

S U M M A R Y

THE PREVENTION OF SUBSTANCE USE, RISK AND HARM IN AUSTRALIA

a review of the evidence



The National Drug Research Institute and the Centre for Adolescent Health

**THE PREVENTION OF SUBSTANCE
USE, RISK AND HARM IN
AUSTRALIA:
a review of the evidence**

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ABBREVIATED TERMS

AFP	Australian Federal Police
BAC	Blood alcohol concentration
BBV	Blood-borne virus
CALD	Culturally and linguistically diverse
Customs	Australian Customs Service
GHB	Gamma hydroxybutyrate
LSD	Lysergic acid diethylamide
MDMA	Methylenedioxymethamphetamine
NDS	National Drug Strategy
PED	Performance and image enhancing drug
SES	Socioeconomic status

PREVENTION – A REAL POSSIBILITY

see: Monograph Chapters 1 & 2

Drugs, both licit and illicit, cause an immense amount of illness, disruption and distress to people of all ages and all walks of life. They are a cause of considerable and growing concern across Australian society.

Recent years have seen huge leaps in knowledge about how best to address this problem and prevent much drug-related harm. Research has provided a good understanding of who is most at risk, at both individual and population level, and the social and developmental factors that place people and communities at risk. We also know much about what protects people from drug-related harm.

It has become clear that drugs are but one of a number of social and health problems that can share common determinants, and that these problems tend to cluster in vulnerable individuals and population groups. Equally, it is clear that wide-ranging and broad-based interventions are needed to address these problems in an integrated way across the whole community. This is especially true for problems with legal drugs which are distributed widely across different economic and social groups in Australia.

This document, and the Monograph that it summarises, bring together this knowledge as a basis for coordinated and effective action to prevent substance use, risk and harm in Australia. This Summary provides a ready reference for anyone planning, carrying out, or interested in preventive action, and retains the same chapter structure as the Monograph so that readers can move easily from one volume to the other, to seek more detailed information on areas of interest.

The Monograph

The Commonwealth Department of Health and Ageing commissioned the Monograph, *The Prevention of Substance Use, Risk and Harm in Australia: A Review of the Evidence*, to provide the evidence base to underpin and inform a comprehensive prevention agenda in Australia, as part of Australia's National Drug Strategy (NDS).

It is important that a prevention agenda be guided by a shared understanding of the nature of the harms to be prevented and, correspondingly, of the underlying patterns of risky drug use. The first part of the Monograph, therefore, overviews current information about the nature and prevalence of the most serious harms associated with different patterns of use of different substances.

The Monograph then reviews the full spectrum of prevention measures. It covers evaluated Australian and relevant international approaches to the prevention of drug supply, use and harm, and approaches to prevent or delay the uptake of licit and illicit drugs by children and young people. It looks at the current application of prevention policy and strategy in Australia, and identifies gaps in prevention knowledge and effort.

Perspectives on prevention

A stated aim of Australia's national drug policy is 'to minimise the harmful effects of drug use in Australian society'. Known as '**harm minimisation**', this approach has been defined as encompassing

Supply reduction strategies designed to disrupt production and supply of illicit drugs; *demand reduction* strategies designed to prevent the uptake of harmful drug use, and *harm reduction* strategies to reduce drug-related harm for individuals and communities.

The Monograph assumes this approach. 'Prevention' is understood broadly, to encompass measures that prevent or delay the onset of drug use, protect the healthy development of children and youth, and reduce harm associated with drug supply and use.

Preventive activities can usefully be thought of within a **Public Health Systems Model** (see Figure 1, page 5), which identifies the levels of increasing breadth and complexity at which prevention activities can be focused. For example, work to reduce supply at the international and national level has implications for such areas as the availability of drugs at the community level and this can influence work with individuals. The public health systems approach allows the mapping of pathways, systems and strategies that connect broader social-structural factors with more local risk and protective factors and drug use outcomes.

Interventions can also be classified according to the level of risk of disorder in the groups targeted. **Universal** interventions are directed at whole populations that are at average risk; **selective** interventions target groups at increased overall risk and **indicated** interventions target those individuals with early emerging problems. The term **targeted intervention** is used to refer to a combination of selective and indicated interventions.

The developmental pathways that lead towards a number of psychosocial problems—including crime, mental illness and suicide, and problematic involvement with drugs—share much in common. Inter-sectoral approaches to the prevention of social problems may therefore be among the most promising initiatives for the prevention of drug use and drug-related risk and harm in young people. The Monograph proposes a Risk and Protection Model (summarised in Figure 2, page 6) that integrates this developmental pathways approach together with reduction of drug-related harms at the population level. The model acknowledges that there are common risk and protective factors for, and interactions between, substance use and other problem behaviours, and it addresses the risk and protective factors that occur early in the life span through to the more immediate factors that influence young people's risks of harmful drug use (e.g. availability of drugs). Within this model:

- **social and structural determinants** are understood as the environmental influences that affect communities and populations;
- **risk factors** are the social, environmental and individual factors that increase an individual's probability of drug use or drug-related harm; and
- **protective factors** moderate and mediate the influence of risk factors while not influencing drug use directly. Many harm minimisation strategies can also be defined as protective factors.

The **prevention paradox** captures the idea that more harm may be prevented through universal interventions—that is, focusing on the majority who are less seriously involved in harmful drug use—than through interventions that target the smaller proportion of high-risk users. The Monograph therefore considers, for each of the major drug categories, whether the bulk of drug-related harm results from use within high-risk populations or across the wider community, and the extent to which universal or targeted interventions are more appropriate.

Scope of the review

The Monograph is based on a comprehensive and critical review of the Australian and international literature. The authors reviewed evidence, across the age groups from conception to old age, on:

- patterns of drug use and harm in Australia, including every drug type identified by the NDS, and the impact of drug use on young people’s development – including evidence from both cross-sectional and longitudinal studies;
- the social and structural determinants of health and drug use, and the risk and protective factors relating to drug use and other psychosocial problems, internationally and in Australia, with particular attention to Indigenous Australians; and
- the effectiveness of intervention programs aiming to reduce risk factors, enhance protective factors and reduce harmful drug use to individuals, their families and the community.

The review encompasses:

- the legally available drugs alcohol, tobacco, pharmaceuticals, inhalants and performance and image enhancing drugs;
- the illicit drugs cannabis, heroin, amphetamine-type stimulants, hallucinogens, phenethylamines (such as MDMA), cocaine, ketamine, and kava; and
- the use of a number of different drugs by the one person – ‘poly-drug use’.

Publications from 1990 onwards were included, and inclusion criteria were developed to obtain evaluation reports of the best available evidence. The initial searches produced over 9000 studies and all titles and abstracts of these articles were examined to select potentially relevant reviews. This material was supplemented with relevant literature identified by experts who were contracted to assist with the project (see acknowledgements). The final review encompasses over 1150 reports, articles, chapters and books, and the critical evaluation of 159 interventions.

Rating the effectiveness of interventions

The effectiveness of each intervention was assessed using a classification system of six criteria that summarise the status of research evidence for each strategy.

- **Limited investigation**
No relevant effectiveness studies were located and there were no empirical or theoretical grounds suggesting the intervention might potentially impact the outcome. May also indicate that the evidence is inconsistent or contradictory.
- ☒ **Evidence is contra-indicative**
The available evidence suggests that this strategy should not be used to prevent the outcome being targeted (e.g. drug supply, drug use, drug-related harm).
- Ⓜ **Warrants further research.**
The strategy appears theoretically sound, or there is some promising evidence for its implementation or outcome, but further research is needed to evaluate its efficacy across larger groups or to define more clearly how it should be implemented.
- ★^P **Evidence for implementation**
Published studies provide a sound theoretical rationale for the strategy and they clearly specify the way it should be implemented. In addition, they report that the strategy has been accepted within service delivery organisations; that recruitment of the target population has been sufficient to achieve a useful impact at the population health level; and that the strategy meets with adequate consumer approval, measured using indicators such as program retention. In cases where the strategy has few costs and obvious benefits, it may be supported for implementation. In other cases, wider implementation may await rigorous evaluation to establish outcome benefits.
- ★★ **Evidence for outcomes**
The literature consistently reports positive outcomes from the use of the strategy in well-controlled interventions. Reported interventions were also of sufficient scale to ensure positive outcomes when implemented at large-scale population level.
- ★★★ **Evidence for dissemination**
For strategies that meet the 'evidence for outcomes' criteria, the literature also reports that the strategy has had positive outcomes when delivered on a large scale by a wide range of service delivery agents, rather than by research teams. Where possible, the review also considers the cost-effectiveness of programs using these strategies.

Each chapter that reviews interventions concludes with a ratings table using these ratings. Where possible, interventions for individual drug types are reviewed and rated but the literature does not always allow this specificity. Other areas (e.g. broad-based prevention strategies, Chapter 9) do not lend themselves, at all, to these ratings and strategies are summarised in terms of their applicability to drug use and harm.

Where there has been any doubt about a rating the authors have erred on the side of inclusivity.

Figure 1: A public health systems model for the prevention of alcohol and other drug problems

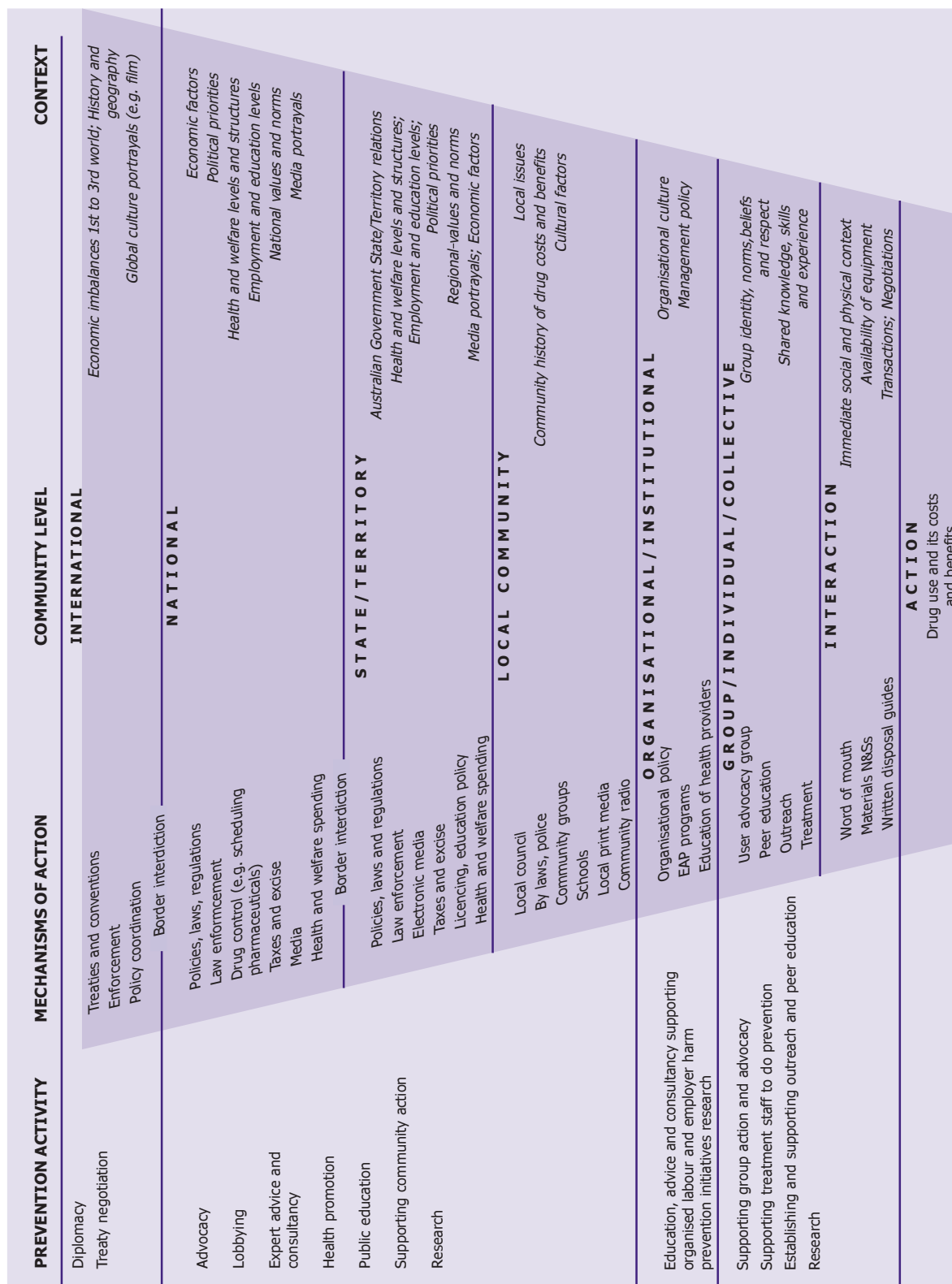
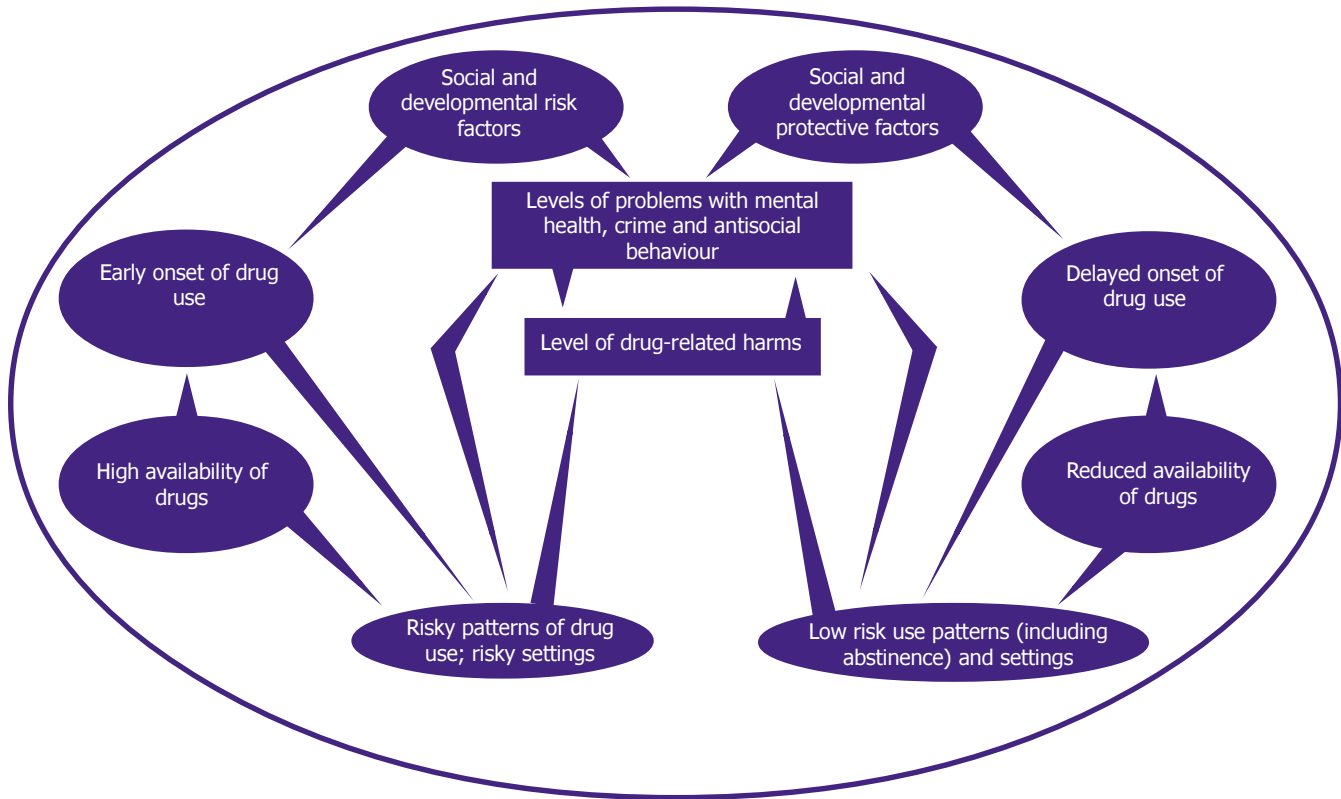


