

# Harm reduction in Australia: has it worked? A review

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## Abstract

The literature is reviewed with a view to determining what evidence exists for the success of Australia's policy of harm minimization in relation to drug use. While there are relatively few examples of strategies which can unequivocally be said to have succeeded, there are many more for which the evidence is suggestive. While there has been a considerable mushrooming of research since the advent of the National Campaign on Drug Abuse, it would appear that little of this has measured the extent to which harm has been reduced. The National Drug Strategy would benefit from more policy-oriented research which measures drug-related harm if it is to be, as claimed, research driven. [Hawks D, Lenton S. Harm reduction in Australia: has it worked? A review. *Drug Alcohol Rev* 1995; 14: 291-304.]

**Key words:** drug use; Australia; prevention; treatment; National Campaign against Drug Abuse; harm reduction.

## Introduction

Australia is noteworthy in that in 1985 it adopted a nation-wide drug policy which aimed to "minimize the harmful effects of drug use in Australian society" [1]. While it initially appeared that illicit drugs would be the focus of the national campaign, its remit was broadened to include the more widely used legally sanctioned substances. This national approach, which has now become the National Drug Strategy [2], has incorporated both demand reduction and supply reduction initiatives to reduce drug-related harm.

The orientation of this review is with "What works?" For reasons of convenience the review has been arranged under drug headings, although it should be appreciated that many of the strategies reviewed do not have so specific a focus (for example, those approaches aiming to educate people as to the effect of drugs). In reviewing the literature regarding the effectiveness of harm reduction it is apparent that there are differences between the

nature of the evidence in the licit and illicit arenas in that much of the best evidence for the effectiveness of harm reduction in the licit area has use reduction as its goal, while in the illicit area the best evidence exists in relation to strategies targeted at reducing harm rather than use.

While there has been no lack of research activity in Australia and funding has been set aside specifically for research, some of which has been commissioned, it is our conclusion that there have been relatively few interventions, whether of a treatment or a preventative kind, which can unequivocally be said to have worked. In order that this review not be shorter than it is already, we have included a number of interventions about which it can be said the evidence is suggestive, if not unequivocal.

While it is sometimes argued that strategies directed at reducing use and those directed at reducing harm are antithetical, our view is that this is not

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necessarily the case. To reduce the use of a drug, whether on an individual or population basis, is usually to reduce its potential for harm, while not to use a drug at all is to avoid any harm associated with its use. On the other hand, it can be argued that some strategies directed at reducing use can have the untoward effect of increasing the harm associated with the residual use of that drug. It is suggested, for example, that continuing attempts to prohibit the personal use of marijuana have increased the harms associated with its continuing use.

The orientation we have adopted is to examine the evidence for harm reduction of strategies which may have had as their objective a reduction in use, together with those strategies which sought to ensure that continuing use, where it occurred, was minimally harmful.

### **Tobacco**

Current smokers in Australia declined from 37.2% of the population to 28.4% in the period 1977 to 1990 [3]. The decline has been greater in the case of males than in the case of females, and among older rather than younger people [3-6]. Regrettably, recent research carried out in Western Australia suggests that this decline may have reached a plateau in those aged 16-17 years, and that there appears to be a reevaluation of smoking and of the intention to smoke among those aged 14-15 years [7]. Notwithstanding this hopefully transient blip in the otherwise downward trend of smoking, a number of interventions would appear to have contributed to this decline.

#### *Increase in the price of cigarettes*

Successive state governments, starting with Victoria in 1987 [8], have legislated to raise the excise on tobacco and in some cases have established a health promotion fund from the revenue raised which is then used to buy out tobacco sponsorship of sporting and other events. The consequent increase in the price of cigarettes, which has been in excess of inflation, is generally considered to have resulted in a reduction in their consumption [9,10] particularly among young smokers who typically have less disposable income [7,11,12].

