Addiction (1996) 91(8), 1089–1099

COMMENTARIES

Comments on Stimson's "Has the United Kingdom averted an epidemic of HIV-1 infection among drug injectors?"

Published below are five commentaries on Stimson's editorial, published in this issue of Addiction, *followed by a reply from Professor Stimson.*

"Successful" HIV prevention: what next?

Don C. Des Jarlais

In his editorial, Stimson argues that the prevention efforts undertaken in the United Kingdom were effective in averting an epidemic of HIV infection among injecting drug users in that country. Having made similar arguments for "prevented epidemics" among injecting drug users in five specific cities,[1] I tend to find Stimson's arguments convincing. Of course, demonstrating causation is particularly difficult in what are essentially epidemiological community case histories. Cordray's analysis[2] of quasi-experimental design issues can be very useful in establishing a logic of causation in these types of data.

The apparent success of the HIV prevention programs in the United Kingdom and elsewhere raises the question of "what next?" for both public health practice and research with injecting drug users in the areas which have not (yet) experienced epidemics of HIV. Recent preliminary data from Canada offer a cautionary note. Vancouver has experienced an increase in HIV incidence among IDUs[3] and Toronto has seen an increase in HIV prevalence among IDUs who engage in male-with-male sex.[4] These increases in HIV infection among IDUs have occurred despite prevention efforts in those cities.

Clearly, we are not at a stage where we should consider HIV prevention among IDUs to be a completed task, and should not reduce current prevention efforts.

We do not yet really understand how prevention programs might avert an HIV epidemic. We do know that successful HIV prevention programs do not eliminate risk behavior—"sharing" of injection equipment or having unprotected sex among IDUs. The London data collected by Stimson and colleagues as well as the Glasgow data collected by Goldberg and colleagues show that moderate numbers of IDUs in those cities report injecting with equipment used by others in the previous 6 months.[5] In Lund, Sweden, where HIV prevalence among IDUs is approximately 2% and quite stable, 58% of IDUs report some injecting with equipment used by others in the previous 6 months.[1]

It may be time to replace "any sharing" as our primary variable in studies of IDUs in places like the United Kingdom. In low HIV seroprevalence areas, injection risk behavior that is confined within small groups of IDUs is very unlikely to lead to HIV transmission. This "risk behaviour" is occurring almost exclusively among people who are HIV negative, so that it is not a meaningful indicator of possible HIV transmission. "Sharing" of injection equipment with large numbers of other people, with strangers or casual acquaintances, within prisons, or using "dealer's works" may all be much more likely to lead to HIV transmission within low seroprevalence areas. Understanding stable low HIV seroprevalence among populations of IDUs that continue some "sharing" may require that we

0965–2140/96/081089–11 $8.00

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start measuring the "sharing" within and outside of small social networks of IDUs. Concepts such as "rate of partner change"[6] are likely to be much more useful than our current measures of "any sharing in the last x months".

Returning to the scientific methods/causal inference questions, we will rarely be able to learn much about the importance of social networks and rate of partner change in HIV prevention through randomized clinical trials. Good descriptive epidemiology and mathematical modeling of transmission dynamics are much more likely to produce valid and useful knowledge.

In many places, the prevention of HIV infection has been the prototype for implementing the "harm reduction" perspective on psychoactive drug use. Given the "success" of HIV prevention programs, where next for new harm reduction efforts? If harm reduction cannot lead to new achievable goals, it is not likely to be sustained as a basis for drug policy.

Prevention of hepatitis B and hepatitis C transmission, reducing initiation into illicit drug injection and reducing overdose deaths are all potentially important goals for expanded harm reduction efforts. There is some evidence that these harms can be reduced,[7] but reducing these harms is likely to be considerably more difficult than reducing HIV transmission. In particular, reducing these harms may require contact between health workers and drug users before or shortly after they begin injecting. At this stage in drug use careers, users are not likely to identify as drug injectors, are not likely to see themselves as having drug misuse problems, and are likely to be particularly concerned about concealing their drug use from others. Thus, finding and working with them may be considerably more difficult than finding and working with people with long histories of injecting drug use.

