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The role of harm reduction in controlling HIV among injecting drug users

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Abstract

Injecting drug users (IDU) now account for one in 10 new HIV infections world wide. Yet it has been known since the early 1990s that HIV among IDU can be effectively, safely and cost-effectively controlled by the early and vigorous implementation of a comprehensive package of strategies known as 'harm reduction'. This concept means that decreasing drug-related harms is accorded an even higher priority than reduction of drug consumption. Strategies required involve: explicit and peer-based education about the risk of HIV from sharing injecting equipment; needle syringe programmes; drug treatment (including especially opiate substitution treatment) and community development. Many countries experiencing or threatened by an HIV epidemic among IDU have now adopted harm reduction but often implementation has been too little and too late. Although coverage is slowly improving in many countries, HIV is still spreading faster among IDU than harm reduction programmes while coverage in correctional centres lags far behind community settings. The scientific debate about harm reduction is now over. National and international support for harm reduction is growing while almost all the major UN organizations responsible for drug policy now support harm reduction. Only a small number of countries, led by the USA, are still vehemently opposed to harm reduction. Excessive reliance on drug law enforcement remains the major barrier to increased adoption of harm reduction. Sometimes zealous drug law enforcement undermines harm reduction. A more balanced approach to drug law enforcement is required with illicit drug use recognized primarily as a health and social problem.

Keywords

controlling HIV; drug law reform; harm reduction; human rights; IDU; methadone; needle syringe programmes; pharmacotherapy; war against drugs

Introduction

Thirty percent of new global HIV infections now occur outside sub-Saharan Africa (which alone is home to almost 64% of all HIV infections), and of these, 30% now involve injecting drug users (IDU) [1]. This means that the sharing of injection equipment among IDU currently accounts for approximately one in every 10 new HIV infections in the world [1]. HIV spreading among IDU has led to generalized epidemics in at least half a dozen countries [2]. In some countries, HIVepidemics appear to have started with IDU sharing injecting equipment in prison. There are now an estimated 13 million IDU worldwide [1]. Many spend several years of their period as IDU in prison. Injection drug use has been reported in 144 countries worldwide, among which 128 have detected HIV among IDU [3].

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Most HIV transmission between IDU involves the shared use of needles and syringes although other forms of injecting equipment, such as spoons and tourniquets, also make a contribution. As HIV prevalence in this population begins to increase, sexual transmission becomes more important. There are generally more male than female IDU [3]. In developing countries, the proportion of male IDU is usually much higher. This means that most male IDU have female sex partners who do not inject drugs. Inevitably, sexual transmission to these women will later result in transmission to other, possibly non-drug using, men. In many countries, there is considerable overlap between IDU and female sex workers, providing a readily available bridge for HIV to reach the general population. Lack of enthusiasm to prevent HIV spread among IDU is common, but most are prepared to take this problem quite seriously when the magnitude of the risks to the general population are considered.

The number of countries reporting HIV among IDU continues to increase steadily. Although HIV spread extensively among IDU in many western European countries in the 1980s and 1990s, control was generally achieved less than a decade after each of these countries implemented harm-reduction programmes [4]. The combination of direct transmission among IDU through sharing of contaminated injection equipment and indirect transmission to sexual partners and offspring accounts for nearly one-third of cases and approximately half of all new HIV infections in the United States [5]. The United States has by far the highest incidence of AIDS among industrialized countries. HIV spread among IDU in countries in South America is now better controlled after the increasing adoption of harm reduction. IDU account for the majority of new HIV infections in many countries in eastern Europe (including Russia) and central, south and south-east Asia. As Asia accounts for more than half the global population and as HIV sometimes spreads rapidly and unpredictably to the general population, the increasing spread of HIV among IDU in Asia is of great concern. The situation in the Middle East/north Africa resembles the situation in Asia in the early 1990s, with unmistakable evidence of advancing HIVamong IDU in several countries [1].

Trends in global drug production and consumption

During the past few decades, there has been a steady increase in the number of countries reporting injecting drug use. The quantity and range of illicit drugs produced and consumed globally has been increasing inexorably, while the nature and extent of the adverse consequences of illicit drug use have also been getting steadily more serious. Chemical-based drugs are slowly overtaking plant-based drugs because drug law enforcement authorities find it easier to detect plants used for producing illicit drugs with aerial or satellite surveillance. Also, stimulant drugs, such as amphetamine and cocaine, are slowly overtaking depressant drugs such as heroin. Opium production in Afghanistan increased 49% in 2006 and a further 34% in 2007 to reach 8300 metric tons, when it accounted for 93% of global production [6]. In Europe and the United States over the past few decades, the falling price of street heroin and cocaine and the increasing purity of these drugs suggest that drug supply has been increasing faster than drug law enforcement has been able to constrain availability.