#### *Work-place and public space bans*

Occupational and safety legislation in the states,

territories and Commonwealth has placed an obligation on employers to ensure the safety of employees and those clients of their services [13,14] when on the job and, importantly, protect non-smokers, whether employees or the public, from the effects of smoke as a consequence of their exposure to the work-place environment. This interpretation of the Act has been lent force by the successful prosecution of employers and the payment of damages to employees whose conditions of employment have subjected them to prolonged exposure to tobacco smoke [15-17].

Evidence relating to the effect of such work-place bans or restrictions suggests that they are supported by the majority of the work-force, including smokers who credit them with significantly reducing their consumption [18]. While the introduction of such bans is too recent to have been reflected in such statistics, it is to be expected that reductions in the frequency of smoking in the work-place, unless compensated for by more intense smoking in non-working settings, will be reflected in reduced tobacco-related morbidity and mortality among employed smokers and, to a lesser extent, in their non-smoking colleagues and the clients of their services.

#### *Controls on advertising*

Controls on the advertising of tobacco products have been progressively introduced to the extent that in some states and territories a total ban on advertising has been effected, except at the point of sale, with sponsorship of events by tobacco companies requiring Ministerial approval on a case-by-case basis.

While research into the effect of such bans is in its infancy in Australia, and is in any case controversial because of the difficulty in attributing causality [19], recent research [7] suggests that, not surprisingly, the introduction of such bans results in less perceived exposure to cigarette advertising. Of particular note is the establishment in a number of states of Health Promotion Foundations, the finance for which is raised from the added impost on tobacco and the remit of which is to buy out the sponsorship previously provided by the tobacco industry. While the elimination of such tobacco sponsorship is not complete in those states having Health Promotion Foundations, the exposure of the population to both the formal and informal (or inciden-

tal) advertising of tobacco products has been greatly reduced, and exposure to counter advertising (also funded by the impost on tobacco) has been greatly increased [20].

An evaluation of the operation of the Victorian Health Promotion Foundation has been completed [21], while that of the Western Australian Health Promotion Foundation is current [20].

### *Penalties*

In addition to those penalties in the form of damages applied to employers found to have unduly exposed their employees or clients to tobacco smoke there has been a move in a number of states to increase the penalties applied to retailers who supply under-age customers. Research has suggested that a significant number of under-age smokers obtain their cigarettes from retailers who make no effort to establish their age [7,22]. Other studies suggest that if warned of their liability under existing legislation retailers will more often seek confirmation of age [23]. A number of states have started to prosecute retailers who are found to supply under-age customers. While the number of such prosecutions is still small it is to be expected that, if successful, retailers in general will exercise more care in selling cigarettes which, while not the only source of supply, may have the beneficial effect of making cigarettes less available to juveniles.

### *Treatment of smokers*

A majority of smokers wish to give up smoking and most have tried to do so on several occasions [24]. Efforts to assist them to do so are, therefore, clearly justified. Among the most successful of the techniques developed to enable smokers to quit is the programme known as Smoke Screen [25].

Among other less formal interventions has been the example set by doctors themselves and the greater willingness they and other health professionals have shown to enquire about a patient's smoking habits and to relate these to their presenting symptoms. As is also true of excessive drinking, such early screening and minimal intervention techniques have been found to be effective [26].

### *Health warnings*

Health warnings have been printed on the outside of

cigarette packets and on advertisements for such products since 1973 [27]. The trend has been toward more varied (and rotated) and prominent warnings, and a proposal to require generic packaging was narrowly defeated at a recent meeting of the Ministerial Council on Drug Strategy [28].

While research has demonstrated an awareness of these warnings, their role in changing smoking behaviours is less easily demonstrated [29]. In the absence of concrete proof, it is assumed that the presence of such warnings contributes to the climate of counter advertising which has characterized the Australian approach to smoking, and which is reflected in a greater willingness on the part of the public to tolerate restrictions on smoking itself.

## **Alcohol**

### *Introduction of low alcohol beers*

While beers having a reduced alcoholic content were first introduced in 1978, there has been a proliferation of such brands over the last 6 years to the extent that beers having an alcoholic content less than 3.5% by volume represent 17% of the total beer market [30]. Their introduction has coincided with and, it must be assumed, contributed to, a decline in the percentage of absolute alcohol drunk as beer, a trend which has been largely, but not wholly, compensated for by an increase in the consumption of wine [31].