A second direction for further harm reduction efforts would be to reduce early initiation into both licit and illicit psychoactive drug use. Early initiation into drug use has often been associated with greater drug use and more frequent drug-related problems.[8] Reducing early initiation into drug use should thus lead to reductions in a wide variety of drug-related harms. The politics of reducing early initiation into psychoactive drug use are likely to be quite different than those of reducing HIV transmission among injecting drug users. Opponents of HIV prevention programs have charged that programs such as syringe exchange "condone" illicit drug use. Reducing early initiation into psychoactive drug use will entail placing greater restrictions on the marking of currently "legal" drugs. Attempting to use a wide variety of means to reduce the harms associated with both licit and illicit drug use should provide a fertile ground for continued growth of the harm reduction perspective.

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A stupendous public health achievement

Alex Wodak

Professor Stimson's assessment[1] of the effectiveness of HIV-1 prevention efforts in the United Kingdom (and for that matter in a number of other countries) is too modest by half. We are now entirely justified in concluding that the course of the HIV-1 epidemic was changed by timely intervention in the United Kingdom. By

any criteria, this has been a stupendous public health achievement.

The formulation of the null hypothesis distilled from Professor Stimson's editorial might be "that policies adopted and programmes implemented in the United Kingdom over the last decade to prevent the spread of HIV-1 infection among injecting drug users have not altered the course of the epidemic". Categorically disproving this hypothesis is virtually impossible, yet the circumstantial evidence against it is now overwhelming.

How can the persisting low levels of HIV-1 infection in this population in the United Kingdom be explained otherwise? Professor Stimson painstakingly examines alternative explanations. The possibility that an epidemic has occurred but somehow been overlooked is exceedingly improbable after a decade of surveillance. Did HIV-1 fail to spread among drug users in the United Kingdom because infection did not occur in overlapping groups? Not only is there ample evidence of HIV-1 infection in overlapping groups but, as Professor Stimson points out, the United Kingdom has had a few "mini-epidemics" among drug users (which were promptly brought under control). If we assume that an HIV-1 epidemic in this population is inevitable, has there possibly been insufficient time for this epidemic to reach detectable size? The experience of many countries where epidemics of HIV-1 among drug users have occurred has been that a decade has been more than enough time for problems to reach catastrophic proportions. The magnitude of these problems has meant that they simply could not fail to be noticed.

Professor Stimson rightly dismisses the possibility of benign viral variants explaining the indolent course of the HIV-1 epidemic among injecting drug users in the United Kingdom as being incompatible with the experience of Edinburgh and Dundee. Lack of host susceptibility can also be dispatched for similar reasons. England is a small and densely populated country with excellent transportation. Therefore, lack of mixing between at-risk populations can also be dismissed as a possible explanation for the lack of an HIV-1 epidemic among IDUs.

The most parsimonious explanation must surely be that adoption of harm reduction policies and implementation of prevention programmes effectively controlled the spread of HIV-1, averting an otherwise inevitable epidemic among drug injectors. The evidence for this interpretation becomes increasingly compelling the more it is examined. Policies were implemented early and (generally) vigorously. AIDS education in the United Kingdom began promptly and was explicit. Similarly, needle exchange programmes were established early and soon covered most major centres.

The case for the effectiveness of policies and programmes in the United Kingdom becomes even stronger when "negative control" countries are considered. The United States is probably the best example of a negative control country with only 76 needle exchange programmes in 55 cities by October 1994,[2] despite prevalence levels of HIV-1 of around 50% in IDUs in the north east for over a decade. The capacity of methadone programmes in the United States has only been increased slightly over the last decade and a half. Explicit education for drug users now exists, but only at the margins and provided by a small and enthusiastic band of urban guerillas. Enthusiasm for prohibition survives as a form of national denial, tragically ensuring the continuation of the shooting galleries which perpetuate the epidemic. IDUs remain an under-class, unworthy of consideration in mainstream national discourse. Control of HIV-1 in this population requires an acceptance of IDUs as members of the community. All else then follows.