In the first half of the 20th century, the United States was the only country reporting substantial injecting drug use. By the end of the third quarter of the 20th century, virtually all developed countries reported injecting drug use. At the end of the century, most developing countries outside Africa reported injecting drug use. Injecting drug use has now been reported in the first decade of the 21st century from a dozen African countries and continues to spread in this vast continent [7].

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The turnover of the global illicit drug industry in 2003 at the retail level (taking seizures and losses into account) was estimated to have been US$322 billion [8]. This exceeds the annual turnover of the international oil and gas industry. A recent confidential report to the UK Cabinet estimated that profit accounted for 26–58% of turnover for major traffickers [9]. Considering the size and profitability of the illicit drug trafficking industry it is hardly surprising that illicit drug production has continued to expand, notwithstanding the vast sums governments have allocated to customs, police, courts and prison. In an increasingly globalized world, preventing the demand for illicit drugs has become increasingly difficult.

Global drug prohibition developed steadily from early in the 20th century and was intensified during the last half century [10]. With the establishment of the United Nations (UN) at the end of the Second World War, pre-existing international arrangements for illicit drugs were gathered into the 1961 Single Convention to prevent the non-medical or non-scientific use of opium, coca and cannabis (and their derivatives). Subsequently, the 1971 Convention on Psychotropic Substances and the 1988 Convention on Drug Trafficking were also signed and ratified by most nations. A number of UN organizations was established to develop, implement and monitor policy [7]. During the last quarter of the century, many countries began to emulate the example of the United States, where the intensification of supply control and the adoption of a harsher rhetoric, often referred to as the ‘war against drugs’, appeared to be politically effective even if few other benefits and some serious harms were identified.

From the 1980s, recognition of the potentially severe costs to communities of the epidemic spread of HIV among and from IDU sparked renewed interest in ‘harm reduction’ as an approach to contain HIV within a global drug prohibition framework.

What is ‘harm reduction’?

‘Harm reduction’ essentially means that reducing the adverse consequences associated with psychoactive drug use is considered even more important than reducing illicit drug consumption [11]. These harms include the health, social and economic costs of both legal and illegal drug use. Harm reduction addresses specific identified risks associated with injecting drug use [12], including immediate, medium and long-term harms to the user and to the wider community. Early discussions on harm reduction emphasized the importance of value neutrality and pragmatism; however, there is an increasing emphasis on articulating the importance of human rights, social justice and inclusive values to underpin the delivery of services [13,14].

Harm reduction involves the recognition that it is far more effective to set and then achieve realistic objectives, even if these aims are suboptimal, than to set out to reach utopian goals and then fail to achieve them. In other words, ‘80% of something is better than 100% of nothing’. The spirit of harm reduction is also well expressed in the public health maxim of ‘never letting the best be the enemy of the good’.

Harm reduction is a concept that has been used extensively in public health for a very long time, but the term and the concept only began to be associated with responses to illicit drug use after the recognition of the importance of controlling HIVamong IDU in the 1980s. Harm reduction is a pragmatic approach that is focused on outcomes. As Churchill said ‘however beautiful the strategy, you should occasionally look at the results’. Harm reduction accepts that in the real world, most progress is made slowly in incremental steps rather than in heroic overnight bounds.

Harm reduction conflicts with the drug policy orthodoxy of zero tolerance, which rejects any illicit drugs use as intolerable. In essence, this is the age old battle between a deontological

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approach emphasizing righteousness, and a consequentialist approach emphasizing outcomes [15].

There is no inherent contradiction between harm reduction and the promotion of abstinence from drugs provided that efforts to achieve abstinence still ensure that reducing harm remains the paramount concern [16]. Enduring abstinence is, after all, the ultimate way to minimize harm. Abstinence after drug dependence has been established is, however, inevitably precarious as relapse to drug use is an ever-present risk, especially if abstinence has only recently been achieved. As relapse is often accompanied byextensive harm, clinicians and policy makers who work within a harm reduction framework are generally cautious about promoting abstinence in individuals who are ambivalent about abruptly abstaining. Importantly, many drug users are simply unable to abstain, whereas others are unwilling to stop using drugs. For some living disadvantaged and wretched lives, drug use is a means of survival however unappealing that may be to others living more comfortable lives. While drug use continues in these marginalized groups, efforts to reduce harm are self-evidently important and are the only feasible and immediately available option. Importantly, reducing drug-related harm not only benefits individual drug users but also benefits their families and their communities.

Controlling HIV among injecting drug users using harm reduction

It has been known since at least the early 1990s that HIV among IDU can be easily controlled by the early and vigorous implementation of a comprehensive ‘harm reduction package’ [17]. This package consists of education, needle syringe programmes, drug treatment and the community development of drug users. The advantage of providing a coordinated package of services is that it provides many entry points for users to obtain access to health treatment from low threshold low intensity contacts to high threshold high intensity treatment and everything in between.