While there have been few studies [32-35] bearing specifically on the question of whether light beers have been substituted for heavier beers, or merely extended the variety of beers available, it is a reasonable assumption that the observed downturn in the per capita consumption of absolute alcohol has been contributed to by the introduction of these varieties and that to some degree the reduction in alcohol-related morbidity and mortality can be similarly attributed.

### *Pricing differentials*

While the actual price charged to the drinker is not regulated in Australia, the total tax impost on alcohol imposed by state and federal governments is a major contributor to that price. To the extent that there have been changes in that impost, we could expect these to be reflected in the actual price of alcohol to consumers and, therefore, to have effected their consumption. The real price of alcohol is

known to be a significant determinant of consumption [36,37] which in itself is closely related to some forms of alcohol-related harm [38].

The introduction of low alcohol beers, and more recently low alcohol variants of wine, and their exemption from certain taxes or the reduction of such taxes as apply to them, has allowed retailers to reduce their price relative to that of their full strength counterparts. This has been done as part of government policy to encourage their consumption relative to that of their full strength counterparts. While little research has been done which bears directly on this question, it is reasonable to assume that the price differential created by such a policy has contributed to light beer's enhanced consumption, which itself will be reflected in time in lower alcohol-related morbidity and mortality [39].

#### *The indexation of the price of beer*

While it is not yet government policy to relate the taxation paid on alcoholic beverages to the alcoholic content of such beverages, some such relationship exists in relation to beers as instanced above. Moreover, it was determined in 1988 that the Commonwealth tax paid on beer would be adjusted at 6-monthly intervals relative to CPI indexation. This has meant, in the main, that the cost of beer has gone up at 6-monthly intervals. While some of this cost may have been absorbed by retailers, most has been passed on to consumers in the form of price increases. Such price increases representing, as they do, real increases relative to disposable income have almost certainly contributed to the decline in the consumption of beer particularly, as we have seen, of regular strength beer. That the tax paid on the alcohol in wine is significantly less than that paid on the alcohol in beer (though there is a recommendation that this be partly addressed) [31] has, in addition to the indexation of beer prices, contributed to the decline of the beer market relative to that for wine [31].

#### *Random breath tests and maximum permissible blood alcohol level*

The introduction of random breath testing in all states and territories and the progressive reduction of the permissible blood alcohol level when driving have been two of the interventions which have been most adequately researched [40-46]. Both would

appear to have contributed significantly and separately to the reduction of alcohol-related road accidents, although the extent of the reduction would appear to relate to the particular circumstances of enforcement being more significant in those states where *all drivers* stopped are tested and which give greater publicity and visibility to the practice [42]. The contribution of these measures to other alcohol-related morbidity and mortality is more difficult to quantify, although it is to be expected that it would have contributed to a general decline in these indices.

Of particular consequence has been the introduction of zero, or near zero, blood alcohol levels for probationary drivers and certain other categories of drivers (for example, bus drivers). The introduction of such additional restrictions and the progressive prolongation of the probationary period have been shown to reduce significantly the incidence of alcohol-related accidents among the categories of people effected [47].

#### *Responsible service*

Overseas evidence suggests that training in responsible service, if combined with more stringent enforcement of the laws against serving intoxicated customers on licensed premises, greatly reduces the incidence of such intoxication and of subsequent alcohol-related harm (for example, road traffic accidents and violence) [48-50].

While guidelines on responsible service have been developed by the alcohol industry in Australia, and there have been several local attempts to apply them [51-53], evidence of their effectiveness is still lacking [54] possibly because their application has not yet been supported by a more systematic approach to the enforcement of the law relating to intoxication on licensed premises [55].