Professor Stimson's null hypothesis can be extended by considering a number of other countries. Early and vigorous implementation of harm reduction policies and programmes averted epidemics in many countries in the world.[3] What we now know, but did not know a decade ago, was that such epidemics are not difficult to prevent. Control can even be regained provided that vigorous action is taken early enough, as the experience of Edinburgh reminds us. Evidence that needle exchange[2] and methadone programmes[4] are effective in controlling HIV infection is now extremely convincing. It was estimated that needle exchange in Australia in 1991 at a cost of around A$10 million alone prevented 3000 HIV-1 infections with a resultant saving of A$270 million.[5] The average cost of a life year saved by needle exchange in Australia in 1991 was a modest A$350 (range A$50–A$7000) compared with the exorbidantly high cost of a quality adjusted

life year resulting from HIV treatment (estimated to lie in the range of A$45 000–A$248 000).[5]

After a decade of international and national efforts to control HIV infection among IDUs, we can conclude that sufficiently effective policies and programmes exist. The remaining major gap in our knowledge is how to persuade authorities to adopt effective programmes in countries where epidemics are threatened or already occurring.

Control of hepatitis B and C in IDU populations, an order of magnitude greater challenge than HIV, is the task that now awaits us in countries like the United Kingdom where HIV is well controlled. These viruses are far more infectious than HIV-1 and universally much more prevalent. Moreover, environmental contamination seems sufficient to allow spread of hepatitis C. If we cannot eliminate hepatitis C infection in renal dialysis units, what hope is there for gaining control of this virus among drug injectors in the community?

The most remarkable feature about the way many liberal western democracies responded to HIV-1 infection among drug injectors was the prompt adoption of programmes well before any evidence of effectiveness of these strategies existed and long before HIV-1 was detected in these populations. Admirable policy flexibility was based on common sense. This contrasts sharply with the voodoo public health approach practised in some other western countries which continue their impressively data-proof faith in ideology.

The real battle for control of HIV-1 among IDUs is now being waged, not in the developed world, but in a number of developing countries. Many health workers from these countries will no doubt feel somewhat reluctant accepting advice from well-meaning colleagues in developed countries. Such advice has all too often produced tragic results in the past. One of the challenges facing alcohol and drug practitioners in the developed world is how to disseminate to the developing world this new found knowledge of the effectiveness of harm reduction policies and programmes while handicapped by legacies of the past.

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The need for cautious congratulations

Neil McKeganey

Good news in the addictions field is a rare thing; good news in relation to HIV is perhaps even rarer still. Within this context Gerry Stimson's editorial makes arresting reading, raising as it does the possibility that an impending epidemic of HIV among injectors in the United Kingdom has been averted through a combination of public health measures. There seems little doubt that there was, and to an extent still is, the potential for such an epidemic to occur among injecting drug users within the United Kingdom. The prevalence data which Stimson presents shows very clearly that such an epidemic has been averted. The question remains, however, as to how much of that success can be attributed to harm reduction measures?

It seems likely that the range of measures under the harm reduction heading have played a central role in averting such an epidemic; nevertheless, it is regrettable that at this stage of the development of such services we are still evaluating their impact on HIV rates through the indirect measure of risk behaviour. Few studies have attempted to measure the actual impact of, for example, needle and syringe exchange scheme attendance on HIV, and fewer still have attempted to move beyond a static contrasting of attenders and non-attenders to look at the impact of differential length of contact with harm reduction services on

rates of HIV infection. It is only through the collection of such information that we will be able to say with any confidence what impact specific services have had on reducing HIV spread, and what the critical level of contact with such services may be.