The education of IDU about the HIV risks of sharing injecting equipment should be simple, explicit, peer-based and factual. Basic information is required about behaviours associated with the risk of HIV transmission and practical ways of reducing that risk.

Needle syringe programmes and opiate substitution treatment are often regarded as the hallmark of harm reduction.

Needle syringe programmes are needed to increase the utilization of sterile injecting equipment and decrease the utilization of used injecting equipment, thereby decreasing the circulation time of used needles and syringes. In some countries, sterile injecting equipment can now be purchased from pharmacies and supermarkets and vending machines have been installed in some areas with high populations of IDU. Laws restricting the availability of injecting equipment undermine efforts to control HIV. Some needle syringe programmes emphasize the exchange of new for used equipment whereas others just distribute or sell. These programmes usually provide a great deal of practical education and also serve as important entry points for drug treatment and the provision of other basic services.

Eight reviews of the evidence for needle syringe programmes conducted by or carried out on behalf of US government agencies have concluded that these programmes are effective in reducing HIV and are unaccompanied by serious unintended negative consequences (including inadvertently increasing illicit drug use). More recent reviews commissioned by the World Health Organization (WHO) and the US National Academy of Science came to the same conclusions [18,19].

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Medically supervised injecting centres can also form useful links with users for educational purposes and has been shown to reduce needle sharing [20]. Research undertaken in these services also ensures that updated information exists about what education techniques work best and which aspects of risky practice continue [21].

Drug treatment is also critical, especially opiate substitution treatments. Methadone and buprenorphine maintenance treatment have been shown convincingly to reduce HIV spread. Substitution treatment also ensures that antiretroviral therapy achieves similar results for IDU as it does for other groups. The lack of an effective pharmacotherapy for stimulant (amphetamine, cocaine) injectors is a major problem in the many countries where stimulants are the most commonly injected drug.

Opiate substitution treatment is the most frequently evaluated intervention in all of medicine. Abundant, consistent and compelling evidence supports the effectiveness of methadone maintenance treatment in reducing HIVamong IDU and the achievement of many other important benefits including substantially reducing drug overdose deaths, crime and illicit drug use [22]. Social functioning is also improved during substitution treatment. The ratio of economic benefits to costs is estimated to be approximately four to one [23]. In 2004, the UN Drug Control Programme, UNAIDS and WHO endorsed opiate substitution treatment [24] and WHO included methadone and buprenorphine in the list of essential medicines [25].

Not all drug users accept or benefit from pharmacotherapies so non-pharmacological treatments should generally also be provided (even though evidence of effectiveness is weak). Counselling can be useful for many users, and early childhood interventions and family therapy strategies have been found to be very effective in reducing drug use [26,27]. These strategies focus on identifying psychosocial indicators for drug use and working within vulnerable communities. Disappointing results from education programmes aimed at young people have shown that a broader approach is necessary. Greater success may be achieved by identifying and reducing risk factors such as individual characteristics, family factors and peer relationships, along with structural determinants such as poor education, housing, health services and employment opportunities [28,29].

Whereas the emphasis of drug treatment from an HIV control perspective is always appropriately focussed on IDU, it is also important to offer assistance to people who consume drugs without injecting (such as those who smoke or snort drugs). This includes responding effectively to factors that increase the likelihood of drug users moving to injection use. Some who take drugs without injecting may switch to injecting if street drug prices increase or purity declines. Lack of assistance for people who consume drugs without injecting but have developed problems provides a perverse incentive for these people to begin injecting in order to get help. In essence, increasing the reliance on drug law enforcement as the major community response to illicit drugs carries an inherent risk of encouraging a shift from non-injecting routes of administration to injecting.

As with any medical treatment for any condition, harm reduction services must draw and retain large numbers of patients for long periods to have an impact at the population level. They need to be effective in reducing the harms of using including HIV, but importantly, they must also be attractive and useful to the populations who need to attend them.

Drug users have defied attempts to develop a standardized typology. They are as diverse as the general population from which they come, and are not a static group. Some users are not known or suspected to be IDU, whereas others fit the stereotypical image many have. Although the use of illicit drugs spans the social and economic spectrum of communities, it is far more common in disadvantaged populations. People of low social and economic status

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and members of racial and ethnic minorities are the first to be extruded from the labour market when economic conditions worsen and are the last to be hired when conditions start to improve. They also tend to live in neighbourhoods with low levels of investment and opportunity. The ability to speak unusual languages or dialects may provide a comparative advantage to drug traffickers, making it more difficult for drug law enforcement officers to penetrate undetected.