#### *Controls on advertising*

Research carried out in 1990 demonstrated that in the public's view the code regulating the advertisement of alcoholic products was frequently breached, and the means of complaining about such breaches was largely unknown [56]. Public disquiet about this state of affairs, and the appearance of a number of advertisements which were widely seen to be in breach of the code, resulted in the Ministerial Council on Drug Strategy requiring the Trade

Practices Commission to carry out a review of the code [57,58]. The result of this review was for the alcohol industry to be "put on notice" to improve adherence to the code of practice. The industry's response to this warning has been to appoint Code Councils, in some cases specific to particular beverages, some of whose members are independent of any alcohol or advertising interest. Such "Code Councils" are intended to pre-vet any advertisement before it goes to air, so reducing the number of advertisements which are subsequently arbitrated by the Advertising Standards Council.

While the number of advertisements complained of has never been numerous (possibly because of the perceived inaccessibility of the Advertising Standards Council and its procedures), it is the reviewers' impression that the number of formal advertisements breaching aspects of the code has been greatly reduced. Coincidentally, however, there would appear to have been a greater investment in forms of sponsorship, the practice and content of which is not regulated by the advertising code for alcoholic beverages. It seems likely, therefore, that whatever reduction in exposure to improper advertisements for alcohol may have been achieved by the advent of the Code Councils, the greater discipline exercised in relation to formal print and electronic advertisements, has been more than compensated for by the proliferation of "incidental" advertisements achieved by the sponsorship of sporting and cultural activities, the imagery of which (for example, the association of alcohol with national sporting teams) is not regulated under existing codes.

#### *Screening and minimal intervention*

In contrast to some of the interventions listed above, those relating to the early identification and treatment of alcohol-related problems have been adequately researched and their efficacy established [59-61]. A variety of measuring instruments have been developed which, if applied routinely at admission or examination, reliably identify problematic drinkers who, if minimal intervention techniques are then applied, have been shown to reduce their consumption significantly and the problems associated with that consumption [62-65]. While such techniques have been shown to be successful in those experimental settings in which they have been applied, they are yet to be applied universally because of long-standing inadequacies in the training of

health professionals and prejudices effecting the treatment of those with alcohol-related problems [66, 67].

#### *The advent of Sobering-up Centres*

The advent of Sobering-up Centres, often in association with the decriminalization of public drunkenness, has been a recent treatment innovation. While it is too soon to conclude that their establishment has reduced the incidence of alcohol-related harm in their occupants, the removal of intoxicated people from the care of the police to that of health personnel holds out that prospect, while the prospect of their rehabilitation will certainly benefit the communities in which such centres are located [68,69].

#### **Pharmaceuticals**

While prescribed drugs are among those addressed in the National Drug Strategy, their control has less often been the occasion for investigation than that of alcohol, tobacco and certain of the illicit drugs. A notable exception, however, is the benzodiazepine group of drugs. Records maintained by the Commonwealth Department of Health showed in 1988 that 33% of accidental poisonings recorded by hospitals implicated the benzodiazepines, as a consequence of which research was commissioned to establish what alternative means of treatment were available for those conditions previously treated by the benzodiazepines [70]. Greater scrutiny of the prescription of these drugs and the adoption of alternative treatments has greatly reduced the quantities of benzodiazepines prescribed, which has been reflected in a significant reduction in their identification with accidental poisoning and suicide [71].

Of particular concern has been the recreational use of amphetamines which, while not widely prescribed, remain in the pharmacopoeia. While it is to be expected that the regulatory authorities have increasingly scrutinized the prescription of amphetamines, much of the amphetamines used recreationally are illicitly manufactured. In an attempt to address this, legislation has been introduced in most states to restrict the availability of precursors. Whether such restrictions have reduced the availability of illicitly manufactured amphetamines is difficult to establish; certainly the amphetamines remain widely available drugs [71].

A more recent concern is the use of anabolic steroids by the clients of gyms and weight-training establishments. While in some cases such drugs have been legally prescribed by doctors, evidence suggests that the majority of users will have obtained their drugs illegally [72]. Attempts are currently being made to educate users as to the adverse effects of such drugs and consideration given to their more controlled availability through GPs [73,74]. Again, it is too soon to say whether either of these interventions will be successful in reducing the adverse side-effects associated with these drugs.

