of social exclusion, due to poverty (sex workers, injecting drug users), stigmatisation (men who have sex with men), or incarceration (prisoners). The higher prevalence of HIV in the region's overcrowded penal institutions—'HIV incubators'—is a serious cause for concern in this respect.

Reasonable people may disagree in the abstract about the relative weights of crime and punishment, the appropriate legal response to social deviance, or tolerance of 'immoral' behaviour. But the growing socio-economic threat posed by HIV/AIDS strongly suggests that policy makers in many of these countries—particularly in the Western CIS and the Northern Baltics—can no longer afford abstract, moralistic approaches to what could become a devastating public health problem. A better policy balance must be found between exclusion and criminalisation on the one hand, and tolerance, inclusion, and treatment on the other.

In particular, this chapter suggests the following policy recommendations:

• *Penal and judicial reform initiatives—and more broadly efforts to ensure that security forces are subject to effective social control—are issues of public health as well as of the legal system. Support for these reform initiatives needs to be redoubled, and their implementation accelerated.*

• *Fundamental reforms of prison systems are needed, in order to reduce overcrowding, better align punishments with crimes, and help to guarantee the rights of prisoners. To the extent possible, the principle of equivalence-under which prisoners receive the same quality health as the rest of the population—should be adopted.*

• *Harm reduction methods should be broadly introduced in all prisons. More generally, prisons should be seen as places of rehabilitation as well as punishment.*

• *To the extent possible, non-violent drug users should not be incarcerated. One month in prison is enough to get HIV from a shared, infected needle.*

• *The region needs more frank discussion about the socio-economic causes of drug use, homosexuality, the true state of its prisons, and the importance of tolerance for people who differ from the social mainstream. Members of political, social, and cultural elites face particular responsibilities for—and opportunities in—breaking the stigmas and addressing the ignorance surrounding HIV and the behaviours with which it is associated.*