Some bridge populations require special attention. These include men who have sex with men and also inject drugs and sex workers who also inject drugs. Other populations of great public health interest include IDU with severe mental illness, prison inmates and those from indigenous and other culturally and linguistically diverse back-grounds.

Understanding the needs of users from these specific social justice groups improves service design and take-up. Community development of IDU helps to ensure that this population becomes part of the solution rather than constituting the crux of the problem. Involving IDU in the design and implementation of HIV prevention strategies increases their effectiveness. In a number of countries, governments have funded organizations of IDU to increase their involvement in and the effectiveness of HIV prevention.

The low status of IDU means they have fewer opportunities to participate in societal decision-making and receive less respect from the wider community. This can be redressed through the inclusive nature of consumer groups. Specific evidence on the effectiveness of drug user groups has not been garnered; however, research with other consumer groups, such as those suffering a mental illness, shows that training outcomes are improved and service effectiveness increases when consumers of services are employed in their development and delivery [30].

Often the major barrier to implementing harm reduction in low and middle-income countries has been a lack of financial resources. Many countries were willing to spend scarce resources on other populations but resources allocated to IDU have never been adequate. Even in high-income countries with reasonably enlightened attitudes to harm reduction, finding funding for harm reduction programmes is generally still a major struggle.

An advantage of the harm reduction package is that it can be delivered by both private and public sectors. The diversity of the user group is such that some can afford to pay for services and are willing to buy privacy and discretion, whereas other more vulnerable groups must be cared for from the public purse.

Many IDU survive in appalling conditions. An essential part of harm reduction should be to include efforts to improve the basic social conditions of IDU, including general health, housing, welfare and employment. Harm reduction must mean more than simply reducing the harm of drug use alone when dealing with those who are homeless and experiencing other social inequities and where morbidity and mortality are significantly over-represented [31].

A longitudinal study of those US servicemen who had used heroin in Vietnam during the Vietnam War showed that virtually all those who had never used heroin before the war were abstinent 12 months after returning home [32]. This study is taken as strong evidence that severe emotional stress and poor living conditions encourage drug use, whereas a return to family life and comfortable surroundings reduces the chance of relapse. Similar findings have even emerged in a controversial study known as ‘Rat Park’ where opiate use was much higher in laboratory rats raised in stressful rather than idyllic conditions [33].

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Harm reduction is not only needed in community settings but also in so-called ‘closed settings’ such as detention centres, jails and prisons. Increasing reliance on drug law enforcement to control illicit drugs inevitably means that more IDU will spend larger proportions of their drug injecting careers in correctional institutions, but with so little to lose, high-risk drug injecting often continues. Once behind bars, the risk of acquiring HIV infection is further increased by multiple factors including the large number of injecting equipment sharing partners, the severely degraded condition of needles and syringes and the mixing of diverse demographic and geographical groups in prison.

Whereas the implementation of harm reduction in community settings is often a struggle, implementation in correctional settings is invariably a much more difficult battle. Despite universal and extremely vigorous efforts to try to stop drugs entering correctional settings, drugs seem to find their way into prisons in virtually all countries. Further intensifying efforts to stop drugs entering prison may marginally reduce availability but risks exacerbating the sharing of injecting equipment. Drug injecting in prison is not as frequent as in the community but the number of sharing partners is much higher and the usually extremely worn and often extensively modified needle and syringe in prison is far more conducive to harbour and transmit HIV. In a number of countries, the strongest predictor of HIV infection among IDU is a history of ever having injected drugs in prison [34,35].

Partnerships between health, law enforcement, IDU, clinicians, researchers and government officials is essential for the effectiveness of HIV prevention.

The dissemination of information about harm reduction is improving. The International Harm Reduction Association was established in 1996, holds an annual conference usually attracting over 1000 delegates from approximately 60 countries, publishes a journal and disseminates information and materials through its impressive web site. The International Harm Reduction Development Program was established in 1995 as part of the Open Society Institute. It focussed initially on eastern Europe and Russia and has always strongly emphasized human rights [36,37]. Both organizations assist the training of harm reduction workers, especially in developing and transitional countries.

The availability of manuals, guidelines and training in harm reduction continues to expand [38]. Much of this material is now available in languages other than English. The growing use of the Internet and E-mail has made it a great deal easier to disseminate information and materials.

Identifying and overcoming barriers to the implementation of harm reduction

The scientific debate about harm reduction is now over: harm reduction has been shown convincingly to be effective in reducing HIV, and to be safe and cost-effective. After almost 20 years of looking for possible serious harmful side effects, no rigorous evidence has yet emerged that harm reduction encourages the earlier initiation of injecting, more frequent injecting, or a more prolonged injecting career. The abundance, consistency and compelling nature of the evidence supporting harm reduction has not prevented a ferocious ideological debate between advocates of an evidence-based, public health approach and supporters of zero tolerance. At best, only 5% of IDU in the world are estimated currently to have access to HIV prevention services [1].