### **Injectable illicit drugs**

One of the aims of the national strategy has been the reduction of transmission of HIV/AIDS and other blood-borne infections (BBIs). In Australia needle exchange and other HIV prevention campaigns with injectors have been comprehensive, started early, expanded rapidly and soon covered almost all states and territories [75]. As a result it has been claimed that Australia has to date avoided the "second wave" of HIV infection through injecting drug users (IDUs) [76]. Evidence for this is found in Australia's AIDS mortality figures compared to other countries, the level of HIV infection among Australian IDUs compared to those from elsewhere, and studies which have indicated there has been a decline in the HIV risk behaviour of IDUs in this country. However, tempering these claims are indications of a rise in non-HIV-related mortality in some groups of injectors, and high rates of hepatitis B and C among IDUs. These alarm bells suggest that a slow spread of blood-borne infection may be occurring below our "epidemiological radar". Research on the effectiveness of methadone programmes in the community, the impact of methadone in the NSW prison system and some specific programmes aimed at reducing HIV risk behaviours of methadone clients provide other evidence of harm reduction among Australian drug injectors.

### *AIDS cases Australia versus International*

In the early 1980s Australia was ranked third or fourth of 24 OECD countries in terms of AIDS cases per capita [76]; by 1988 Australia ranked sixth and in 1991 it was eighth [77]. A review of recent HIV epidemiological surveillance reports from

Canada [78], the United States [79], Europe [80] and the Western Pacific [81] places Australia seventh among OECD countries on 1993/94 data. It is possible that the slower rate of increase in the relative number of AIDS deaths in Australia may be due to factors other than a change in risk behaviour [76,82]. However, Australia contrasts with the United States where legal access to needles and syringes has remained highly controversial and was, until recently, only adopted in a few localities. AIDS is the leading cause of death among all Americans between the ages of 25 and 44 years [83] and in the nation's capital, heterosexual IDUs outnumbered gay men in AIDS diagnoses during the first 9 months of 1993 [84]. In Australia during the 1993-94 financial year 10% of AIDS cases were IDUs and 69% of these also reported homosexual contact [85]. In European countries such as Italy and Spain, between 64% and 65% of cumulative AIDS cases are the result of IDU-related transmissions [86] compared to 6.1% in Australia, 65% of whom also reported homosexual contact [85].

### *IDU HIV seropositivity Australia versus International*

Australian IDUs have had lower rates of HIV infection than drug injectors in most other western countries [87]. A review of published Australian studies which have measured the (serologically reported) prevalence of HIV infection among IDUs confirms that the prevalence of HIV among IDUs was low in Australia, except in male IDUs who report homosexual contact. HIV prevalence ranged from 20% to 40% in male IDUs reporting homosexual contact and from 0% to 5% in other IDUs [88]. To September 1994, 8.1% of those with HIV infection were IDUs and 36% of these were men who reported homosexual contact [85]. Interviews and finger-prick blood samples collected from over 3000 Australian IDUs in 1989 and 1990 suggested a HIV prevalence of less than 2% in all centres except Sydney, where the prevalence was less than 5%. Breakdown of the Sydney data by sexual orientation suggested the primary risk for HIV transmission was male to male sex [89]. Internationally, the latest available approximate figures for HIV infection among IDUs are 60% in New York, Edinburgh 51%; Geneva 52%, and Bangkok 40% [90]. None of these cities have an extensive history of needle exchange [90].

*Evidence of changes in HIV risk behaviour*

Research suggests that there have been changes in the drug-using HIV risk behaviour of Australian IDUs over time, but that these changes have been far from complete. However, it appears that there have been even fewer changes in the sexual behaviour of Australian IDUs. Cross-sectional data from IDUs interviewed in Sydney show reductions in the percentage of times used equipment was re-used, the number of people from whom used equipment had been accepted in the previous 6 months and a reduction in the number of users who were lending their equipment after use in 1990, compared with 1989. There was a corresponding increase in the use of sterile equipment obtained more frequently from needle exchanges and the proportion of people who said they never shared used equipment rose significantly from 19.4% to 31.0% [75].