In the absence of such data the information on risk behaviours has come to occupy centre stage in the evaluation process. The trouble with this, in terms of making confident predictions as to what the future may hold, is not so much that the data are based upon self report, but rather that behaviour is liable to change. We do not know enough about those factors that influence the maintenance of risk reduction to be confident that some of the past impressive reductions in injectors risk behaviour will be maintained. Some of the recent data on gay male sexual behaviour, for example, has highlighted the return to past higher levels of risk taking among at least some sections of the gay community (Stall *et al.*, 1990). Similarly, recent data from Glasgow has shown the continuing willingness among large numbers of injectors to share injecting equipment within certain situations (McKeganey *et al.*, 1995). Such findings should make us cautious in interpreting the degree of permanence in behaviour change. Of perhaps greater concern, however, is the fact that we still do not know how much risk behaviour is enough to generate an epidemic of HIV. We can make a guess, of course, and my own guess would be that those areas which have experienced a stable low level of infection over a number of years will, all other things being equal, probably not see a rapid increase in infection in the near to mid term.

The "other things being equal" clause is important, however, not least because of the changeable nature of drug use. The current cohort of injectors may well have modified their behaviour in the direction of lower levels of needle and syringe sharing, but this does not mean that successive cohorts will be similarly inclined. Equally, the occurrence of injecting among new social groups, for example steroid users, raises the possibility of higher levels of risk-taking and HIV infection among at least some sections of the injecting population. The scenario we may witness, then, may be one of small pockets of endemic HIV infection, rather than the national epidemic of HIV among UK injectors that was once feared.

If we accept that an epidemic has been averted within the United Kingdom it is worthwhile considering where this leaves the broader health needs of injecting drug users. In this connection it is salutary to reflect that in the 9-month period from January to September 1995 in Glasgow there have been 78 deaths among injectors. While there remains some uncertainty as to the reasons for these deaths it is likely that many of them have resulted from the combination of drugs being injected (Hammersley *et al.*, 1995). Within a context of such avoidable mortality, talk of the success of harm reduction measures may betray an overly narrow focus upon only one of the health risks associated with injecting drug use.

Harm reduction measures have enabled drug services to work with a wide range of individuals, many of whom they might otherwise have had little contact with. The purpose of that contact has to be both to reduce the harm associated with continued drug use and to maximize the opportunities whereby the individuals may cease or reduce their drug use. If there has been a possible failing in relation to harm reduction measures it is perhaps in the tendency to too readily accept that drug use will continue, rather than to grapple with the genuine difficulties of combining harm reduction, drug prevention and treatment. Combining these three priorities is unlikely to be easy, yet if we fail in that challenge we may have averted an epidemic of HIV only to see drug users needlessly dying from other causes. That would be a pyrrhic victory.

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Brazil: the epidemic that was allowed to happen

John Dunn & Ronaldo Laranjeira

Bloor,[1] recently described Latin America as the forgotten continent in terms of HIV infection. After the United States, the country with the greatest number of reported cases of AIDS is not in Africa, Europe or Asia but is in fact Brazil. From when records began in 1980 until August 1995, 62 314 cases of AIDS had been reported in Brazil; this with an estimated 50% of cases going unnotified in some states. Transmission by intravenous drug use (IVDU) accounted for 22% of cumulative cases and 19.3% of those reported in 1994/95. Until August 1995, the cumulative number of AIDS cases in which IVDU was the main risk factor was 13 752 (22 times the UK figure, for a country with a population only three times as large).