A review of the major international definitions of human rights demonstrated that IDU were subjected consistently and significantly to a denial of several of the criteria used to define

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human rights [39]. Documented violations of human rights include interventions from harassment and denial of basic services to extortion, beatings, torture and execution [40].

The common experience of discrimination and social and economic disadvantage discourages drug users from engaging in HIV prevention efforts. IDU avoid HIV counselling and testing, drug treatment, care, support and treatment of HIV if they fear discrimination, threats to confidentiality of sensitive information or the threat of imprisonment.

As long as IDU are considered in terms of law rather than health, HIV can thrive unchecked. Under the terms of the war on drugs, drug users are criminals simply by virtue of their status as users, rather than as perpetrators of a crime against a complainant. As such, many harm minimization interventions are also often deemed by authorities to be illegal. Users are denied disease prevention services, and those services that are offered are only tentatively accepted, given the capacity to use such services covertly to identify users and punish them accordingly. This has occurred not only in developing countries such as Thailand and Uzbekistan, but law enforcement harassment has been documented at the establishment phase of many needle exchanges and injecting rooms [41–43].

The war on drugs is essentially a war on drug users. The user is an outlaw and is not to be tolerated as drugs are not to be tolerated. Harm reduction goes a long way in addressing this. Not only has it been proved to retard the spread of HIV and other blood-borne viruses, harm reduction is an approach that implicitly recognizes the value of the user him or herself and the unequal social conditions that most users find themselves by product of their often lower socioeconomic background and their status outside the law as drug users.

The UN is at odds within itself on the matter of the treatment of drug users. While enshrining the war on drugs that defends abuses against drug users through its International Narcotics Control Board (INCB), its primary Charter entreats all UN committees to ‘promote solutions of international social, health and related problems, as well as universal respect for, and observance of human rights and fundamental freedoms for all without discrimination.’ [40].

In doing so, it was recognized that, standing before any substantive change in the rates of HIV and other blood-borne viruses, is a primary shift in the way that decision-makers think about those most at risk. This includes IDU. The key to the global epidemic of AIDS is the promotion of the rights of the individual; public health and human rights are interlocked. As stated by International Harm Reduction Development ‘bad human rights practice... is potentially lethal as it drives drug users away from HIV prevention and AIDS treatment and care. Protection of the rights of injection drug users is thus both an urgent pubic health concern and a human rights imperative.’ [44].

Even though the 2006 creation of a new and central Human Rights Council has gone some way to redressing intolerance towards drug users, the INCB continues to undermine harm reduction by promoting aggressively a narrow and tendentious interpretation of the three major international drug treaties [45].

Excessive reliance on drug law enforcement is the major barrier to the adoption and expansion of harm reduction. A recent study of 89 large US cities estimated HIV seroprevalence among injectors and per capita the number of drug injectors, the number of drug arrests, the number of police employees and corrections expenditures [46]. None of the legal measures was associated with the number of injectors per capita, but all three legal measures were positively associated with HIV prevalence among injectors. The conclusion was that legal measures had little deterrent effect on drug injecting but may increase the

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number of HIV infections. Similar findings have been reported in studies from a number of other countries with drug law enforcement sometimes inadvertently undermining HIV prevention programmes for IDU [47].

The development of global drug prohibition in the 20th century defined the consumption of illicit drugs as primarily a law enforcement problem. Consequently, a principal role became established for customs, police, courts and corrections. Almost all of the 200 countries in the world have signed and ratified the three major international drug treaties (which also specified the drugs to be prohibited). Estimates of the allocation of government expenditure in response to illicit drugs have shown consistently that drug law enforcement is very generously funded [48]. In contrast, health and social interventions are generally funded parsimoniously.

When expenditure data are available, the unbalanced allocation of government expenditure for illicit drugs is common. In 2002/2003, of Australia's A$3.2 billion budget for addressing the illicit drugs issue, 56% was allocated to drug law enforcement, 23% to prevention, 17% to drug treatment and 3% to harm reduction [49]. Estimated expenditure in 1997/1998 by the United Kingdom government was £1.4 billion, of which 62% was allocated to enforcement (e.g. police, court, probation and prisons), 13% to treatment, 12% to prevention and education and 13% to international supply reduction [50]. Globally, between 70 and 75% of the budget of European Union governments in response to illicit drugs was estimated in 2000 to be spent on law enforcement, with the residual largely spent on healthcare [51]. More than 93% of the almost Can$500 million spent annually on Canada's drug strategy was allocated to law enforcement efforts to reduce the supply of illicit drugs [52]. It was estimated that 93% of the expenditure by the US government in response to cocaine was allocated to drug law enforcement, with 7% allocated to treatment of cocaine users although the return on a US$1.00 investment in response to cocaine was 15 cents for coca plant eradication, 32 cents for interdiction, 52 cents for US police and customs and US$7.46 for drug treatment [53].