A Perth cohort of 38 IDUs, interviewed over the same period as part of the larger study referenced above, had reduced the frequency with which they shared needles, used needle exchanges more frequently, disposed of needles more safely and changed their drug-using behaviour towards eliminating rather than simply reducing risk. From 1989 to 1990 the average number of times a needle and syringe were used reduced from 4.3 to 1.8 times. The percentage of time respondents shared was reduced from 12.3% to 6.1% [91]. Cross-sectional data from a larger sample revealed similar outcomes [92]. The Perth findings are corroborated by a three fold increase in N&S sales from pharmacies over the same period in the absence of evidence suggesting a similar increase in the number of injectors [93]. The only significant difference in sexual behaviour was the extent to which condoms were used for vaginal intercourse with casual sex partners. Of the 33 respondents who reported vaginal sex in both years, condoms were used on average 10.8% of the time in 1989 and 17.8% in 1990 [91]. This data is now over 4 years old.

More recently, self-reported rates of needle-sharing in the previous 3 months among clients of some South Australian needle exchanges have reportedly declined from 4.9% in 1991-92 to 1.2% in 1993-94 [94]. However, a study of users of injectable drugs aged 12-20 years found almost 80% of injectors had shared with at least one person in the previous month [95].

*Caveats on effectiveness: non-AIDS-related mortality and hepatitis C rates*

Discounting HIV-related data in evaluating our national harm reduction policy one is confronted by a 27% increase in population-adjusted deaths attributed to all illicit drugs in the period 1981-92 [96,97], and continuing high rates of hepatitis C among Australian injectors. From 1981 to 1992 death rates due to opiates increased by 180% and those attributed to barbiturates decreased by 92%, while no clear trend was apparent for death rates due to all other illicit drugs [96,97]. Death rates among heroin users are estimated to be between six and 20 times the rates in non-heroin users of same age and gender, with the major contributing factors being narcotic overdose [98]. In 1990 457 opioid-related deaths occurred in Australia. To date 170 IDUs have died of AIDS in Australia. Overdose is currently a far greater public health problem among heroin users than is HIV [98].

Almost all cases of hepatitis C virus (HCV) infection in Australia are IDUs who have shared injection equipment. It is estimated that there are more than 100 000 Australians infected with HCV and 10 000 new cases occur through IDU each year. This compares to HIV, of which there are 17 000 + cases of HIV infection and an annual incidence of 600 cases in Australia [99]. Citing a number of as yet unpublished studies, Crofts *et al.* note that while annual incidence of HIV in IDUs has been estimated at 0.4%, in 1991-92 the incidence of HCV in a cohort of IDUs was found to be 19.6% per year while a study of young male IDUs entering prison found an annual incidence of hepatitis B virus (HBV) of 21% and of HCV of 41% [100]. Such findings point to high incidences of infection with blood-borne viruses among Australian IDUs [99].

*Methadone*

*Expansion.* With the shift in policy towards harm minimization in 1985 in Australia there has been a rapid expansion of methadone places from 2203 in February 1985 to 13 386 in September 1993 [101]. Along with this there has been a change in the way methadone programmes are run with a view to maximizing retention of clients in treatment [102].

*Effectiveness.* There has been little Australian research on methadone maintenance, its effectiveness

resting largely on the results of US studies which are applicable to Australia [103]. Overall conclusions from randomized controlled trials and observational studies are that methadone treatment reduces heroin use, crime, injection-related risks and premature mortality among people on opioids. It is more effective when doses over 50 mg are employed and when the goal of treatment is methadone maintenance rather than abstinence [101].

Australian research which has been done demonstrates that methadone maintenance can reduce harm among opioid users. One study has confirmed a progressively reducing risk of arrest leading to conviction with increasing duration of methadone treatment [104]. A study of IDUs in current opioid treatment, mostly methadone, found they exhibited less risky needle use than the non-treatment group but there was no impact on the sexual risk practices of those in treatment [105].