Figure 2: A Risk and Protection Model for the prevention of drug-related harm



PATTERNS OF DRUG USE AND HARM

see Monograph Chapters 3 & 4

Introduction

Drug use—both licit and illicit—carries high health and social costs to individuals, communities and families. This chapter examines the economic costs associated with drug use, and the patterns of use and harm for a range of specific drugs and drug types. It considers the link between drug use and mental health, looks at the issues for particular populations at risk, and summarises briefly the effects of alcohol on the wider community.

Usage figures quoted are generally from the NDS Household Surveys (NDSHS), carried out in 1998 and 2001. The surveys measure recent use – within the last one, three or 12 months; and ‘lifetime use’, that is, use at some stage in a lifetime.

Economic costs

The most recent available estimates, for the financial year 1998–9, found that alcohol, tobacco and illicit drug use cost Australia a total of \$34.4 billion in health care, law enforcement and lost productivity.

- Tobacco cost \$21.2 billion, with the largest proportion of these costs related to loss of life.
- Alcohol cost \$7.6 billion, largely through lost productivity and road accidents.
- Illicit drugs cost \$6.1 billion, with the largest proportion relating to the costs of crime.

Patterns of use and harm for specific drugs

Tobacco

In Australia, tobacco is the leading cause of premature death and hospitalisation, primarily through cancers in older people. The majority of tobacco-caused deaths are in people over 64 years of age. Nevertheless, tobacco-related deaths among younger people (under 64 years) outnumber the total number of deaths from *all* other drugs.

In developed countries, maternal cigarette smoking is the single most important factor affecting birth weight; smoking during pregnancy and early childhood is associated with impaired lung growth and lung function in children. Adolescents who smoke tobacco are at increased risk of dependence and respiratory tract infections.

Recent decades have seen a dramatic fall in levels of smoking in Australia, with less than 20% of Australians 14 years and older reporting daily smoking in the 2001 NDS Household Survey. Among young people (aged 14 to 19 years), particularly women, rates have fallen more slowly.

Alcohol

Alcohol is the second largest contributor to drug-related harm, causing effects in the short term (acute harm) and the longer term (chronic harm). The main causes of alcohol-related deaths are cancer, alcoholic liver cirrhosis and road trauma. Among people aged 15 to 34 years, alcohol is responsible for the majority of drug-related deaths and hospital episodes, causing more deaths and hospitalisations in this age group than all illicit drugs together, and many more than tobacco.

Of the alcohol consumed in Australia during 1998, some two-thirds was drunk at levels that posed a risk of long-term and/or short-term health consequences. For young people aged 18 to 24 years, this figure was as high as 90%, primarily through the risk of acute harm (road trauma, violence, accidents, acute intoxication). Acute harm is experienced disproportionately by younger people, while chronic harm is more evident among older people. At the same time, low risk alcohol consumption has a positive effect on health for older people by reducing the risk of ischaemic heart disease.

Drinking during pregnancy can harm the unborn child and may cause Foetal Alcohol Syndrome, however, fewer than 5% of pregnant women drink alcohol at levels likely to cause harm. Drinking in the early teenage years increases the likelihood of drinking more often, and at higher levels, throughout adolescence and these patterns in turn increase the risk of alcohol-related harms.

Alcohol has become much more readily available over the past two decades in most economically developed countries, including Australia. In the late 1980s and early 1990s, per capita consumption fell then levelled off until the late 1990s, since which time it has increased slightly. Drinking among young people, however, increased throughout the 1990s.

Pharmaceuticals

The non-medical use of pharmaceuticals is a major problem in Australia. It includes misuse of prescribed drugs—involving feigning symptoms, ‘doctor shopping’, using stolen and forged prescriptions, and theft from pharmaceutical and surgical establishments—and misuse or overuse of over-the-counter drugs.

In the 2001 Household Survey:

- 3.1% of the population reported recent use of pain-killers/analgesics for non-medical use, and 6% reported use at some time in their life; and
- 1.1% reported recent and lifetime use of tranquillisers/sleeping pills, and 3.2% reported use at some time in their life.

In school surveys, 22% of 17 year olds reported recent use of tranquillisers for non-medical purposes.

Long-term benzodiazepine use is often associated with dependence, which can produce a pronounced and distressing withdrawal syndrome. Heroin users frequently use benzodiazepines, either as a supplement to opiates or as an alternative in times of scarcity. The mix of heroin and benzodiazepine, particularly if combined with alcohol as well, is a key factor in heroin overdose. Household Survey trends suggest a notable reduction in the use of benzodiazepines without prescription, since 1998.

Performance and image enhancing drugs (PEDs)

Use of performance and image enhancing drugs is largely confined to those involved in bodybuilding, some athletes, and people in the security industry. The gay population also reports a comparatively high rate of steroid use, with around 4% reporting use in the previous six months. Steroids are the most commonly used PEDs but there is little evidence that they are a significant public health concern. Use of non-steroid PEDs has become more common among elite athletes.

Inhalants

A range of substances available ‘over-the-counter’ are used as inhalants. These include paints, glues, petrol, nitrous oxide (once known as laughing gas), various types of asthma medication, household gases such as butane and bottled domestic gas, and nitrites. Many of these products may cause serious harm in both the short and long term. Levels of inhalant use appear to be significant only in some populations of adolescents and among these groups, use is rapidly replaced by other substances in later teenage years.

Cannabis

Cannabis is the most widely used illicit drug in Australia. Usage rates have risen substantially over the past twenty years although the most recent figures show a fall in rates. In 2001, around 33% of Australians had consumed cannabis at some point in their lifetime, 6% less than in 1998. Usage rates among secondary school children also fell between 1996 and 1999.

Around 10% of people who use cannabis at some stage become regular heavy users, a pattern that carries the risk of dependence and conditions such as lung diseases, as well as modest impairment of cognitive functioning. Although the health risks appear to be smaller than for most other drugs, adolescents who use cannabis, particularly those who use it frequently, are at increased risk of a range of social problems in late adolescence and early adulthood. Cannabis interacts with alcohol and possibly other depressant drugs (i.e. drugs that inhibit various aspects of brain function) and this poses extra short-term safety risks (e.g. for driving). For many cannabis users, the most significant harm, both economically and socially, may be a criminal conviction for use. The relationship between cannabis use and mental health is discussed below (see page 11).

Other illicit drugs

Population-based surveys such as the NDS Household Surveys, which rely on self-report, generally underestimate drug use; this is particularly so for illicit drugs as dependent users are often difficult to reach, due to factors such as homelessness or mental illness, and users generally may be more likely to under-report their drug use. The surveys nevertheless show valid trends in usage. Lifetime use of illicit drugs generally fell in 2001 compared to 1998 (see Table 1), with fewer than 10% of the adult population reporting that they had used any illicit drug other than cannabis. There were small rises, between 1998 and 2001, in lifetime use of stimulant drugs (amphetamines, ecstasy and cocaine) with ecstasy showing the largest rise (1.3%). For all other illicit drugs, lifetime use fell over this period. Heroin has decreased in availability over the past two or three years and only 1.6% of the adult population reported heroin use in 2001—a fall of 0.6%.

The major risk in illicit drug use relates to injection, also associated with dependence.

- Injection of opiates carries the risk of overdose, especially if combined with other drugs that depress the central nervous system (e.g. alcohol, benzodiazepines). There has been a marked drop in heroin overdose since 2000 though this follows a 55-fold increase between 1964 and 1997.
- Sharing of injecting equipment and associated paraphernalia is a major risk factor for the spread of blood-borne viruses (BBVs). The HIV infection rate among injecting drug users in Australia is less than 2%, among the lowest of any country. Hepatitis C, however, is present in two-thirds of Australians who have injected for six years or longer. Many of these people will develop liver cirrhosis, which is often fatal. Rates of hepatitis B are also very high in this population.

Some ecstasy-related deaths have been reported, most commonly from hyperthermia.

Use of hallucinogens (e.g. LSD, GHB, ketamine) is relatively low and may be declining (see Table 1). The risks appear to be mainly of an acute psychological nature, such as depression or a psychotic episode. Deaths are rare.

Table 1: Prevalence of illicit drug use in lifetime, for all persons: NDS Household Survey 2001 (with % changes since 1998)

Substance or behaviour	Lifetime use (2001 Survey) (%)	Change 1998 – 2001 (%)
Any illicit drug	37.7	-8.3
Cannabis	33.1	-6.0
Amphetamines*	8.9	+0.1
Hallucinogens	7.6	-2.3
Ecstasy/designer drugs	6.1	+1.3
Painkillers/analgesics*	6.0	-5.5
Cocaine	4.4	+0.1
Tranquillisers/sleeping pills*	3.2	-3.0
Inhalants	2.6	-1.3
Injected drugs	1.8	-0.3
Heroin	1.6	-0.6
Barbiturates	0.9	-0.7
Steroids	0.3	-0.5
Methadone**	0.3	-0.2

* For non medical purposes

** Non-maintenance

Mental health and drug use

Drug use problems and mental illness are the leading causes of disease and injury in Australians aged 15 to 24 years, and the two often occur together in the same individuals and population groups. Some patterns of use may both cause mental health problems and exacerbate existing ones. The following findings are of particular interest.

- **Tobacco** has been recently linked with the development of depression in young people.
- **Alcohol** is strongly linked with anxiety and depression, particularly in those who are dependent on alcohol, and this increases the risks of violence and suicidal behaviour. Alcohol dependence is a major risk factor for suicide and suicidal behaviour in young people is associated with both **cannabis** and alcohol use. Intoxication also plays a role, through disinhibition of dangerous behaviour.
- **Cannabis** can exacerbate symptoms of mental health problems and, in vulnerable individuals, precipitate psychotic episodes that are similar to schizophrenia. A number of recent studies have documented a relationship between adolescent cannabis use and later mental health problems, but the evidence is not consistent across studies.
- Heavy 'binges' on **amphetamine-type drugs** are associated with reckless and aggressive behaviour and, when sustained over days, may precipitate a psychosis.
- There is thought to be a link between **ecstasy** use, cognitive deficits and psychiatric problems, but this has proven difficult to research as many ecstasy users also use a range of other drugs.
- Among **heroin** users, psychological problems are common, particularly depression, anxiety and antisocial personality disorder.