The WHO co-ordinated multicentre study showed that the prevalence of HIV among intravenous cocaine users from in and out of treatment samples in the cities of Rio de Janeiro and Santos was 40% and 60%, respectively.[2] An opportunistic, community-based study of a network of 119 cocaine injectors (21 of whom had become infected with malaria) from the city of Bauru in the state of São Paulo showed an HIV prevalence of 58%.[3,4]

Apart from the high prevalence of HIV among IVDUs, the other aspect of the Brazilian HIV epidemic that most distinguishes it from that of the United Kingdom's is that a heterosexual epidemic has occurred. For the period 1980/87, when figures started to be collected, the male to female ratio of reported AIDS cases was 12:1, by 1990 it had fallen to 7:1 and in 1994/95 to 3.6:1. Spread to the general population occurred via three main routes: from IVDUs to their non-drug-using sexual partners, from infected female drug users (or the partners of users) to their newborn children and from bisexual men to their female sexual partners. Heterosexual transmission is now the most common risk factor among patients with AIDS, accounting for 27.8% of cases in 1994/95.

Within this bleak picture lies an important message for the United Kingdom. In Brazil, like Europe and the United States, AIDS is caused almost exclusively by HIV-1. Like the United States, and Europe, Brazil started off as a so-called "Pattern I" country with HIV primarily affecting male homosexuals, haemophiliacs and recipients of blood transfusions. This was soon followed by an epidemic among IVDUs and we are currently witnessing an epidemic among the non-drug-using heterosexual population; laying the myth that such epidemics only occur in "Pattern II" countries, like Africa, where HIV-2 predominates. Brazil both represents what could have happened in the United Kingdom and what might happen in the future, if preventive measures are abandoned. Therefore, it is important to examine the differences in the public health responses between these two countries, to try to understand why the HIV epidemic among IVDUs was averted in the United Kingdom but not in Brazil and why in the latter it was allowed to spread to the heterosexual population.

One of the first differences is in the provision of health. Public health services in Brazil are precarious, underfunded and understaffed. Most care is provided in hospitals and not the community; therefore, the health system was not ideally placed to start identifying cases of HIV before patients began to die of HIV-related disease. Once identified, there was no network of primary health care services in place to develop and implement preventive measures. Although there have been several education and prevention campaigns on television, these were largely aimed at the general population. Campaigns targeted at high risk groups and direct action have been limited, for example, to the distribution of condoms at the annual Carnival.

Treatment services for drug users were, and still are, few and far between and are usually located in centres of excellence, often many miles away from where most drug users actually live. Services tended to offer mainly psychodynamic psychotherapy and family therapy and were thus ill-equipped to deal with new approaches such as harm-minimization and outreach work. There are several non-governmental organizations actively working with HIV-positive patients and drug users, but they are fairly recent arrivals and have not yet acquired the lobbying tactics and political clout of their UK equivalents.

These problems are well illustrated by protracted bureaucratic struggle to introduce a system of needle-exchanges. In the United Kingdom, the first needle-exchange was opened in 1986, 2 years before the first ACMD *Report on AIDS and Drug Misuse* was published, and by

1989 120 exchanges were up and running in England alone.[5] In Brazil attempts were first made to introduce a needle exchange in the port city of Santos in 1989, but the doctor in charge of the scheme and the local authority were threatened with prosecution and the centre closed down. The Brazilian Federal Government only sanctioned the introduction of needle exchanges in 1994, and in 1995 the first official exchange was opened (but subsequently closed down). On the eve of the 1995 International Fight Against AIDS Day, the local police in Santos seized the complete stock of needles and syringes, on the order of the Public Prosecutor, from a new exchange that was due to open. Many politicians and law-enforcement agencies are actively against needle-exchanges and are fixated on the fear that they will lead to an increase in drug use, despite the fact that this has not happened in other countries.

Professor Stimson suggests that the HIV epidemic among IVDUs was averted in the United Kingdom by the introduction of preventive measures and that these worked because they were introduced early when prevalence was still low. In Brazil such an opportunity has been missed and public health agencies are at least two steps behind the epidemic. Indeed, measures such as needle exchanges may have little impact on prevalence now that the principal mode of transmission is by heterosexual contact. Stimson's note of caution that the low prevalence of HIV among IVDUs should not act as a signal for the government to withdraw and re-direct financial resources away from prevention, should be heeded. The case of Brazil illustrates the reason why only too well—epidemic spread can happen and with disastrous consequences for the whole population.