The considerable stigma of drug use makes the difficult job of HIV control even more difficult. Communities that rely excessively on drug law enforcement exacerbate the stigma and discrimination experienced by IDU and thus complicate HIV control efforts. Authorities will not and should not contemplate abandoning drug law enforcement as some effort to reduce the supply of drugs will always be needed. What is required from an HIV control perspective is a more balanced approach. Authorities in many countries are,however, still fighting the battle to contain HIV the same way they fought the 'war on drugs'.

Controlling HIV among injecting drug users: public policy

The recognition in many countries from the mid 1980s that IDU were a critical population for HIV control in the general population has led to an increasingly more realistic reappraisal of the benefits and costs (including adverse consequences) of conventional drug policy. Already by 1986 the Scottish Home and Health Department concluded that 'the gravity of the problem is such that on balance the containment of the spread of the virus is a higher priority in management than the prevention of drug misuse.' and recommended accordingly that 'on balance, the prevention of spread should take priority over any perceived risk of increased drug use' [54]. This approach was strengthened by the influential UK Advisory Committee on the Misuse of Drugs asserting in 1988 that 'the spread of HIV is a greater danger to individual and public health than drug misuse...accordingly, services that aim to minimize HIV risk behaviour by all available means should take precedence in development plans' [51].

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The Director General of WHO stated in 2000 that ‘the key to limiting the spread of HIV lies in harm reduction among intravenous drug users’. By 2002 in the United Kingdom, the Home Affairs Select Committee argued that ‘harm reduction rather than retribution should be the primary focus of policy towards users of illegal drugs’ [55]. Even the INCB, the last bastion of zero tolerance within the UN system, acknowledged that ‘the ultimate aim of the conventions is to reduce harm’ [56].

There has been a growing realization in recent years that intensifying supply control measures risked exacerbating the spread of HIVamong IDU by driving this population even further underground, and thereby reducing the opportunities to modify behaviours associated with the spread of blood-borne viruses. By emphasizing inclusiveness, engagement and collaboration, harm reduction seemed a more likely way of modifying the high-risk behaviours of IDU.

Harm reduction began as a pragmatic response to a health crisis. Scientific evidence to support harm reduction soon accumulated. It became clear that the protection of public health required strengthening the respect for the human rights of vulnerable populations. Many countries adopting harm reduction initially struggled with an apparent contradiction between an entrenched commitment to drug prohibition and the overriding need to keep HIV under control.

Many countries slowly resolved this dilemma by gradually increasing the emphasis on harm reduction and also finding more effective ways for law enforcement and health authorities to collaborate. Improved collaboration between law enforcement and health even had some surprising benefits for law enforcement authorities. Increasing enrollment of heroin injectors in buprenorphine and methadone maintenance treatment not only resulted in substantial health benefits, such as a marked reduction in the number of HIV infections and deaths from drug overdose, but also a striking reduction in property crime. When the capacity of methadone maintenance treatment in Zurich, Switzerland, was increased, the estimated number of new heroin injectors in the city decreased from 850 in 1990 to 150 in 2002, with a corresponding decrease in crime, drug overdose deaths and heroin seizures [57].

Conventional drug policy aims to make illicit drugs scarce or unavailable. In practice, it is difficult to find credible evidence that drug law enforcement achieves these objectives as judged by the frequent increases in the price or reductions in the purity of street drugs [58,59].

There are a number of unfortunate side effects of the vigorous application of drug law enforcement. It destabilizes drug trafficking routes, thereby inadvertently increasing the size of populations exposed to illicit drugs and the risk of HIV infection from sharing injection equipment. In addition, there is the tendency for more concentrated drugs administered by injection to replace less powerful drugs consumed by non-injecting routes of administration. One study found inadvertent pro-heroin effects in three Asian countries in the decade after the prohibition of opium smoking [60]. Initially, opium smoking was generally confined to elderly men but was replaced by heroin injecting among young, sexually active men. This is more cost-effective for the user and trafficker. The greater the risk of detection and the harsher the penalties, the more likely that traffickers will prefer highly concentrated drugs to reduce the risk of detection by law enforcement authorities. This creates the conditions for the potentially extensive spread of HIV among and from IDU in the most populous region of the world.