Special populations

Indigenous Australians

The only national survey of alcohol and other drug use among Indigenous peoples (the NDS Household Survey Urban Aboriginal and Torres Strait Islander Peoples Supplement) was undertaken in 1994, and this still provides the best base-line estimates of the prevalence of substance use in this population. Compared to the overall Australian population, Indigenous people were:

- almost twice as likely to have smoked in the last 12 months;
- less likely to be current drinkers: those who did drink, did so less frequently but when they drank, were more likely to do so at high risk levels;
- more likely to have used at least one illicit drug (usually cannabis) both in their lifetime and recently;
- more likely to have injected illicit drugs; and
- almost twice as likely to have inhaled solvents at some time.

Drug-related harm is also experienced at higher levels, particularly deaths caused by alcohol and tobacco. Western Australian figures showed an increase, between 1994 and 2000, of hepatitis C notifications and hospital admission rates for conditions caused by drugs other than tobacco and alcohol.

Family violence and sexual assault are common-place in drinking families and communities, and few Indigenous people have escaped the effects of alcohol on family and community life. Indigenous people in all age groups up to 44 years are more likely to commit suicide than non-Indigenous people; substance use is seen as a contributing factor in the large majority of these deaths. In 1997–99, death rates caused by mental health problems among Indigenous people in four States were twice those among non-Indigenous people and 78% of those deaths were attributed to psychoactive substance use.

Culturally and linguistically diverse (CALD) Australians

CALD Australians generally have lower rates of drug use than the rest of the community but this can vary with the culture and the locality. There are, for example, highly visible problems of heroin use among South East Asian young people in a few specific areas. In 1998, people with a CALD background were less likely than other Australians to drink alcohol, smoke tobacco, or use any illicit drug.

Older Australians

Rates of drug use, both licit and illicit, become substantially lower with age in the Australian population. This low usage is offset slightly by drug-related health problems in some older people that reflect the cumulative effects of many years of tobacco and alcohol use. In addition, older people are more susceptible to drug effects as tolerance of alcohol decreases, resulting in a significant number of fall injuries. Interactions between alcohol and prescribed drugs can also be a problem.

Smoking is by far the leading cause of drug-related deaths in older Australians, with almost 15,000 deaths per annum compared to just over 1,000 alcohol-related deaths. There are very few deaths from illicit drug use. A pattern of regular light drinking, however, protects against heart disease and is thought to prevent over 5000 premature deaths per year in older Australians. This protective effect is achieved at levels of drinking considerably below the recommended maximum in public health guidelines.

Older Australians are more likely than younger Australians to be heavy users of prescribed psychotropic drugs, mainly benzodiazepines, to treat sleeping problems, anxiety and depression. The use of benzodiazepines has been associated with increased risk of hip fracture and of involvement in a motor vehicle accident, whether as a driver or pedestrian. In Australia, around 15 to 20% of all emergency department admissions for people aged 65 years and older are drug-related.

Young people

Drug use among young people is characterised by clear developmental stages of use and changes over time in relation to age. Those who use tobacco and/or alcohol in early adolescence are more likely than their peers to progress to heavier drug use, become dependent on tobacco, and experience other drug-related problems. Drinking in the early teenage years has been linked to subsequent tobacco use and the onset of some patterns of crime and delinquency, while use of cannabis during these years significantly increases the risk of later use of other illicit drugs; although only around 10% of cannabis users follow this path.

Prisoners and police detainees

Rates of drug use in these populations are much higher than in the general population and rates of use of illicit drugs other than cannabis are particularly high. Injecting and needle sharing are common in prisons and the risk of BBV transmission is high. One in three Australian prison entrants tests positive for hepatitis C.

Impacts on the community

Drug use—both licit and illicit— is associated with high health, legal and social costs to communities and families, as well as to users. It is associated with crime and violence, sexual assault and domestic violence. Crime is strongly associated with alcohol and drug use, particularly alcohol with violence and heroin with property crime. Drug use has impacts on families, the workforce and road trauma; and it affects public safety and amenity, not only through perceived threat, but through disturbances such as noise, litter and public intoxication.

SOCIAL DETERMINANTS, HEALTH AND DRUG USE

see: Monograph Chapter 5

Social factors and health status

Poor health is unequivocally linked to disadvantage. In Australia, people across all age groups who are at the lower end of the socioeconomic scale experience more ill-health and early death. Internationally, studies of the relationship between income and health consistently show that, as income reduces, health deteriorates; a comprehensive UK study clearly linked health status with inequalities relating to socioeconomic group, ethnicity and gender. The social environment also influences the health and wellbeing of individuals and communities, through levels of social support and social cohesion—often described as social capital. Social exclusion, both formal (as in the detention of asylum seekers) and informal (such as the labelling of some groups as deviant), adds to the burden for some sectors of the community.

Some researchers also emphasise the role of cultural influences, and their ability to exacerbate or moderate the effect of socioeconomic disadvantage. Australian researchers identify trends such as: consumerism, individualism, the emphasis on economic considerations, and the replacement of over-arching truths by relativism, ambiguity and fragmentation; and a general pessimism and uncertainty among young people, even those from privileged social backgrounds.

Social factors and drug use

Social disadvantage—particularly as reflected in factors such as unemployment, homelessness or insecure housing and poverty—is clearly linked to health-damaging behaviours, including the misuse of alcohol and other drugs. Cigarette smoking, for example, is more common among groups with lower socioeconomic status (SES); people living in rented dwellings, those without private transport, the unemployed and those living in crowded accommodation. However, these connections are not straightforward for all drug types and may work in different ways as drug use patterns move into different social groups.

Income can work both ways. Recent Australian studies have found that the number of cigarette packs smoked by schoolchildren was strongly and positively linked to a child's income; and people in employment tended to drink more alcohol than those who were unemployed. International and Australian data show that during economic downturns, less alcohol is consumed across the population and serious alcohol-related harm is less common.

Drug use is only one of a range of health risk behaviours that share common social determinants, risk and protective factors, and outcomes. This clustering of health and social problems, and risk, is discussed on page 17 of the Summary. However, some people do better than others in terms of health and social outcomes, even under circumstances of extreme social disadvantage and material deprivation, and this reflects the complex way in which the broad social determinants of health interact with individual risk and protective factors. Where problems exist, some studies have found that treatment is likely to be more effective where people have family supports and stable relationships.

Indigenous Australians and social determinants

Indigenous Australians provide the most extreme example of the link between SES and health. The starkest indicator of the health status of Indigenous Australians is their life expectancy, which is 15 to 20 years less than that of the Australian population as a whole.

The social inequalities experienced by Indigenous Australians have their roots in the history of colonialism that has shaped the government policies and institutions. The inequalities can be seen in a number of ways. Compared to the general population, Indigenous people are less likely to have post-secondary qualifications, be employed, or occupy professional, managerial or administrative positions. Among Indigenous peoples, in 1996 the median individual income was three-quarters and median family income 68% of that of the general population.

Most researchers agree that social factors are responsible for the adverse health and social impacts of drug use, particularly alcohol, among Indigenous Australians. The similar patterns of alcohol misuse and harm seen among Indigenous peoples in Australia, New Zealand and Canada are related to the *continuing* consequences of colonialism, dispossession and economic exclusion. A number of studies of Indigenous Australian communities link substance misuse—including smoking, alcohol misuse, and poly-drug use in young people—to these social indicators.

Conclusion

The evidence base makes clear the role of social determinants in influencing drug usage and drug-related problems, particularly for illegal drugs. The strength of the evidence is such that researchers and policy makers need to plan and implement a wide range of interventions that acknowledge and address the social origins of poor health and risky health behaviours at all levels—individual, family, community and across the population.

RISK AND PROTECTIVE FACTORS FOR HARMFUL DRUG USE

see: Monograph Chapter 6

Introduction

Research has identified a number of factors that place individuals, and in particular young people, at increased risk of drug and alcohol misuse, dependence, and the social and health consequences. It has also identified factors that protect against these harms. This has major implications for the prevention of drug-related harm and Australian prevention programs are placing growing emphasis on identifying developmental pathways to harm in order to influence these pathways by reducing risk factors and increasing protective factors.

For the purposes of this review, the following definitions are used.

- **Risk factors** are the social, environmental and individual factors that independently predict involvement in early and heavy drug use.
- **Protective factors** moderate and mediate the effect of risk factors, although they do not, of themselves, directly influence the likelihood of drug use after adjusting for known risk factors.

Risk factors act in a cumulative way over time. Some are present from the early years, others emerge in adolescence – but no single risk factor lies at the heart of drug-related problems. The more risk factors that persist over time, the greater the impact on development. The sequencing of risk factors is also important in the development of drug problems. For example, childhood behaviour problems may contribute to use of alcohol at a young age, which is itself a risk factor for later cannabis use. The sections that follow consider risk and protective factors that operate at different life stages to identify the pathways that lead to harmful drug use.

Influences present before birth and in the early years (0 to 4 years)

Earlier and problematic drug use during adolescence is more likely among young people who are raised in circumstances of extreme economic deprivation, in a sole parent household, and/or where parents or other family members use drugs. Those born outside Australia, however, are less likely to engage in frequent drug use in adolescence.

There is likely to be a genetic component to childhood behavioural problems and temperament, which in turn influence the likelihood of problematic drug use. Males have tended to be more at risk of adolescent drug use but this appears to be cultural rather than an effect of being male *per se*. It appears, however, that males can inherit a paternal gene that is a risk factor for childhood behaviour problems and alcohol (and perhaps other drug) abuse.

In infancy and the pre-school years, parents are the most important influences in a child's life, and neglect and abuse in these early years can undermine healthy development and set in train a pathway of poor adjustment that leads to harmful drug use. An easy temperament in early childhood is protective, both helping the child to adjust in positive ways and reducing the influence of risk factors.

Primary school years (5 to 11 years)

Parents continue to be an important influence throughout the primary school years but other factors, including relationships with teachers, adjustment to school and experiences with peers, play an increasing role. Early school failure is a risk factor for later alcohol abuse.

Children with behaviour problems through primary school are at risk of later drug use problems, with conduct disorder possibly more important in this regard than Attention Deficit and Hyperactivity Disorder (ADHD). Aggression is a risk factor for later drug use but the role of childhood depression is unclear. Children who are socially and emotionally competent are more resilient in the face of risk factors and, therefore, less likely to engage in alcohol abuse and illicit drug use. A shy and cautious temperament is also protective but the role of childhood intelligence is unclear.

High school age (12 to 17 years)

In the teenage years, young people become increasingly independent of the family, making choices about their own identity including their attitudes and behaviours about drug use. Relationships with parents, other adults, and the peer group all influence the risk of drug use. At the same time, the attitudes, behaviours and relationships developed at earlier stages of childhood continue to be influential.

The risk of harmful drug use is heightened in a community where there are higher levels (perceived and/or actual) of drug use, community disadvantage and disorganisation, ready availability of drugs, and positive media portrayals of drug use. On the other hand, adolescents who are involved in sporting or community activities with adults are at lower risk of early drug use.

Families remain important, although family relationships become more complex. Factors that help to protect adolescents against harmful drug use include attachment to the family, parental harmony, and parents who monitor and supervise their children and have good skills in communication and negotiation. Young people are at increased risk where there is parent-adolescent conflict, favourable parental attitudes to drug use, parental alcohol and drug problems, and parental approval of drug (e.g. alcohol) use in childhood or early adolescence.

Drug problems are more likely in young people who do not complete high school and this is influenced by earlier childhood development, including school adjustment and behaviour problems. Academic achievement and feelings toward school are also relevant to illicit drug use.

Adolescents are more likely to use drugs if they associate with other young people who are using drugs. Delinquency in adolescence is also a risk factor but the influence of adolescent anxiety and depression is unclear. Other risk factors at this age include sensation seeking, an adventurous personality and favourable attitudes to drug use. Religious involvement, however, is protective.

Adulthood

The use of drugs escalates after the age of about 18 years and often peaks in early adulthood. Drug use in these years is strongly influenced by behaviours developed during the adolescent years, but other influential factors include relationships with peers and spouse, and patterns of behaviour in social, educational and employment settings. Effective regulation of alcohol in the community and marriage are both protective. Unemployment in early adulthood is associated with harmful alcohol use but this may be because both are outcomes of earlier risk factors.

There is a strong link between adult mental health problems and harmful drug use but it is unclear to what extent mental health problems lead to drug use, or vice versa. Some mental health problems predispose individuals to self-medicate with alcohol and other drugs.

In some populations, the years of retirement and old age see the emergence of late-onset drinking problems but these often appear to be a continuation of earlier high levels of non-problematic social drinking. Losing a spouse, loneliness, and reduced social support have been associated with late-onset drinking problems.