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Averting a global epidemic

Andrew Ball

The epidemic spread of HIV infection among injecting drug users (IDUs) can be prevented, stopped and even reversed. There is a growing body of evidence that this is the case in different cities and countries around the world. Both a comparative study of drug-injecting behaviour and HIV infection involving 12 cities in 10 countries (Ball *et al.*, 1994) and a review of prevention activities and risk behaviour in five cities with a stable low HIV seroprevalence among IDUs (Des Jarlais *et al.*, 1995) concluded that three prevention components were associated with containment of the epidemic. These three components included: a rapid and concerted response while seroprevalence was low; community outreach to IDUs; and widespread availability of sterile injection equipment. In addition, education and public awareness were considered important elements. Stimson's editorial, and a further paper of his (Stimson, 1995), supports these conclusions.

While the international evidence is becoming more convincing, the above authors recommend caution in the interpretation of findings, further research to better understand risk behaviour and the context of drug injecting, and more thorough evaluation of specific interventions. Such caution recognizes the truly complex nature of the issue and helps to remind us that the three components referred to above do not stand alone.

Whereas we are seeing a maturation of the HIV epidemic among IDUs in most of the developed world, the situation for many developing countries is quite different. Within the past 5 years injecting drug use (IDU), and with it HIV infection, have rapidly spread to every global

region. By 1995, IDUs had been reported in 118 countries, with 78 of these countries also reporting HIV infection among IDUs. How can these countries benefit from the UK experience? I would argue that an effective response has to be based on three principles, each one of which has been respected with the UK approach.

First, the response can only be effective if a supportive policy and opinion environment exists. That is, the dual epidemic of drug injecting and HIV infection must be seen to be, foremost, a public health issue. Having a long tradition of managing illicit drug use within a public health context prepared the United Kingdom well to respond rapidly to the emergence of HIV infection among IDUs (Stimson, 1995). Certain other countries, such as Australia and Canada, were also well positioned to react quickly through the public health sector (Blewett, 1987; Health and Welfare Canada, 1992). However, such countries are in the minority, with illicit drug use being viewed by most countries as an internal security or foreign policy matter, and controlling the supply of drugs through law enforcement the main preoccupation. Gradually, in some countries, both developed and developing, we are seeing a shift in attitude, with health ministries taking a greater interest in drug policy. Of particular interest are those countries in transition, including Eastern European and newly independent states, where reformulation of health and drug policies are occurring.

Secondly, the response must efficiently reach those populations at risk. Stimson (1995) argues that this has been the case in the United Kingdom, with outreach delivering information and services to hard-to-reach populations, and establishing links between IDUs and health services. A consequence of this has been a change in risk behaviour and population mixing patterns. Elsewhere, research into and implementation of heroin substitution trials aim to determine whether broadening drug substitution options will attract more marginalized IDUs into treatment (Bammer, 1995; Rihs-Middel, 1995). When we look at the developing world, the challenge is great. Not only are resources limited for outreach, but there are many different vulnerable groups which require different outreach strategies. Such groups include the urban poor; street children (Ball & Howard, 1995); sex workers; itinerant and guest workers; remote rural communities; refugees and displaced people from civil conflicts and natural disasters; minority and indigenous groups (United Nations International Drug Control Programme, 1993); and communities living in drug producing areas. Universally, prison populations pose a critical challenge (Dolan *et al.*, 1995). The dynamic population mixing patterns of some of these groups have already contributed to the rapid dissemination of HIV infection in some regions. It is apparent that outreach strategies will need to draw on existing primary health care services, community-based strategies and peer interventions.