The difficult drug policy dilemmas faced by authorities are well illustrated in Afghanistan, one of the poorest countries in the world and a nation where conflicts have raged for more than a quarter century [6]. Afghanistan still has a low prevalence of HIV but injecting drug

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use is considered the greatest risk for HIV spread. Most (70%) of the heroin in Afghanistan is produced in two southern provinces (Helmund and Kandahar) controlled by the Taliban. The United States is keen to commence aerial eradication of opium poppy by dropping glyphosate from aircraft [61,62]. Some commentators fear that dropping this agent from the air will be difficult to control, with the inevitable destruction of crops on neighbouring properties. It is feared that this risks driving some of these farmers into supporting the Taliban. Another concern is that the price of opium and heroin could increase, thereby enriching the Taliban and shifting some opium smokers and eaters to heroin injecting, with a consequent risk of increased HIV.

The current status of harm reduction

Harm reduction is now accepted by most major UN agencies including WHO, UNAIDS, UNICEF and the World Bank. The UN Office on Drugs and Crime (UNODC) has responsibility for carrying out drug policy for the UN system, and was until recently ambivalent, or even hostile, to harm reduction. Harm reduction is now the largest programme within the organization and UNODC now employs more staff engaged in harm reduction than any other organization in the world. The organization is clearly changing as a recent UNODC publication makes clear [63]. The International Committee of the Red Cross and the Global Fund for AIDS, TB and Malaria both explicitly support harm reduction.

Harm reduction has been accepted by many countries in Europe, Asia, and the western Pacific and Canada. Every year a few more countries adopt harm reduction. Support continues to grow. Harm reduction has been accepted as the official drug policy of some regions (Europe, eastern Mediterranean) of WHO. In June 2005, representatives of the 22 nations comprising the Programme Coordinating Board of UNAIDS met in Geneva to finalize that organization's HIV prevention policy. The inclusion of certain terms ('harm reduction', 'methadone and buprenorphine treatment' and 'needle syringe programmes') was supported by 21 countries, but opposed by only one country (the United States). Fortunately, the Programme Coordinating Board agreed to follow the democratic principle whereby the minority allows the will of the majority to prevail [64].

Harm reduction is still opposed by the United States, a few other countries and the INCB, a quasi-UN body that monitors compliance with the international drug treaties of individual countries. Opposition is clearly shrinking.

Needle syringe programmes and opioid substitution programmes are now provided in more than 60 countries [65]. Of these, numerous countries report substantial unmet demand for methadone treatment. Unfortunately, despite all the evidence and experiences of others, the United States has maintained a ban on Federal Government funding for needle syringe programmes, which has regrettably been immensely influential in many other countries. All 25 members of the European Union now provide needle syringe programmes and methadone or buprenorphine maintenance treatment. In eastern and central Europe and central Asia, needle syringe programmes are common, although coverage is still poor. Several populous countries in Asia are now implementing harm reduction programmes. China will have 300 000 patients on methadone maintenance treatment by the end of 2008, whereas India is expanding its buprenorphine programmes and may soon commence methadone maintenance treatment. The parliament of Vietnam recently passed legislation supporting harm reduction. Malaysia and Indonesia have started needle syringe programmes and methadone maintenance treatment. Indonesia became the first country in Asia where methadone maintenance treatment is provided to some prison inmates and was soon followed by Taiwan and recently Malaysia. Iran has become a world leader in the

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implementation and expansion of harm reduction to control HIV among IDU. The coverage of harm reduction programmes in prisons worldwide remains very poor.

No country that has started harm reduction has ever regretted doing so and then terminated their programmes.

Wasteful battles

Efforts to encourage countries threatened by an HIV epidemic among IDU have faced severe opposition. In most countries before there was any local evidence of HIV spread among IDU, authorities usually denied that the experience of other similar countries should be some sort of a guide for policy or action. In most countries, authorities have only started to change their minds when evidence of local spread became undeniable. A common pattern was for authorities to assume that harm reduction would inevitably increase the extent of injecting drug use despite the lack of evidence that this has ever occurred. Even after authorities finally decided to adopt harm reduction, the processes of then planning responses, allocating funding, recruiting and training staff, preparing protocols and guidelines and then establishing the programmes has consumed many years.

The confusions about harm reduction gives rise to a great deal of tension within societies. It is impossible to resolve the HIV epidemic without the cooperation of IDU, who form the market for harm reduction strategies. Marshalling that cooperation requires turning a ‘blind eye’ to illegal activity and allocating a percentage of public funds to what many regard as the promotion of drug use. For many, harm minimization is an anti-intuitive response that sends mixed messages to young people. It is unfair to cast all opponents to harm minimization as villains, consciously denying human rights to the marginalized. Many are concerned family members or friends of users whose greatest wish is for illicit drugs to disappear from the face of the earth and their drug-using relative to be miraculously restored to a pristine state. Many realize eventually that this will never happen and then accept that the next best option is to keep their drug-using relative or loved one alive and infection free. It is inevitable that this conflict is often played out in the media, clouding the waters on the way.