The cumulative influence of risk and protective factors

Adolescent health and social problems tend to cluster. Thus a young tobacco user is more likely to be a heavy drinker, use cannabis, engage in risky sexual activity, have higher rates of antisocial behaviour and, if female, experience symptoms of depression. Similarly, different social settings (e.g. schools, local neighbourhoods) vary markedly in the rates and range of problems experienced.

This clustering reflects the clustering of social and individual risk and protective factors. An adolescent's positive connection or attachment to family, school and community protects against a range of risk behaviours as well as promoting positive educational and social outcomes. Similarly, a large Victorian study has confirmed that many adolescent health problems share important risk factors. Academic failure and school dropout are associated with antisocial behaviour, higher rates of substance abuse, tobacco use and emotional problems; factors such as poor family attachment and family conflict are linked to a broad range of adolescent health problems.

Adolescents with a high level of risk factors and a low level of protective factors are more likely to use all types of drugs in a potentially harmful manner. However, the Victorian research showed that the majority of weekly tobacco smoking and binge drinking was evident amongst students with average rather than high levels of risk factors. This finding suggests that prevention strategies for legal drugs need to be universal in their application and relevance to all young people. In contrast, the majority of illicit drug use was evident amongst students with high levels of risk factors. Targeted programs for high-risk adolescents should be initiated early in the developmental pathway, in pre-school and in primary school, with a view to preventing later illicit drug use.

INTERVENTIONS FOR CHILDREN (0 TO 11 YEARS)

see: Monograph Chapter 7

Introduction

Effective intervention to prevent drug use and harm starts at the earliest stages of development. There is good evidence that investing in early life-stage programs to encourage healthy child development can prevent or delay drug use by children, and prevent the progression to heavy and harmful use. This chapter summarises interventions aimed at improving developmental outcomes for children and their families.

Prevention strategies from birth through the pre-school years include health service reorientation, family interventions, parent education and school preparation programs. The evidence demonstrates that exposure to these programs can reduce childhood risk factors that are linked to the development of harmful youth drug use. Furthermore, longer-term follow-up evaluations, although carried out only on small samples, link these programs with reductions in adolescent behaviours associated with harmful drug use.

The programs

Prior to birth

Programs to **prevent and delay pregnancy** in vulnerable young women address various issues including preventing teenage pregnancy, childbirth preparation, and reduction of pre-birth exposure to drug use. Australia does not have high overall rates of childbirth among teenagers although there are exceptions in some regions of high disadvantage. It is unclear whether these programs prevent pre-birth exposure or drug use problems in future generations but they may prevent drug use in vulnerable young women.

A range of **child health services** in Australia aim to support expectant mothers and identify lifestyle conditions that might undermine healthy child development. The effectiveness of these programs in reducing drug use during pregnancy is not known but there is evidence that family home visiting during pregnancy (and infancy—see below) can improve developmental outcomes for children in disadvantaged families.

Infancy and early childhood interventions

The **better design of services** to address the needs of infants and children may be an important strategy for encouraging healthy child development. Universal programs supporting infant and maternal health have generally not been evaluated for their impact on maternal drug use or child development. There is some evidence that targeted programs can help mothers at risk to remain off drugs but there are many parents in drug treatment programs receiving no formal assistance for parenting and child development.

Family home visiting is well supported by the research evidence as a strategy for reducing infant exposure to harmful drug use, the family's harmful drug use, and early risk factors for the child's later involvement in drug abuse. One review found savings of around \$5 for every \$1 spent on the program over the first 15 years of the child's life but these programs are most cost-effective when they are provided to women and families at most risk.

Parent education is aimed at encouraging healthy child development and its value and cost-effectiveness is supported by substantial evidence. Few studies, however, have looked at outcomes for longer than one to two years and further research is needed to establish whether the positive outcomes can be maintained over time; it has been noted, to date, that the effects seem to diminish over time. If parent education is to achieve its potential in reducing drug use and associated problems, programs may need to extend through the pre-school and early school years and actively address other risk factors as well. There has been little research into the effectiveness and appropriateness of existing programs with different cultural groups, including Indigenous families.

School preparation programs designed to prepare children better for the transition to primary school aim to prevent the onset of pathways of adjustment difficulties. These programs, which may start as early as pregnancy or infancy, represent a practical strategy for vulnerable families. There is evidence of their effectiveness into the long term, although the research does not specify whether any particular pre-school program is better than any other. Some cost-benefit analyses suggest savings of between \$2 and \$6 for every \$1 invested.

Primary school age

At school, children are increasingly exposed to a broader range of influences and further development is increasingly shaped by teachers and their experiences with other children.

Family interventions aim to encourage healthy family development. Some programs target families whose children are having difficulty in school; others are offered to all families in a school community. Evaluations suggest that programs in late primary school may reduce risk factors for alcohol use. Parents experiencing illicit drug use problems are an important target for family interventions, often within drug treatment programs, to break the inter-generational cycle of illicit drug use. There is some evidence that such interventions can enhance treatment outcomes for parents who are in drug treatment and reduce risk factors for their children.

Parent education is a useful source of support for families and extends through to the late primary school age period. Some studies show that parent education programs are effective in addressing youth alcohol use but it is unclear whether programs through the primary school years need to focus specifically on drug use if they are to reduce drug-related risk.

School-based drug education is the delivery of a structured social-health, drug education curriculum within the primary school, usually by classroom teachers but in some cases by visiting professionals. The optimal time for introducing such programs appears to be the late primary or early high school years. A majority of studies of primary school programs suggest they are an effective strategy for reducing later levels of drug use, but the curriculum should focus more on building relationships and social-emotional skills than on drug use. Some evaluations suggest that a focus solely on knowledge, attitudes and values may be of limited value.

School organisation and behaviour management programs are run in primary schools to encourage positive interpersonal relationships at school and to ensure effective discipline and maximise learning. A number of programs have demonstrated that improving the primary school environment can have long-term benefits for young people's development and make an important contribution to reducing risk factors for drug use. In particular, powerful positive outcomes can be achieved through encouraging children who are not experiencing adjustment difficulties to assist children who are experiencing such difficulties. There has, however, been little work published in these areas from Australia.

Conclusions

There is increasing evidence that investment in preventive programs in childhood can help to reduce harmful drug use in later years. In many cases, evaluations have demonstrated positive improvements in child behaviour problems over one to two years. Furthermore, follow-up into adolescence has been completed for an increasing number of studies and links the positive changes achieved through childhood prevention programs to later reductions in harmful drug use and associated behaviour problems. Evaluations have also found that pre-school programs may be important in ensuring a fuller realisation of learning potential.

Although it appears that childhood intervention has the potential to improve developmental outcomes for disadvantaged children, few Australian studies have investigated these interventions. In particular, evaluation needs to look at the relevance of both universal and targeted childhood interventions within Indigenous communities.

Summary: The effectiveness of childhood interventions

Intervention	Strength of evidence	Comments
Prior to birth		
Preventing and delaying pregnancy in young and vulnerable mothers	Ⓟ	Little follow-up to the next generation. Few studies have examined drug use.
Health service reorientation (antenatal)	Ⓟ	Universal approaches have not been studied.
Family home visiting (antenatal)	★★	Effects for selected population groups only.
Infancy and early childhood (0 to 4)		
Health service reorientation	Ⓟ	Universal approaches have not been studied.
Family home visiting	★★	Effects for selected population groups only.
Parent education	★★	Effects diminish with time.
School preparation programs	★★	Increasing emphasis on brain development in the first years.
Primary school age (5 to 11)		
Family intervention	★★	Some adolescent outcomes.
Parent education	★★	Mostly short-term effects.
School-based drug education	★	Need process studies. Social influences critical.
School organisation and behaviour management	★★	Adolescent follow-ups are being reported.

Key:

- Limited investigation
- ⓧ Evidence is contra-indicative
- Ⓟ Warrants further research
- ★ Evidence for implementation
- ★★ Evidence for outcome effectiveness
- ★★★ Evidence for effective dissemination

INTERVENTIONS FOR YOUNG PEOPLE (12 TO 24 YEARS)

see: Monograph Chapter 8

Introduction

Adolescence is a time when young people become increasingly independent and mobile and are subject to a widening range of social influences¹. Social changes over recent decades, including technological advances and free market competition, have meant that many more young people have to obtain higher educational qualifications than in previous years in order to enter employment. These changes underlie the current trend to spend more years in education and to delay—often until the late twenties—the transition from living with parents to independent living.

The programs

Parent education

Parent education—that is, information or instruction delivered to parents with the aim of encouraging healthy family development—may range from one-off messages using social marketing strategies to self-help books or self-completed computer programs and through to sequenced curriculum packages involving professional contact over a number of sessions. Programs for this age group include generic parent education and programs for those people assisting parents concerned by their children's illicit drug use.

While the model of sequenced parent groups is emerging as a useful approach, alternative models such as phone counselling are also being trialled with positive results and future investment should encourage innovation in service delivery models. Among the approaches reviewed, the Australian Parenting Adolescents a Creative Experience program, delivered through secondary schools, shows promise as a way of reducing early youth drug use. There has, to date, been insufficient research to know whether parent education can reduce adolescent tobacco, alcohol or cannabis use, but there are good grounds for thinking that it might be effective. There is evidence, however, that parent education may assist families facing a high number of risk factors for harmful youth drug use.

More intensive parent education has been investigated for delivery in settings such as juvenile justice and youth drug abuse treatment. This approach appears feasible but more research is needed to establish whether it can prevent harmful drug use.

Family intervention

Family intervention programs involve work with one or more parents, adolescents and other family members together, to encourage healthy family development. There has been limited research into the effectiveness of these programs in reducing adolescent tobacco, alcohol or cannabis use, although it is known that drug use is influenced by family factors. Family therapy models are used in Australia to assist families facing difficulties with youth cannabis use, and some family therapy programs in juvenile justice or drug treatment settings appear to be effective. These interventions, however, are not well developed in Australia.

¹ Adolescence, for the purposes of this paper, may be understood as the age when children in Australia start the transition from primary school into high school and continuing until the establishment of economic independence.

School-based drug education

Drug education attempts to reduce drug-related harm through the delivery of a structured social-health curriculum within the school. It is delivered usually by classroom teachers but in some cases by visiting professionals.

There is good evidence that these programs can produce changes in young people's knowledge about drug use and the consequences of drug use. Information alone appears to be insufficient to change intention to use drugs or actual use, although it remains an important element of prevention. Drug education programs based on social learning principles have consistently shown short-term effects on intention and drug use but the effects diminish by late high school years unless they are supplemented by other strategies such as social marketing, community mobilisation or parent involvement.

Drug education can be a relatively low-cost way to delay or limit the use of tobacco, alcohol, marijuana and other drugs but the effect sizes for most programs are small. Despite many years of research, program failures are not uncommon and there remains active debate regarding the critical program components.

The timing of programs and inclusion of social influence processes appear to influence effectiveness; there can be benefits in involving peer leaders. Peer leaders can be important where they model attitudes unfavourable to drug use but this will occur only if they are carefully selected and well supported with management skills learned from professional teachers.

Given the pressures on school curricula, there is an argument for generic rather than single-drug programs; the most effective programs for reducing tobacco use may also be effective in reducing cannabis and alcohol use. Transplanting successful programs from one cultural context to another (e.g. United States to Australian high schools) can be problematic and where this is done, further evaluation is essential to ensure successful adaptation to the Australian context.

School organisation and behaviour management

Secondary school programs in this category have a range of forms and aims including better preparation for high school, encouraging positive interpersonal relationships at school, ensuring effective discipline, maximising learning opportunities, and maintaining drug-free environments. There is a growing body of US research that shows the benefits of such interventions in primary schools but in secondary schools, the available research is limited and inconclusive. What research there is does suggest that high school organisation and behaviour management practices may influence youth drug use. Further research is needed to establish the processes that make programs effective and develop a wider range of program options.

Peer intervention and peer education

Given the importance of peer influence in the development of young people's drug use, it would appear logical to attempt to use peer influence to reduce drug use. Peer educators can be very powerful because they can model normative attitudes; however, in evaluations of peer leadership in drug education, it has proven difficult to identify the specific contribution of the peer intervention. There are some risks with peer interventions as unless well implemented, they have the potential to reinforce attitudes and behaviours favourable to drug use. It is essential that peer educators be carefully selected and well supported with management skills from professional teachers.

Peer programs have been extensively used in Australia to address risks associated with illicit drug use. They use strategies such as encouraging safer injecting and providing information regarding support options but their impact on drug use is not yet known.

Youth sport and recreation programs

For many young people, drug use is a component of social and non-school recreational activities. Efforts to reduce drug use have, therefore, included efforts to modify young people's recreation settings by providing recreational opportunities outside the school setting to promote positive development. The evidence available, to date, suggests the strategy has promise and warrants further evaluation. Youth sport and recreation strategies may be of particular importance to young people who are not attending school.