Thirdly, whatever interventions are implemented must be both effective in preventing HIV transmission and feasible for the community being targeted. Stimson, in his editorial, refers to a number of specific interventions adopted in the United Kingdom which have been demonstrated to be effective in reducing risk behaviour, including syringe distribution and exchange, provision of information on syringe cleaning and methadone treatment. However, it needs to be recognized that there is no single or limited set of strategies which can adequately address the full range of risk behaviours and vulnerable populations. Specific HIV prevention approaches need to be included in a wider repertoire of interventions and located within a comprehensive and integrated drug strategy (Ball, 1993).

It is often argued that many specific HIV prevention strategies targeting IDUs (those frequently referred to as "harm reduction" strategies) are not feasible or accepted in most of the developing world because of cultural and political sensitivities and prohibitive costs. However, despite competing health and development priorities, in countries where age-old diseases (such as malaria, tuberculosis and diarrhoeal diseases) continue to take their toll, there is evidence of growing concern about the public health consequences of IDU. With that concern increasing numbers of communities and countries are responding with strategies which 5–10 years ago would never have been considered. Sublingual buprenorphine maintenance programmes have been established in India (World Health Organization, 1996a). Methadone maintenance programmes are being implemented in Nepal (Shresta *et al.*, 1995) and in different regions in Thailand (Vanichseni *et al.*, 1991). A methadone detoxification programme has been implemented in a hill-tribe community in northern Thailand. Tincture of opium is used for detoxification and

substitute maintenance in northern Thailand (World Health Organization, 1996a), while anecdotal reports exist of its informal use in other Mekong countries. There is interest from a number of Asian countries, where opium is readily available, to undertake scientific trials on tincture of opium and methadone substitution. Coca leaf tea and tablets are used in maintenance therapy for cocaine dependence in Peru (Llosa, 1994). Needle/syringe exchange (NEP) or distribution programmes have been trialled in Santos and Salvador in Brazil (World Health Organization, 1996b), Kathmandu and among Akha hill-tribe communities in northern Thailand (Gray, 1995), while a NEP programme is currently being planned for implementation in Manipur, north-eastern India. Whereas a NEP piloted in Ho Chi Minh City failed for various reasons (World Health Organization, 1996b), new programmes have been implemented in Ho Chi Minh City and Ha Noi with support from WHO and UNAIDS. Outreach programmes providing advice on syringe cleaning techniques and condom and bleach distribution are being implemented in Malaysia, Viet Nam, India, Thailand and Nepal. Other outreach programmes to IDUs provide HIV prevention information in China, Myanmar, Brazil and Argentina.

In considering the three principles as referred to above, it is evident that the design of any comprehensive strategy must be based on a thorough understanding of the community being targeted. Such an understanding should cover the characteristics of the target population and risk behaviours, the dynamics of drug availability and use, the context of use and the resources available. Rapid assessment methods have been developed which allow for communities themselves to undertake such an analysis and tailor intervention packages to meet their specific needs.

Stimson concludes with a warning to the UK government of the risk of complacency and the need to sustain public health prevention efforts. For many other countries, it is not a matter of complacency but rather one of denial. Those countries which perceive no apparent threat would be wise to reflect upon history. Unforseen events and policy changes can trigger dramatic and unexpected changes in drug use and HIV risk patterns. For example, the war in Vietnam helped to establish heroin use in Australia (Ball *et al.*, 1994), opiate dependence among both foreign servicemen and local Vietnamese, and create a vulnerable refugee population and drug trafficking networks. In a further example, with changes in international drug policy, an intensification of surveillance on traditional drug trafficking routes has resulted in a dramatic increase in the amounts of both cocaine and heroin being moved through Africa on transit to Europe and North America. Drug use, including IDU with its consequent problems, tends to follow trafficking routes, and Africa is no exception.

Other countries, even those with very different cultures, can learn from the UK experience. Effective interventions do exist which help to reduce risks. Drug users, given the opportunity, have been shown to change their behaviour to such an extent that HIV epidemics can be averted. Policy makers will now need to consider the evidence and then make decisions as to which path to follow. If the priority is to prevent or stop the HIV epidemic, we can only hope that the choice is a public health approach.