### Prisons

*Risky environments for BBI transmission.* Recent cases of HIV transmission in Australian jails [106] confirm that this is no longer only a possibility. Over half the prison population in Australia, about 14 000 at any one time, are IDUs and about half of these can be expected to share needles during their incarceration which is, on average, about 4 months [76]. It has been estimated that some needles at Long Bay prison complex are in use 30–40 times per day [107]. Recent research on young male IDUs entering prison found an annual incidence of HBV of 21% and of HCV of 41% [99].

*Methadone in NSW prisons.* Most prisons in Australia have adopted the seriously flawed “identify and isolate” solution to HIV in prison [107]. Prison needle exchanges have been attempted in only one country and are strenuously opposed by prison authorities in Australia, who have preferred educational interventions [107]. Bleach, although biologically and behaviourally imperfect for decontaminating used injecting equipment, is allowed in some prisons. However, the NSW Corrective Services Department is one of two systems in the world reported to run a methadone service [101]. A review indicated that there was suggestive evidence that methadone in NSW prisons may reduce transmission of BBIs via needle-sharing in prison, but no evidence that once in the community it is reflected

in retention in treatment or in reduced recidivism rates [103].

### *Interventions targeted at reducing risk behaviour in specific groups*

There have been at least two Australian studies which provide evidence of the effectiveness of specific interventions targeted at reducing HIV risk behaviours among methadone clients. Comparing randomly collected urine samples from clients of two matched methadone clinics it was shown that establishing a needle exchange outside one had not resulted in an increase in injecting drug use at that clinic compared to the other [108]. A six-session relapse prevention intervention produced superior reductions in risky needle practices over the most risky month of the last six than a one-session brief intervention or a no-intervention control group [109].

Other examples of good harm-reduction practice in the illicit drug area include the ‘Speedwise-Speedsafe’ campaign [110] aimed at young amphetamine users, the ‘Rave-Safe’ project [111], which targeted users of “dance drugs” who attended rave parties, and the materials and information packages put together by various user groups in Australia, including the *Handy Hints* booklet [112] for drug injectors, and *Go-ee the Goanna* [113] which also targeted young amphetamine users. Although these projects have not been accompanied by evaluation of their actual impact on behaviour, they have had considerable involvement of target groups in their production, are free of value judgements and contain relevant information for users provided in an accessible format. Not surprisingly, they also appear to have been well received by the groups for whom they were designed [110,111].

### Cannabis

A criminal conviction has for a long time been recognized as a most severe and often life-lasting harmful consequence of cannabis use [114]. The possession and use of small amounts of cannabis in private was ‘decriminalized’ in South Australia (SA) in 1987 and in the Australian Capital Territory in 1992. While it is too early to evaluate the impact of the changes in the ACT, the SA legislation has been subject to two substantial evaluations [115,116], subsequent re-analyses [117] and updating [118] of



data. In the first 9 months following the introduction of the new laws no increase in cannabis detections generally, or among "at risk" groups such as young people, was apparent and there was no evidence that it had encouraged previous non-users to experiment with cannabis [115]. The second evaluation found no differences in rates of weekly or lifetime use among those aged 13–16 years in SA compared to other states of Australia. Adults in SA were no more likely to have used cannabis, have been offered it or accept it from a trusted friend than were adults elsewhere in the country [116]. Analysis of 1991 and 1993 data confirmed all these findings, except that those in SA were slightly more likely to accept cannabis from a friend [118]. Significantly, with the introduction of the cannabis expiation scheme SA had the largest fall of all Australian states in offence rate from 596 per 100 000 population in 1985 to 178 per 100 000 in 1988 [119].

Although earlier indications were that the change in legislation had not led to an undesirable increase in the number of individuals caught up in "the system" for minor cannabis offences [118], more recently [120] it appears that there has been a 50% increase in the number of cannabis notices issued from 1989/90 to 1992/93, indicating that considerable "net-widening" is probably occurring. The cannabis expiation scheme does not appear to have led to an increase in cannabis use among South Australians; however, in its present form, because of net-widening and current expiation rates of only 45% [120], it may be resulting in larger numbers of people facing criminal sanctions for minor cannabis offences than was intended. If this is the case the scheme will require modification if these unintended harms are to be minimized.