The Australian Drug Foundation has recently introduced its Good Sports Accreditation Program—to recognise clubs at a community level for their alcohol policy and practice initiatives. The approach holds promise although it is too early to demonstrate its impact. Evidence suggests that involving at-risk young people in organised community-based activity programs, such as youth clubs, confers some protection against illicit drug use.

Mentorship

Mentorship strategies aim to develop positive social relationships between young people and adults who can provide support and healthy role modelling. Connectedness with a caring and responsible adult has been shown to reduce the risk of drug use and related problems for young people with a high number of risk factors. Programs that recruit and train adult volunteers to offer advice and friendship to young people have been implemented and, in some cases, evaluated.

Mentoring programs may be successfully organised through schools or community organisations. They may also have particular significance within populations where there are high rates of drug-related harm, such as Indigenous communities and out-of-school youth. The Big Brothers/Big Sisters program, implemented in Australia through Jesuit Social Services, appears worthy of further evaluation.

Community-based drug education

The delivery of drug-related health education or information in community settings should be approached with caution. There has been little evaluation and, as with all types of drug education, community-based programs have the potential to exacerbate problems.

There are no published studies evaluating this approach to tobacco or alcohol use. Some community-based programs targeting high-risk young people have been evaluated and, while they may be feasible to implement, the evidence suggests there may be risks in bringing together high-risk young people for drug education programs.

Preventive case management

Preventive case management targets young people with multiple risk factors. It typically involves complex coordination across a range of service types and includes: assessment of needs, identifying relevant services, coordination of service delivery, and monitoring of outcomes. Although used in various settings, evaluation has been limited and has not looked at the impact on tobacco or alcohol use. Preventive case management appears to be best suited for young people with multiple risk factors for illicit drug use. Variants of the strategy are being developed for delivery in Australian settings and further implementation and evaluation are warranted.

Community mobilisation

Some communities have developed coordinated action to foster young people's healthy development and prevent harmful drug use. These multi-level programs can be expensive but they provide an opportunity to target a range of risk and protective factors influencing young people's drug use. Research is needed to investigate the feasibility of community mobilisation in the Australian setting. Published evaluations of these interventions, largely in the US, are promising but the cost-effectiveness, compared to school-based health education, needs careful assessment. Evaluations suggest that community mobilisation can achieve modest short-term reductions in alcohol and cannabis use, and possibly tobacco use, but there have been no evaluations of effects on other illicit drug use.

Health service reorientation

There is tremendous potential for existing health services to contribute to broader community agendas in preventing or reducing harmful drug use by young people, through modifying developmental risk and protective factors and improving service access. It is fundamental to ensure that existing services maintain a preventive focus and use effective methods of engagement.

Few studies have tested the impact of early interventions involving health services on young people's drug use. Many studies, mainly from the US, report on the existing practice of primary health care professionals in preventive screening and health promotion offered for health-risk behaviours including alcohol, drug and tobacco use; they do not evaluate the effects of this practice on the drug use of adolescent patients.

Effective training programs can help increase screening by physicians but screening will be effective only if it is supported by effective interventions to help young people and ways for clinicians to identify the most effective intervention for each young person.

Moving health service delivery into schools is a potentially important strategy that has demonstrated benefits in reproductive health, but few studies have evaluated its effectiveness in reducing drug use.

Some programs include elements of school drug education but rely on health professionals for coordination and content. Evaluation suggests a positive impact in reducing tobacco use but the specific benefits of having health professionals involved are unclear.

Screening and brief intervention has emerged as a promising approach for health service involvement in reducing harmful alcohol use and related problems in university students.

No studies have evaluated impacts on illicit drug use following health service reorientation. Health services are involved in some interventions targeting young people with multiple risk factors but the contribution of the health service component would be difficult to differentiate.

Employment and training

Entry to post-secondary education and/or the workforce, like other major developmental transitions, can influence alcohol and drug use by young people. Preventive strategies at this stage include the provision of pre-employment assistance, employment experience, training or intervention in a post-school training setting. These have the aim of advancing young people's health. No evaluation studies were identified examining impacts of such programs on drug and alcohol use.

Social marketing interventions

Social marketing involves use of the mass media to promote health messages aimed at the prevention of harmful drug use.

There is good evidence that mass media strategies can convey a health promotional message to a high proportion of young people. Radio appears as effective as more expensive media. Less research attention has been paid to media such as the internet and teenage magazines.

The evidence does not support simple 'once off' media campaigns to affect drug use in the young but rather, the use of mass media in combination with other strategies such as school-based health education or community mobilisation. It appears that both tobacco and illicit drug use are amenable to these approaches; however, a greater commitment to evaluation is required to ensure effective public health investment. Youth alcohol use messages within harm minimisation programs are particularly complex, with targets such as limiting the frequency and amount of use and different recommendations for males and females. This complexity introduces a particular requirement for behavioural research to develop feasible campaign targets.

Regulation and law enforcement

Setting and enforcing laws and regulations regarding the minimum age at which youth can purchase and use tobacco and alcohol appear to be effective in delaying initial use. Strategies include social marketing to ensure regulations are understood, the use of minors as confederates to monitor retailer compliance, and the use of graded penalties and positive feedback for compliance.

There is some debate regarding the effectiveness of laws that prohibit cannabis use. Such laws may have a deterrent effect for some youth, conveying a message that cannabis use is not socially approved. However, criminal penalties also run the risk of creating harm and social alienation where youth drug use results in a criminal offence. In balancing these considerations the possibility of reducing from criminal to civil penalties appears feasible. In States that have relaxed criminal penalties for cannabis use, there is no evidence that cannabis use has increased. In cases where youth are charged with illicit drug use, there may be opportunities to reduce escalation to harmful drug use through diversion programs. Such programs provide targeted entry to strategies such as family intervention and preventative case management.

Conclusions

Considerable progress has been made over the last decade in the development and evaluation of strategies that can successfully prevent patterns of drug use that are associated with harm in young people. Few studies, however, have completed follow-up for long enough to demonstrate that reductions in early drug use translate into later reductions in harmful drug use.

Research investment has focused largely on school-based drug education with less attention to other strategies. Evidence suggests, however, that the integration of different health promotion strategies may carry particular advantages. Drug education campaigns can be successful as part of community mobilisation and the combination of drug education with social marketing may offer advantages in reducing tobacco use among young people.

A number of evaluations show promise in engaging parents and families in interventions but longer-term follow-up is required to demonstrate whether family interventions can reduce drug abuse. A small number of studies have evaluated illicit drug use outcomes. More intensive strategies including family intervention, preventive case management, and targeting young people with a high number of risk factors appear promising for preventing harms associated with illicit drug use.

Amongst the more promising strategies is the use of law and regulation to reduce purchasing and use of tobacco and alcohol by minors. These programs, when combined with community mobilisation activities, have shown promising results and deserve wider implementation. It may be possible to reduce the severity of penalties for cannabis use without reducing the deterrent effect of the law (see Monograph Chapter 12). Using police and the legal system to divert youth into prevention programs when they are apprehended or charged with illicit drug use offences may be promising as a method of reducing escalation to harmful drug use.

Summary: The effectiveness of interventions for young people

Intervention	Tobacco	Alcohol	Cannabis	Other illicit	Comments
Parent education	⓪	⓪	⓪	⓪	Few programs address a single drug type.
Family intervention	○	○	○	★	Impacts relevant to illicit drug use can only be inferred.
School-based drug education	★★	★	★	★	Effects tend to be weak and short-term.
School organisation and behaviour management	⓪	⓪	⓪	⓪	Evidence for feasibility in high schools.
Peer intervention and peer education	⓪	⓪	⓪	⓪	Little evaluation.
Youth sport and recreation programs	⓪	⓪	⓪	○	
Mentorship	○	○	⓪	⓪	
Community-based drug education	○	○	⓪	⓪	One evaluation had negative outcomes.
Preventive case management	○	○	○	⓪	Australian application for youth with a high number of risk factors is emerging.
Community mobilisation	★	★★	★	⓪	Cost-effectiveness unclear.
Health service reorientation	⓪	★	⓪	○	
Employment and training	○	○	○	○	
Social marketing	★	★	★	○	May require delivery combined with other strategies.
Law, regulation and policing	★★	★★	⓪	○	Potential for wider implementation relevant to alcohol.

Key:

- Limited investigation
- ⓪ Evidence is contra-indicative
- ⓪ Warrants further research
- ★ Evidence for implementation
- ★★ Evidence for outcome effectiveness
- ★★★ Evidence for effective dissemination

BROAD-BASED PREVENTION

see: Monograph Chapter 9

Introduction

Prevention strategies across a number of areas, including crime prevention, physical and mental health promotion, and education strategies, target harmful drug use as one of a broad set of prevention goals. This chapter summarises a number of broad-based strategies and considers the potential synergy with efforts to prevent developmental risk, harmful drug use and drug-related harm.

The programs

Focusing on children and young people

Investment in the early years is supported by an increasing body of evidence, including research on the role of adequate nurture in early brain development, developmental research linking early developmental problems with problems later in life, and growing evidence that interventions in the early years make a difference later in life. These findings are promising, although longer follow-up studies are needed.

Education strategies encompass a range of programs to enhance school learning environments and promote student health with a focus on reducing risk factors and enhancing protective factors. Well-conducted prevention programs in primary schools may be among the best investments for addressing harmful drug use (as well as other outcomes) and may impact on a wide range of risk factors such as conduct problems, aggression, victimisation, early age drug use and low school attachment. They may also enhance protective factors by increasing pro-social, responsible behaviours and bonding to teachers, parents and school. Programs addressing high school organisation and behaviour management may also influence important risk and protective factors.

Homelessness strategies address the strong link between homelessness, substance use and mental illness. Some evidence suggests that programs that reduce risk factors and enhance protective factors for harmful drug use will also help to prevent homelessness. Similarly, strategies that reduce homelessness may have a positive impact on drug use problems, although bringing together young people who use drugs could encourage rather than discourage use.

Crime prevention programs in Australia generally take a developmental pathways approach focusing on modifying early risk and protective factors. Many of the factors that lead young people to engage in crime also lead to harmful drug use. Recommendations for violence prevention programs include addressing multiple risk factors; enhancing protective factors at the community, family, school and individual/peer levels; and maintaining programs across the course of development. Crime prevention programs often include early intervention with disadvantaged and at-risk youth.

Methadone maintenance therapy for opiate dependence has been shown to be an effective means of reducing drug-related criminal behaviours in opiate users.

There is evidence that early youth involvement in tobacco, alcohol and illicit drug use may increase later involvement in crime. In overview, the current evidence supports the development of mechanisms to link investment and program delivery in crime prevention with efforts to prevent drug-related harm.

Focusing on adults

Australia's well-developed public health system focuses on priority areas identified as having a significant impact on population health. Current national health priorities include the following areas.

- **Cardiovascular health:** tobacco and alcohol misuse are risk factors for cardiovascular disease as well as other health problems; there have been successes in reducing adult, but not adolescent, tobacco smoking. A recent initiative, the Smoking, Nutrition, Alcohol and Physical activity Framework, directs the attention of general practitioners to behavioural risk factor modification. Evaluations are not yet available.
- **Cancer prevention:** this includes a number of policies and strategies relevant to drug use, including reduction of tobacco and high-risk alcohol use. All initiatives encouraging reductions in smoking or limiting drinking to within recommended consumption guidelines can be considered cancer prevention initiatives.
- **Injury prevention:** some interventions in this area are relevant to drug policy, including reducing drink-driving and providing alcohol treatment services. Alcohol causes, or contributes to, many injuries, including road trauma, falls, fire injury, drowning, assault and suicide; dependence on alcohol dramatically increases the risk of death through injury. Falls injuries in older people are especially associated with problematic alcohol use. Other relevant injury prevention strategies include night patrol schemes in Indigenous communities, enforcing responsible service legislation to reduce alcohol-related injury; and more widespread use of brief interventions by doctors to reduce problem drinking.

Many **health education** initiatives include information relevant to avoiding harmful drug use. While it is a popular **health promotion** strategy, there is a body of evidence to show that health education, as a stand-alone strategy, has only limited effects in changing behaviour. Health education may have a role, however, as a component supporting a broader set of behaviour change interventions.

Given the strong link between SES and health problems, including drug use, there is some literature on attempting to **reduce differentials in socioeconomic status**. Structural and legislative measures appear to be the most effective means of reducing health inequalities but there is not yet sufficient evidence on which to base rational policy in this area. The potential to reduce harmful drug use through these approaches is unclear.

Mental health promotion and prevention

A number of the strategies for promoting mental health are also relevant to the prevention of drug-related harm. These include strategies to reduce social exclusion, alcohol and drug problems, homelessness and unemployment; and strategies to increase or improve parenting skills, social support networks, education and training opportunities, and healthy work environments.