The debate about the essence of illicit drug use is still unresolved. Zero tolerance supporters see any illicit drug use as intrinsically evil, whereas harm reduction practitioners focus on trying to prevent damage. They see illicit drugs like other markets, with buyers and sellers. In this more pragmatic approach, some continuing level of use of psychotropic drugs seems inevitable. The categorization of some drugs as ‘legal’ and others as ‘illegal’ is more an accident of history than the logical outcome of a careful consideration of the implications for public health. Although drug policy debates still continue, the notion of a drug-free world is increasingly dismissed as utopian. More pragmatic, evidence-based approaches are gaining increasing support.

The UN does not make the matter any clearer. On the one hand it promotes global human rights protections and on the other is the body responsible for expanding drug control. UN drug treaties have little regard for human rights [28], but, importantly, the international commitments to drug control are subordinate to the UN commitments to human rights.

The INCB still does not accept harm reduction and continues largely to ignore the problem of HIV spread among IDU in their annual reports [46,65]. The INCB has been trying since 1995 to shift buprenorphine from the less restrictive 1971 Treaty on Psychotropic Substances to the more restrictive 1961 Single Treaty on specious technical grounds even though some populous countries with significant populations infected with HIV, such as India, France and the Ukraine, rely on buprenorphine for opioid substitution treatment. The

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United States and France allow both drugs but have much more restrictive arrangements for methadone than buprenorphine. The unknown effect of restricting buprenorphine on HIV control has not deterred the INCB. In 2006, France was still contemplating re-classifying buprenorphine as a 'narcotic'. These plans now appear to have been shelved.

The evidence shows that efforts to control supply are generally ineffective. Evaluation of one of the largest ever heroin seizures in Canada found no change in the reported daily use of heroin, deaths from overdoses, the frequency of non-fatal overdoses, heroin purity, source of drugs or types of drugs available on the street. Moreover, the median reported price of heroin actually declined after the seizure [66].

It is important to see the problems of HIV control among IDU in a broader perspective. Although many who have followed drug policy for some time are quite sceptical about the effectiveness of approaches reliant on supply control, these approaches seem at least to be effective at the political level.

The major countries producing plant-based illicit drugs are all in the developing world. It is no accident that these are poor countries with generally weak central governments at war with regional or ethnic minorities located in remote and mountainous regions where illicit drugs are the only major economy. The illicit drugs industry is both a cause and a consequence of chronic political instability. These countries struggle to export their agricultural products to the rich markets of the western world. Western Europe, Japan and the United States spend an estimated US$350 billion per year on agricultural protection [67]. Until countries such as Afghanistan, Pakistan, Columbia, Peru and Bolivia can export their agricultural produce to rich markets on reasonable terms, drugs such as heroin or cocaine will continue to be produced in poor countries in vast quantities for domestic consumption and export.

Next steps?

Drug problems are primarily health and social matters, although drug law enforcement will always be needed for secondary support. Drug law enforcement continues to be generously funded despite modest returns on investment, whereas health and social interventions are parsimoniously funded despite far more impressive returns. Raising funding for health and social measures to the same sorts of levels enjoyed by drug law enforcement is a long overdue step.

Illicit drugs are an issue in which policy is judged predominantly by intent rather than outcomes. Measures of consumption are regarded as more important than measures of harm such as deaths, disease or crime. The obvious response to drugs, fierce repression, has proved to be ineffective, expensive and often counterproductive.

In contrast, possibly counterintuitive interventions such as needle syringe programmes and methadone maintenance treatment have strong empirical support in terms of effectiveness, safety and cost-effectiveness. It is, however, easier for politicians to advocate obvious solutions even if these are ineffective rather than counterintuitive but effective interventions.

More inclusive planning is required involving a broad range of major stakeholders including members of high-risk groups. Expanding coverage is now the major priority in most countries. Advocacy for harm reduction is still needed in some countries where HIV among IDU is still at a relatively early stage, such as the middle East and north Africa.

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With harm reduction, governments can meet their human rights obligations in terms of improved public health outcomes for the general population and in redressing social justice inequities for drug users themselves.

Abandoning drug law enforcement efforts would be irresponsible. It is, however, equally irresponsible to continue to inadequately fund health interventions, such as methadone treatment and needle syringe programmes, which have been proved to be effective and economically efficient [68]. It is vital, for improving global public health outcomes, to undertake rigorous cost–benefit analyses to ensure a more optimal balance between supply reduction, demand reduction and harm reduction. Achieving global control of HIV among IDU requires a steadfast commitment to public health, policy and practice based on evidence and the promotion and protection of the human rights of all people.

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