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Drug injecting: the public health response in the next decade

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The rejoinders to my Editorial (this issue) set out the key issues for the next decade of the public health response to drug injecting. Ten years ago many countries were faced with what appeared to be an imminent public health disaster. Indeed, during the first year of antibody testing in 1985, HIV prevalence rates were at such high levels in some cities that the preventive task seemed to be insuperable. We now know that rapid spread of infection is not inevitable. Pessimism has been replaced by cautious optimism.

We have acquired considerable knowledge about how to prevent HIV epidemics. The evidence points to the importance of early intervention while the prevalence of infection is low (or even absent). Comparative international studies have indicated some of the features of successful interventions. These include the need for community outreach to drug injectors and the provision of the means to change behaviour (needles and syringes).

Less is known about reversing high prevalence epidemics. In these contexts high incidence is maintained by an interaction between risk behaviours, existing high prevalences (which increase the risk that an injecting partner is HIV positive) and newly incident cases who are highly infectious. However, there are some indications that even in these situations (as in Edinburgh in the 1980s) interventions can markedly reduce the level of new infections.

Although the precise nature of preventive projects might vary from place to place, in broad terms the kinds of strategic interventions that are required have been identified. The main problem is in convincing governments that intervention is necessary, can be successful, and is cost effective.

Since the first recognition of the problem of HIV infection and drug injecting, there continues to be expansion in the global drug-injecting population. Perhaps the greatest sadness is that during the period in which we have begun to comprehend the nature of these epidemics and how to prevent them, more countries are seeing the diffusion of injecting drug use. In 1982 drug injecting had been identified in 80 countries, and by the end of 1995 this had risen above 120. The nature of the diffusion of drug injecting remains poorly described, and even less well understood.

The current spread of drug injecting is occurring mainly in developing countries, and has in many cases been followed by rapid spread of HIV-1 infection. Those parts of the world that are now seeing the diffusion of injecting are faced with huge challenges. "National immunity myths" provide local reasons to explain why populations might not suffer the problems suffered elsewhere. Many countries' leaders assume that their politics, national identity, religion or culture provide them with some protective factor

and that their countries are therefore immune from the spread of injecting and its consequences.

There may be weaknesses in the role and operation of the national state, and most notably a poor infrastructure for responding to new health and social problems. In developed countries the ability to introduce harm minimization approaches has depended on having relatively well-established social welfare and health systems and educated, reachable populations. In developing countries there are major resource problems which make it difficult to gain access to populations, and there is an acute lack of medical and public health resources in the context of many competing health and social priorities.

The philosophy of harm minimization is compatible with a historically and geographically specific perception of individual responsibility for health and welfare and of individual freedom. It also links with the idea that states have some responsibility for investing in the health and social condition of their populations. Elsewhere, there may be little understanding of public health approaches to drug problems. Hence as well as identifying effective interventions, the scientific and humanitarian debate needs to ascertain the factors that make public health responses to drug problems both acceptable and effective, and to find ways to make them fit with other *Weltanschauungen*.

The commentaries on my Editorial identify a number of other "next stage" issues. These include the neglect of other preventable health risks to injectors, such as overdose, hepatitis B and hepatitis C, and other infections. However, the lack of sexual behaviour change among drug injecting populations goes unremarked, despite major risk of sexual transmission from injectors: this is a key problem in high prevalence countries.

The current high prevalence of hepatitis C infection raises the prospect that injecting drug use is an effective niche for the global diffusion of new viruses. Just as the diffusion of injecting raises new questions for HIV prevention, so too do the risks of other blood-borne viruses call into question the future of the "safer injection" approach. The next phase of public health prevention will necessarily need to focus on discouraging the diffusion of drug injecting itself—about which there is little experience to date—and to find ways of doing this without marginalizing and stigmatizing the population of current injectors who will continue to be one of the target populations for public health interventions.

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