Mental health promotion and drug-related prevention rest on the same principle, that of reducing risk factors and building protective factors. There is a strong theoretical case that treating mental health problems is likely to be effective in reducing substance use, even in the absence of treatment for substance use problems; but no direct evidence of this was found. Nor is there direct evidence that mental health promotion programs reduce substance use in the community, or that reductions in rates of mental health problems or mental illness have a positive impact on rates of substance use problems. There is increasing evidence that reducing drug use in youth may prevent mental health problems later in life. This evidence suggests that mental health investment should form one component in programs aiming to prevent early age or regular drug use in adolescence.

Community improvement

Community prevention initiatives have been developed to target drug use directly. Grounded in community improvement or community development, these initiatives focus largely on changing adult behaviour and the structural issues that support and maintain drug consumption. The Commonwealth Government initiative, Stronger Families and Communities Strategy, launched in 2000, includes a focus on prevention and early intervention, which is described as helping families early on to prevent later problems such as domestic violence, youth suicide, homelessness and drug addiction. These broad investments in community strengthening are also reflected in State programs that have a similar focus. Although the contribution that community improvement initiatives make to reducing drug-related harm is unknown, there are theoretical reasons to expect they should enhance protective factors for positive child and youth development and more generally improve wellbeing.

Conclusions

The developmental pathways framework, with its emphasis on reducing developmental risk factors and enhancing protective factors, has the potential to improve coordination between crime prevention, mental health promotion and drug use prevention efforts. While broad-based prevention strategies vary in their direct or indirect relevance to the prevention of drug-related harm, there are clear synergies between drug policy and current efforts in other areas; for example, use of brief interventions and screening in health, and harm reduction frameworks within injury and crime prevention policies.

The Protection and Risk Reduction Approach to prevention articulated in this document has the potential to integrate these varying frameworks and provide a basis for strong coordination between different prevention strategies. A closer link between research and service delivery has the potential to strengthen prevention policy by identifying the strategies and strategy combinations that are most effective in reducing early age drug use and drug-related harm.

Summary of broad-based strategies²

Broad-based interventions	Targeting:		Potential for integration with the prevention of harmful drug use
	Drug use	Risk factors	
Children and young people			
Early years investment	✓	✓	After around 15 years, could reduce some of the more severe drug use problems.
School effectiveness	✓	✓	From 5 to 10 years, could reduce some illicit drug use. Earlier universal impacts on licit drug use.
Crime prevention	✓	✓	Targets alcohol and illicit drugs. Strategies such as incarceration can increase drug problems.
Homelessness strategies	✓		Aggregating high-risk use could increase use.
Adults			
Health promotion	✓	✓	Directly targets harmful drug use.
Cardiovascular disease	✓		Targets include tobacco and heavy alcohol use.
Cancer	✓		Targets include tobacco and heavy alcohol use.
Community			
Injury	✓		Targets include heavy alcohol use.
Health education			Widely used despite having little evidence.
Reducing differentials in SES		✓	Evaluation of investments could advance knowledge of potential to reduce drug problems.
Mental health promotion	✓	✓	Targets include harmful drug use.
Community improvement			✓ Evaluation could explore improvements in developmental protective factors.

Key:

- ✓ Based on a theoretical, policy, or, in rare cases, an empirical basis for linking the broad policy area to reductions in harmful drug use or to modifications in developmental risk and protective factors.

² Broad-based interventions do not lend themselves to the standard ratings, thus strategies are summarised in terms of their applicability to drug use and harm.

DEMAND REDUCTION

see: Monograph Chapter 10

Introduction

Reduction of the demand for drugs across the general population is achieved by a number of different means. **Treatment** for drug problems is one of the best ways of assisting users to reduce, or abstain from, use. The efficacy of programs addressing alcohol and drug use in the **workplace** is a matter of debate, particularly in relation to drug testing.

Community-based programs are vital because the community is a primary locus of demand reduction. **Mass media** campaigns are a common means of community education and prevention in Australia, while **national drinking guidelines** and standard drink labelling serve a similar purpose. This chapter considers all these strategies as well as the critical importance of demand reduction in Indigenous communities.

The programs

Treatment for alcohol and other drug problems

Investment in effective treatment programs should be a key ingredient of comprehensive prevention policies. Treatment can have population level impacts e.g. on levels of crime and health problems in the community. Interventions can occur with family members of people with drug problems. This often increases treatment effectiveness and may minimise the intergenerational transmission of mental health and substance use problems. There is strong evidence that treatment programs for alcohol and other drug problems can be effective in reducing drug use and drug-related crime, and improving mental and physical health and social functioning. Programs targeting high-risk and dependent drinkers reduce the harms experienced across the community, but most people with an alcohol problem do not receive treatment for it. The evidence suggests that:

- for smokers, nicotine replacement therapy is effective;
- for alcohol problems, effective approaches include motivational interviewing, brief interventions, social skills training, community reinforcement approach, relapse prevention and some aversion therapies; and
- for illicit drug use, treatment normally entails addressing both the physical and the psychosocial aspects of drug dependence.

This last may include pharmacotherapies, detoxification, counselling and psychosocial interventions. The effectiveness varies according to the drug and pattern of use. The strongest evidence for efficacy is in the treatment of opioid dependence with methadone maintenance treatment, which has achieved reductions in drug use, criminal behaviour, mortality; and improvements in health status. Various treatments for cannabis and amphetamines have been trialled but the evidence for their efficacy is not as strong.

There is no direct evidence promoting any particular treatments for people with co-morbid mental health and substance use problems, or for drug-related problems in older people. There is some evidence for matching different treatment modalities to different types and intensities of drug problems. There is a clear potential for increasing the impact of society's investments in treatment programs on levels of risky drug use and harm at the population level.

Health service reorientation

Brief intervention offers a highly cost-effective strategy. It is inexpensive, takes little time, and can be implemented by a wide range of health and welfare professionals.

Brief interventions are effective when used:

- by primary care or general practitioners, in reducing the consumption of tobacco and alcohol; and
- in pregnant women, in reducing smoking and associated low birth weight and pre-term birth.

There is a need to explore ways of maximising the community-wide impact of brief interventions through supporting their wider delivery by primary health care workers across various settings. Structural policy changes may be required to achieve this outcome.

Workplace programs

The rationale for alcohol and other drugs interventions in the workplace is to improve productivity and/or workplace safety. Developing such programs is complex and requires consideration of health, ethical, legal and industrial relations. There is no strong evidence that any particular workplace prevention strategy will reduce consumption or levels of harm. A strong case can be made, however, that strategies proven in other settings, such as brief interventions, breath-testing and reducing the availability of alcohol, will be effective.

Employee assistance programs have become a common response to individual employees with drinking problems. It has been argued that primary prevention programs should be developed in the workplace to address physical and cultural factors of the work environment that promote or support problematic drug use.

Many employers equate prevention with **drug testing**. This is increasingly being adopted in Australia, particularly in the mining industry. Urine testing measures past drug use but there are no adequate studies to show whether drug testing can achieve improvements in workforce productivity or safety (despite benefits reported anecdotally or from weak or uncontrolled evaluations). Alcohol breath testing measures current intoxication, and blood alcohol concentrations of greater than 0.05 produce a dose-dependent deterioration in performance; but it is unclear whether workplace alcohol testing programs improve productivity or safety, due to the poor quality of published studies. Nevertheless, where there are particular safety concerns (e.g. airline pilots), it is generally accepted that alcohol and other drug testing programs have a useful role, despite the lack of well-controlled studies. It is recommended that such practice continues and that alcohol testing should always be used in jobs where safety is of concern, and that further research into workplace interventions is conducted.

Community-based prevention programs

Community-based interventions may use **health promotion** messages to reduce the use of tobacco and alcohol; or focus on **structural policy change** to achieve policy, legislation and practice change to influence alcohol and tobacco consumption. Recent initiatives have combined these two methods in **comprehensive community-based prevention** programs. Community-based programs can be most effective in changing health risk behaviours when using a wide range of interventions across a variety of settings and contexts. By changing the norms about alcohol use and alcohol harm, community mobilisation can facilitate structural changes that have a direct impact on harm. The evidence is strongest for programs that focus ultimately on structural and local regulatory change, such as providing incentives for responsible alcohol service.

There is also growing interest in community-based **programs targeting illicit drugs** with community groups in various Australian communities providing support services, employment, recreation and monitoring of young people's parties. The approach is promising but, to date, there has been little evaluation of its effectiveness. The Community Partnerships Initiative is a Commonwealth program that funds community groups to undertake preventive projects targeting illicit drug use by young people. Early evaluation results suggest a significant gap between practice and the evidence base in this area. There has been limited investment in rigorously evaluated community interventions in Australia, whether for legal or illegal drug problems, with most of the controlled studies being conducted overseas.

Social marketing: prevention through mass media marketing and advocacy

The mass media have been a powerful vehicle for the promotion and marketing of alcohol and tobacco; and increasingly, public health agents have marketed competing messages about alcohol, tobacco and, more recently, illicit drugs.

- Anti-smoking campaigns have had some success internationally and Australia's 'Quit' campaign, which used TV advertising as its main element, achieved decreases in smoking in cities where the campaign was run. The Commonwealth's National Tobacco Campaign has been the most intense and longest running anti-tobacco campaign in Australia, with the most comprehensive evaluations of any national health promotion campaign. Evaluation found it achieved reductions in the prevalence of smoking and savings of up to \$24m.
- Mass media marketing of alcohol prevention has formed part of larger community-based programs. The strength of this approach may be to reinforce community awareness of the problems created by alcohol use and prepare the ground for specific interventions. These recent campaigns have also been successful in their own right.
- A current campaign targeting illicit drugs is aimed both at users and at their parents. Stage one, which targeted parents and encouraged them to talk to their children about illicit drugs, met its objectives but the campaign has not yet been concluded.

Advocacy works to promote healthy behaviours and healthy public policy by influencing decision makers, working through political lobbying, coalition building, and the mass media (typically the news media) to highlight and advance particular health issues. The most successful public health policy reformers have based their advocacy on sound research data and have utilised all three approaches to achieve their objectives. Advocacy has been successfully applied in the areas of smoking control and, to a limited degree, in alcohol policy in Australia.

Mass media marketing and advocacy are most effective when they are both used as part of a broader strategy that includes activities such as community development and community mobilisation, school and community education, health promotion, policy development and institutionalisation, and coalition building and political lobbying.

National drinking guidelines and standard drink labelling

Australia is one of a handful of countries whose health authorities promote and regularly update national guidelines for low-risk alcohol consumption. These guidelines have been central to policy, practice, prevention and research in Australia in recent years, and it is difficult to evaluate their effectiveness in isolation from related strategies and policies. Surveys have found that awareness of the concept of a standard drink (a concept integral to the guidelines) rose during the 1990s and the people who can recall the information provided on alcohol containers are those who drink the most. This is, therefore, a very efficient means of providing information to risky and high-risk drinkers. Standard drink

labelling supports the low-risk drinking messages in the national guidelines and both labelling and guidelines contribute to supporting other evidence-based strategies.

Programs for Indigenous Australians

Mainstream substance misuse services are available, in principle, to Indigenous Australians but in practice are sometimes unaffordable, inaccessible and/or culturally inappropriate. Indigenous Australians have developed a broad range of intervention initiatives suited to the level of substance misuse within their communities and as an expression of self-determination. Demand reduction has focused on **treatment, health promotion** and, to a lesser extent, **providing alternatives** to substance misuse. In addition, various **community development** projects have the goal of prevention of substance misuse, either implicitly or explicitly.

The 1994 NDS Household Survey figures showed that most Indigenous Australians who sought treatment did so from Indigenous community-controlled health services, or general practitioners. While there are no evaluations of brief interventions for Indigenous Australians, their effectiveness elsewhere suggests they should probably be used by health care providers. Focused treatment projects in Indigenous communities most often target alcohol alone, or alcohol and some combination of other substances. Again, evidence of success varies and evaluations are limited. There are few detoxification facilities in Indigenous communities—a particularly acute problem for those people injecting drugs.

Prevention projects targeting alcohol have included health education, sporting and recreational activities, support for homeless people, and community education and activities. As for treatment, outcomes have been equivocal. A variety of health education projects have targeted smoking but none have been formally evaluated. There are far fewer prevention campaigns targeting use of illicit drugs or volatile substances, although a number of projects have targeted petrol sniffing. A review found some of these to be effective but commented that the most effective strategies against petrol-sniffing are likely to be those that improve the overall health and wellbeing of young Indigenous people, their families and communities.

Programs for older Australians

There is little evidence available on the effectiveness of demand reduction strategies for persons aged over 65 years. Concern has been raised about alcohol-related problems and benzodiazepine use. Improved screening and prescribing by health care practitioners is recommended.

Conclusions

The evidence base for demand reduction strategies ranges from the very strongest (e.g. brief interventions and some forms of treatment) to those for which evidence is largely absent, such as drug testing in the workplace. There is a great potential for maximising the impact of brief interventions and treatment programs on risky drug use and harm at the population level—for those affected by their own drug use or that of other people. There is a need to increase the uptake of brief interventions by primary health care workers and to extend the settings in which they are delivered; and to encourage greater use of evidence-based treatment strategies matched to different drug users. There is growing evidence to support community action to reduce problems related to legal drugs, especially where these actions focus on structural policy changes (e.g. drug availability and responsible serving practices) though nearly all of the well-designed studies have been conducted overseas. There is some evidence for the effectiveness of well-designed mass media campaigns, principally those targeting legal drug problems. National drinking guidelines and standard drinks labelling can facilitate other evidence-based strategies.