## Conclusions

While this review of the research literature relevant to Australia's policy of harm minimization suggests there are still many gaps to be filled, it does lend support to a number of conclusions.

In general, the number of people smoking regularly has declined and except in certain age groups the uptake of smoking has diminished. Strategies which appear to have contributed to this trend include a substantial increase in the real price of cigarettes, restrictions on the places where smoking is permitted, the banning of cigarette advertising and the curtailment of tobacco sponsorship. Health

warnings enjoy a high recognition and have almost certainly contributed to the resolve shown by smokers to quit, whether spontaneously or by recourse to a variety of treatments.

Similarly, Australia's per capita consumption of alcohol has fallen and Australia's ranking in the world consumption tables declined. This general decline, however, masks a number of contradictory trends—while consumption expressed in aggregate terms has declined, that of young women and youth generally has increased. Moreover, the nature of Australia's consumption has changed dramatically with beer losing and wine increasing its market share. Coincident with declining consumption there has been a diminution in a number of hospital-based indices of alcohol-related harm, particularly traffic-related harm. While the introduction of random breath testing and the lowering of the blood alcohol level for drivers are the two best attested strategies for reducing alcohol-related harm, the introduction of low alcohol beers, the indexation of the price of beer, the wider application of early screening and minimum intervention for alcohol-related problems and the public health campaigns encouraging safer, responsible consumption, are also likely to have played their part.

In contrast to the greater coherence of the strategies adopted to reduce tobacco-related harm, those adopted in relation to alcohol have been less consistent. The sponsorship of sport by the alcohol industry is still widely tolerated despite its implicit contravention of the advertising code while standard drink labelling, strenuously resisted by parts of the alcohol industry, has only recently been enacted. While lower alcohol variants of certain beverages enjoy significant price advantage in some states and territories, fiscal policy in relation to alcohol beverages is not yet aligned to public health considerations. Similarly, while the relationship between the availability of alcohol and its harmful consumption is complex, states are still inclined to allow alcohols greater availability *without* ensuring its responsible service.

Significant legislative changes in relation to the possession of small amounts of cannabis have been introduced in some jurisdictions with a view to relieving congestion in the courts and avoiding the criminalization of users. As yet preliminary research suggests that while criminalization may have been avoided for a significant number, failure to expiate has been higher than was anticipated which, together with a net widening effect, has resulted in the

expected gains in terms of personal and societal welfare not being as fully realized as hoped.

Relatively little attention has been devoted in the research literature to the pharmaceuticals with the exception of the barbiturates and the benzodiazepines both of which were identified in hospital statistics as frequently implicated in poisonings and suicides. Restrictions placed on the prescription of both, together with extensive medical education, has resulted in the substitution of other less potentially dangerous drugs, with the result that their contribution to morbidity and mortality has significantly declined.

While also available on prescription anabolic steroids are, in the main, illegally obtained with their side effects only now being investigated in Australia, as a consequence of which it is too soon to conclude that the measures being taken to reduce these effects have been successful. The containment of HIV contingent upon injecting drug use has been one of the successes of Australia's harm minimization strategy. The feared "second wave" of the HIV epidemic involving the spread through IDUs and on to the sexual partners of such users has not materialized, largely as a result of the free availability of needles and syringes, targeted education campaigns emphasizing the dangers of sharing needles and syringes and greater access to methadone. While there has been evidence of changes in injecting behaviour among IDUs in the desired direction, evidence of high rates of new HCV infections among drug injectors raises concerns about whether such behavioural change is sufficient to minimize the spread of blood-borne infections among this population.

Furthermore, the inadequacy of harm reduction measures aimed at drug injectors in prison, evidence of little change in the sexual behaviour of IDUs and the growing recognition of drug injection among indigenous Australians, suggests that we cannot rest on our laurels. As we strive to become a "clever country" we will need to continue to be industrious and innovative in addressing these and other drug-related harms.

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