Finally, there is a need to investigate the effectiveness of proven universal, selective and indicated strategies in special populations, Indigenous communities in particular.

Summary: The effectiveness of demand reduction interventions

Intervention	Tobacco	Alcohol	Illicit	Comments
Drug treatment	★★★	★★★	★★★	Strong evidence for nicotine replacement, alcohol treatment and methadone; less for psychostimulant or cannabis treatment.
Health service reorientation				
Brief interventions	★★★	★★★	★	Highly cost-effective for tobacco and alcohol.
Targeted approaches for pregnant women	★★	○	○	Can reduce smoking, low birth weight and pre-term birth.
Workplace interventions				
Drug testing in workplace	NA	Ⓜ	Ⓜ	No well-controlled efficacy studies.
Pre-employment screening	NA	○	○	No well-controlled efficacy studies.
Drug testing in high-risk settings	NA	★	★	Essential in very high-risk work, e.g. for pilots.
Brief interventions	Ⓜ	Ⓜ	○	Many workplaces provide opportunities to intervene with high-risk groups e.g. young males.
Community-based interventions				
Health promotion	★	★	Ⓜ	Evidence of good acceptability within host communities.
Focused on structural policy change	○	★★	○	Target youth alcohol access, liquor and drink-driving law enforcement.
Social marketing	★★	★	Ⓜ	National campaigns reduce overall smoking prevalence. Drinking behaviour change can be achieved but is difficult to sustain.
National drinking guidelines and standard drink labelling	NA	★	NA	Should not be evaluated in isolation from other prevention strategies.
Sub-populations: generic interventions targeting all drug types				
Treatment for co-morbid mental health and substance use problems		Ⓜ		No direct evidence to support one form of treatment over another.
Programs for Indigenous Australians		Ⓜ		Needs more research negotiated with Indigenous community controlled organisations.
Treatment for the elderly		Ⓜ		Not well addressed.
Programs to reduce demand among the elderly		Ⓜ		Improved screening in health care settings; preventing benzodiazepine dependence.
Key:				
○	Limited investigation		★	Evidence for implementation
Ⓜ	Evidence is contra-indicative		★★	Evidence for outcome effectiveness
Ⓜ	Warrants further research		★★★	Evidence for effective dissemination

REGULATION AND LAW ENFORCEMENT: LICIT DRUGS

see: Monograph Chapter 11

Introduction

A wide range of laws and regulations control or restrict the availability of licit drugs, particularly alcohol and tobacco. These include licensing restrictions, advertising controls, the regulation of sale and supply of alcohol and tobacco to minors, and taxation initiatives that affect the cost of legal drugs. There are also regulations which govern the availability of pharmaceuticals, including restrictions on the provision of over-the-counter drugs and on prescription drugs that can also be used recreationally. Other control strategies include initiatives to limit the free availability of inhalants, particularly to minors.

The programs

Tobacco

Regulations to limit the availability of cigarettes in the general community and, specifically, to young people, are generally successful.

- Many countries restrict or ban **tobacco advertising and sponsorship** and there is good evidence that this can reduce tobacco consumption in the general community, provided the restrictions are sufficiently broad. It has been suggested that Indigenous communities be given power to regulate the sale of tobacco (as occurs for alcohol in some communities). This has not yet been attempted but is consistent with the principles of prevention programs in Indigenous communities.
- **Increases in the price** of tobacco are an effective means of encouraging population-level reductions in smoking levels. Young people's tobacco consumption is particularly sensitive to variations in price and weekly income.
- **Health warnings** have been required on cigarette packages since 1969. There was limited evidence of small reductions in consumption in Australian smokers after health warnings on cigarette packets were strengthened in 1995.

Alcohol

Approaches to restricting the supply of alcohol to young people include:

- restricting **advertising and marketing**: the evidence for this is inconsistent, although encouraging the consumption of lower alcohol beverages seems to be effective; and
- **laws on minimum drinking age**: while the minimum drinking age in Australia is unlikely to be raised, strict enforcement (not always practised) is effective in minimising harm.

Most of the harm that stems from intoxication is associated with the many people who do not generally drink excessively but occasionally drink to intoxication. Two-thirds of the alcohol sold in Australia is conservatively estimated to be drunk in this way. Measures that reduce overall consumption across the population are also likely to reduce risky drinking and the amount of alcohol-related harm in the community.

- **Alcohol taxation:** changes in the price of alcohol usually lead to changes in overall consumption, particularly among younger and heavier drinkers. Recent Australian Government moves to reduce taxation on low alcohol beer are likely to result in lower levels of alcohol-related harm as low alcohol beer takes a market share from higher strength brands. There is good Australian evidence that **hypothecated taxes** (specific taxes used to fund treatment and prevention programs) can reduce consumption and harm.
- **Physical availability:** levels of alcohol-related harm in a given geographical area are closely related to the number of alcohol outlets in that area. The effects of changing the number of outlets, however, varies according to the type of outlet and the alcohol products that form the bulk of sales.
- **Changes in late night trading hours:** even small changes, although they may not affect overall levels of consumption, can lead to significant changes in local levels of harm.
- **Responsible service policies:** the aim is to reduce intoxication in licensed premises by promoting food and non-alcoholic or low alcohol alternatives, and training staff to recognise intoxication and delay or stop service, as appropriate. These approaches are generally effective if supported by management and the enforcement of laws that prohibit service to intoxicated customers.
- **Licensee codes of conduct:** these voluntary agreements between police, licensees and local councils cover both standards of service and promotions; for example, banning practices such as heavily discounting drinks, or restricting Happy Hours. Often termed Accords, these agreements can contribute to significant reductions in alcohol-related violence in the short-term, especially when accompanied by liquor law enforcement, but it has proved difficult to sustain these gains for longer than a few months.
- **Dram shop laws:** in Canada and the US, these laws allow a person who is harmed by an intoxicated person to sue the licensee who served the alcohol to the intoxicated person. The potential for similar action exists under Australian civil law. The American literature suggests that such civil actions have a modest deterrent effect.
- **Restricting the supply of alcohol in Indigenous communities:** Indigenous communities have taken two main approaches to reducing supply: declaring 'dry' areas and extending controls on availability, through liquor licensing legislation. These approaches can be effective but communities need support to enforce them, and underlying policy must promote Indigenous control. The 'wet canteens' established by some Indigenous communities can have both risks and benefits for the community. There is strong evidence for the effectiveness of local licensing restrictions in communities with high Indigenous populations e.g. restrictions on the days and hours of sale and on the type and quantity of liquor that can be purchased.

Pharmaceuticals

The recreational use and misuse of pharmaceuticals—particularly benzodiazepines and narcotic analgesics such as codeine—are a matter of concern. The following responses have been made.

- **The Doctor Shopping project:** this identifies and counsels patients who visit general practitioners very frequently.
- **Rescheduling of some prescription drugs:** mood altering prescription drugs, particularly benzodiazepines, are often diverted to recreational use. Injection of temazepam, one of the most sought-after drugs for this purpose, is associated with

severe injuries including gangrene. In Australia, temazepam has recently been placed on Schedule 8 (controlled drugs) and UK experience suggests this will be successful in preventing harm. Flunitrazepam (Rohypnol) has also been placed on Schedule 8 because of its association with drug-assisted sexual assault, and its availability on the black market and use by injectors has since declined.

Inhalants

The control of substances used as inhalants, including glue, 'chrome', paint and toluene, varies from State to State. All Australian States have adopted standards for the scheduling of drugs and poisons but the compounds and products used by young people tend to be exempt from scheduling or subject to the lowest levels of restrictions. There have been calls for tighter controls for some substances; however, evidence from other countries suggests that this can lead to use of other, more dangerous, substances. Working with businesses appears to hold promise but there is no evidence on how best to do this.

Indigenous communities have used supply reduction strategies to reduce petrol sniffing and its related harm. In some communities, aviation fuel—which does not have petrol's psychoactive effects—has been substituted for petrol. This has been most effective when introduced in conjunction with other interventions. Locking up petrol or making petrol sniffing illegal have not been as effective.

Performance and image enhancing drugs (PEDs)

PEDs include anabolic and androgenic substances (steroids) and hormone preparations. Most are available only on prescription and some cannot be imported without a Commonwealth Government permit, but many are legally available overseas and are often ordered over the Internet. PED seizures by Customs have been increasing since 1994/5 but use does not appear to have declined.

Conclusions

Tobacco and alcohol are not ordinary commodities. The prevalence of preventable death, injury and illness associated with their use means that effective regulation of legal drugs is essential and widely supported. Limiting cigarette advertising and promotion, and using taxation to maintain the high price of cigarettes, have been vital and effective parts of Australia's tobacco control policies, particularly as they affect young people. Restrictions on the price and availability of alcohol could be equally effective if implemented in Australia, particularly in relation to taxes on cheaper products that tend to be used by high-risk drinkers. There is also a strong case for regulating alcohol's availability more effectively through liquor restrictions, both in Indigenous and non-Indigenous communities. There is strong community support, as well as research evidence, for stricter enforcement of existing laws relating to service of intoxicated or underage drinkers, in combination with local self-regulatory approaches. Moves to limit the diversion of prescribed pharmaceuticals onto the black market have achieved some success but restrictions on the availability of performance and image enhancing drugs have been less successful. Control of the supply of volatile substances to young people is very difficult and cannot be said to have been successful.

Summary: The effectiveness of law enforcement interventions for licit drugs

Intervention	Strength of evidence	Comment
Tobacco		
Restriction of advertising and sponsorship	★★	Strong evidence that advertising controls and restrictions reduce tobacco consumption.
Maintaining price disincentives	★★★	Strongest evidence that increases in price cause decreases in consumption.
Health warning and control of pack design	0	Limited research.
Working with industry	0	Little empirical data.
Alcohol		
Restrict alcohol promotions to young people	Ⓜ	Reasonable rationale and evidence linking exposure to ads with later drinking. Difficult area to research.
Increase price through taxation to reduce consumption and harm	★★	Very strong evidence-based rationale. Price increases almost invariably reduce consumption and harm.
Hypothecated taxes on alcohol to fund treatment and prevention programs	★★★	Very strong rationale, including increase in price. Controlled Australian evaluation with positive results.
Outlet density	Ⓜ	Strong rationale but no model for implementation.
Outlet trading hours	★★	Strong rationale; recent Australian studies have linked harms with late night trading.
Responsible alcohol service and enforcement of liquor laws.	★★ with visible law enforcement ☒ without enforcement	Evidence of program effectiveness with support and appropriate law enforcement. Poor effectiveness in community wide applications in absence of relevant law enforcement.
Restrictions on price discounting	★★	Very strong rationale; general relationship between price, consumption and harm. Specific evidence re Happy Hours. Implemented as part of Accords, in Australia.
Licensee codes of conduct (Accords)	★★ when accompanied by enforcement ☒ without enforcement	Strong rationale. Evidence for reductions in violence though results depend on presence of external pressures for compliance e.g. enforcement of liquor laws.
Dram Shop Laws	★	Good rationale. Evidence of deterrent effect in US and Canada. Australian civil liability suits for service to intoxicated customers are a theoretical possibility.
Licensing restrictions in Indigenous communities	★★	Most effective when part of a broad strategy and have Indigenous community support.
Declaration of Indigenous communities as 'dry'	★★	Can be effective but communities need support to enforce them. Must be under community control.

continued on next page ...

Intervention	Strength of evidence	Comment
Pharmaceuticals		
Monitoring and educating GPs about 'doctor shopping'	Ⓟ	One unpublished Australian evaluation with positive results. <i>Further outcome data forthcoming.</i>
Re-scheduling temazepam	Ⓟ	UK evaluation successful. No Australian evaluation yet. Strong rationale. Need to ensure no unintended consequences from Australian implementation.
Re-scheduling flunitrazepam	Ⓟ	Research shows less available. Unclear if this will reduce drug assisted sexual assault.
Restricting volatile substances	Ⓟ	UK experience found that laws prosecuting and restricting suppliers resulted in switch to more dangerous inhalants. No known Australian evaluation on variety of approaches.
Controls on the supply of petrol in Indigenous communities	Ⓟ	Evidence for effectiveness limited and equivocal.
PEDs seizures	O	Increased seizures in 2000/01 have possible relationship to Olympics.

Key:

- O Limited investigation
- ☒ Evidence is contra-indicative
- Ⓟ Warrants further research
- ★ Evidence for implementation
- ★★ Evidence for outcome effectiveness
- ★★★ Evidence for effective dissemination

REGULATION AND LAW ENFORCEMENT: ILLICIT DRUGS

see: Monograph Chapter 12

Introduction

Law enforcement plays an important role in the prevention of illicit drug use by reinforcing community values against such activities. The control of illicit drug use targets:

- **users**, to reduce their demand for drugs, through everyday policing on the streets of Australian towns and cities; and
- **suppliers**, to reduce the availability of illicit drugs, through programs that include border protection by Australian Federal Police (AFP) and the Australian Customs Service (Customs); the national Heroin Signature Program; control of the manufacture and distribution of illicit drugs within Australia by, for example, locating and closing clandestine laboratories; and various models for the legal status of cannabis. There are also different models of asset confiscation legislation in use across Australia.

The programs

Law enforcement and demand reduction in the community

Sanctions against drug users may reduce drug use in the general community by:

- expressing social disapproval of drug use and reinforcing social norms against drug use; and
- dissuading people through fear of apprehension and punishment (deterrence).

Legal sanctions have a demonstrated effect on the intention to offend in a range of other areas including tax compliance, theft and drink driving, but evidence in relation to illicit drug use is hard to find. Social norms play a major role and the combination of norms and legislation may be a more powerful deterrent than either in isolation. Virtually the only Australian research on criminal sanctions and illicit drug use is on cannabis law, and this research found no increase in use of cannabis in States (e.g. South Australia) that have relaxed the criminal penalties for cannabis use.

There is no evidence to suggest that legal punishment for drug use has any deterrent effect on future illicit drug use in the community.

Law enforcement and demand reduction among users

The principal goal of drug law enforcement is to disrupt illegal markets and, by so doing, to encourage drug users to give up or reduce their drug use, often by entering treatment. The experience or threat of police activity has been shown to be an important reason for drug users to enter treatment programs.

It has been argued that the continuing availability and use of illicit drugs means that drug law enforcement is ineffective. Without enforcement, however, it is not known how large the drug market would be.

Effective programs that target drug markets include combining targeted law enforcement with community development; the use of civil remedies to deal with drug problems; police ‘crackdowns’ and the role of law enforcement in encouraging illicit drug users to enter into treatment programs.

Some drug law enforcement may increase harms. For example, police crackdowns have been shown to result in unsafe injecting practices and increased numbers of discarded syringes, by users in a hurry to avoid detection.

There is little support for the view that crackdowns only displace crime from one area to another—although there may be some displacement, it is unlikely to be total and drug use will generally be reduced. Targeted policing may, however, result in increases in crime to fund purchases of illicit drugs as reduced availability pushes up the price.

Targeted law enforcement has been found, in a Sydney study, to encourage drug users to enter treatment.

Supply-side drug law enforcement

Most heroin, cocaine, ecstasy, LSD and GHB are imported, while cannabis, amphetamines, ‘magic’ mushrooms and ketamine are primarily grown or manufactured in Australia. Illicit drugs such as amphetamines, heroin, ecstasy, cocaine, LSD, mushrooms and GHB are prohibited. In most Australian jurisdictions the use of cannabis is now dealt with by civil penalty however supply of commercial quantities of cannabis is a serious offence.

Controlling drug supply from outside of the country

The AFP and Customs are the key agencies responsible for reducing the trafficking of illicit drugs to Australia. Both have received additional funding, under the National Illicit Drug Strategy, to undertake these activities.

Offshore programs developed by the AFP include an international network of 33 officers providing intelligence links to most of the world’s law enforcement agencies and 10 mobile strike teams designed to provide long-term targeting of major crime figures, in order to identify, disrupt and/or dismantle syndicates at their international source.

Customs intercept illicit drugs at the border and deter people from importing or trafficking in illicit drugs. Since 1997, the additional funding has supported increased surveillance and search capacity, cargo profiling and examination, and employment of additional intelligence analysts.

Increased funding and levels of activity between 1998/99 and 1999/2000 in both agencies led to increases in the number and/or weight of seizures of heroin, cocaine, methamphetamine, ecstasy and cannabis at the border. However, research with users indicates that they generally do not have difficulty in obtaining drugs at street level.

The National Heroin Signature Program, a joint project between the AFP and the Australian Government Analytical Laboratories, uses sophisticated laboratory analysis to establish the origin of drug seizures; at the level of region, sub-region and manufacturing batch; and at the distributor level where the drug may be repackaged and concealed. While the data are being used operationally, there have been no publications, but it is said that the program is on a par with the best in the world.

American research has shown that some drug types are more effectively controlled by supply reduction strategies than others; and that the illicit drug market changes over time, and adapts to law enforcement initiatives.

Controlling drug supply from within the country

Control of supply within Australia is undertaken mainly by State and Territory police services. The main drugs of interest are cannabis and amphetamines. Cannabis is cultivated on a large scale Australia-wide and, while aerial surveillance has reduced the crops grown outdoors, hydroponic cultivation flourishes.

Almost all States and Territories now have policies or legislation to reduce penalties for cannabis use and possession, thereby also reducing backlogs in the justice system. Measures include cautioning and diversion programs and/or changes to the legal status of cannabis.

Cannabis law reform is grounded in a recognition that while cannabis use can be physically and/or mentally harmful, a proportion of the harms are related to its illegal status, which has done little to reduce use—in short, that decriminalisation is associated with less harm than a criminal model. There is little evidence that the different legislative models in place in Australia and overseas have any significant effect on levels of cannabis use. This introduces the attractive possibility that reducing penalties might reduce harms while not increasing rates of use.

The use of amphetamines continues to increase in Australia and, during 2000–2001, 201 clandestine laboratories were found, most producing methylamphetamine. One approach is to control precursor chemicals, the starting compounds or ingredients that, when combined with other essential chemicals, produce illicit drugs—in Australia, these are predominantly amphetamines. All State and Territory police services have now established chemical diversion desks to monitor suspicious purchases of precursor chemicals (currently concentrating on pseudoephedrine-based tablets such as Sudafed) and liaise with the chemical and pharmaceutical industry. There are no indications that these processes have, as yet, reduced the domestic manufacture of amphetamines.

Asset confiscation

All Australian jurisdictions have legislation dealing with the confiscation of the proceeds of crime. There is a debate as to whether this asset forfeiture should be conviction-based (i.e. requiring proof beyond reasonable doubt of criminal activity) or non-conviction-based (i.e. proof to the civil standard of the balance of probabilities). The Australian Law Reform Commission has recommended non-conviction-based legislation, and this is now in place in at least three States. It is difficult to compare conviction and non-conviction regimes to determine their effectiveness because there are no national reporting standards.

Conclusions

While additional research is needed to assess the effectiveness of illicit drug law enforcement, the difficulties of research in this area should not be underestimated. The nature of law enforcement is such that some operations and some data have to remain confidential. Recent years have seen a shift towards more detailed evaluation of Australian drug law enforcement, together with new research into the illicit drug market. This should enhance the scope and depth of the evidence base that shapes Australian illicit drug law enforcement.

Summary: The effectiveness of law enforcement interventions for illicit drugs

Intervention	Strength of evidence	Comment
Role of law enforcement in reducing demand in the community		
Role of social norms in shaping illicit drug use (declarative)	Ⓜ	Direct evidence is slight because of methodological difficulties but evidence from other areas of crime suggestive of effect.
Role of social norms in shaping illicit drug use (general deterrence)	Ⓜ	Sound theoretical base. One Australia study with limited support.
Role of social norms in shaping illicit drug use (specific deterrence)	O	Unsupported by the existing evidence.
Role of law enforcement in reducing demand among users		
Combined targeted law enforcement and community development	★	National evaluation of US Weed and Seed program demonstrated effectiveness.
Use of civil remedies to control drug and disorder problems	★	Randomised field trial of sites in California. Program effective in reducing drug offences. Australian trial would need to demonstrate that civil law could operate similarly.
Police crackdowns	★	Various large and small studies in US and Australia. Evidence of effectiveness and little of displacement. Unintended negative consequences can occur.
Encouraging drug users into treatment	Ⓜ	One Sydney study found that drug users rated law enforcement as a motivator to enter treatment.
Supply-side drug law enforcement		
Border protection—AFP	Ⓜ	Most evaluation based on quantities seized.
Border protection—Customs	Ⓜ	Most evaluation based on quantities seized.
National Heroin Signature program	Ⓜ	Analysis continuing and results appear good but no publication.
Cannabis law reform	★	Australian comprehensive review of models.
Control of cultivation, manufacture and supply of illicit drugs within Australia	Ⓜ	Evidence mainly related to quantities seized, number of charges laid, and users' assessments of availability.
Asset confiscation	Ⓜ	Varies from State to State. Law Reform Commission recommends non-conviction approach.

Key:

- O Limited investigation
- Ⓜ Evidence is contra-indicative
- Ⓜ Warrants further research
- ★ Evidence for implementation
- ★★ Evidence for outcome effectiveness
- ★★★ Evidence for effective dissemination

JUDICIAL PROCEDURES

see: Monograph Chapter 13

Introduction

There is a significant link between crime—particularly violence and property crime—and the use of alcohol and other drugs, and this incurs high costs to the community. This chapter describes judicial systems and procedures designed to improve outcomes both for the community and for those who commit drug-related crimes.

- **Diversion** aims to prevent early offenders from entering the criminal justice system and to divert offenders with drug problems into appropriate education and/or treatment.
- More serious drug offenders may be offered an opportunity to have their offence heard in a **drug court**, which offers supervised treatment in the place of custodial sentences.
- For those (criminals) who receive a custodial sentence, there is a range of **programs in prisons** to restrict the supply of drugs into the prison, reduce demand for drugs by prisoners, and minimise harmful drug use.

The programs

National Diversion Initiative

Under Australia's National Diversion Initiative that operates across all jurisdictions, drug offenders—particularly those on a first or second offence—are typically referred by police officers to education or treatment, rather than being arrested. A recent evaluation of the initiative has not yet been published.

Diversion is based on sound principles. Criminal sanctions have been shown to be ineffective against recidivism unless they include treatment and rehabilitation components. The evidence also shows that treatment programs delivered in the community have better outcomes than those delivered in institutions. Concerns have been raised about the effectiveness and ethics of treatment offered as an alternative to incarceration or other legal sanctions, but it has been shown that it can be both ethical and effective provided that the rights of the individual are protected.

Drug courts

These special purpose courts deal with people guilty of drug-related criminal offences, offering extensive treatment and rehabilitation under the supervision and ongoing management of the court. Drug courts in the US have been shown to reduce drug use criminal behaviour during the duration of the program and rates of re-offending among participants. Most Australian States have drug courts but only NSW has completed an evaluation. There, it was found that the health and wellbeing of participants improved, illicit drug use reduced, and it took longer for participants to re-offend. The cost of the drug court was comparable to the cost of incarceration.

Drug programs in prisons

Drug detection and deterrence programs, including sniffer dogs, urine testing and cell and visitor searches, comprise a major approach to drugs in prison but there is very limited evidence on their effectiveness. Concerns have been expressed that random drug testing encourages inmates to switch from cannabis to drugs like heroin, because cannabis remains in the urine longer than heroin. To lessen the risk of spread of BBVs (particularly hepatitis C) through needle sharing, programs in some jurisdictions are being modified to impose less severe penalties for the use of cannabis than for injectable drugs.

Prison methadone has been shown to be effective in the NSW prison system but there is limited access to methadone in most Australian prisons. In most jurisdictions, harm minimisation is limited to education and peer support programs, some methadone maintenance, and provision of bleach to decontaminate needles, although the latter is an unproven strategy. Provision of sterile needles in Australian prisons does not seem likely despite international evidence that it reduces sharing of injecting equipment, does not increase drug use, and does not give rise to the use of needles as weapons. Given the high levels of BBVs, particularly hepatitis C, a trial should be considered in Australia prisons.

Drug-free units, also in use in some jurisdictions, have not been evaluated in Australia but there is some US evidence suggesting that they may be effective under the right conditions. There are good rationales for programs that offer support, including drug treatment, to released prisoners.

Conclusions

Australia has diversion programs in every jurisdiction and drug courts in most States. Evidence from other countries suggests these initiatives should be effective. Most are currently under evaluation, to assess whether they meet their stated aims of improving drug-crime related outcomes for both drug users and the community.

Within prisons, the two main approaches to dealing with drugs are drug detection and treatment. There is little evidence for the effectiveness of the first. Prison methadone has been found to be effective but there are limited programs in most Australian prisons.

Summary: the effectiveness of the interventions

Intervention	Strength of evidence	Comment
Diversion programs		
Diverting young offenders into early intervention services	★	Range of programs showing short-term and long-term gains. Further implementation in Australia seems warranted.
Diversion programs in the general community	Ⓜ	Based on sound principles. International literature demonstrates effectiveness and improved health and wellbeing of participants. Australian programs not evaluated yet.
Courts		
Drug courts	★	Evaluations of US courts indicate effectiveness but have some methodological weaknesses. NSW evaluation demonstrates cost-effectiveness. No other Australian evaluations published to date.
Programs in prisons		
Drug detection and deterrence	Ⓜ	Strongly supported by prisons. Evaluation mainly limited to counting seizures or positive tests.
Differential penalties	Ⓜ	On trial in Victoria and NSW. Good theoretical base.
Provision of methadone	★	Evaluated in NSW and found to reduce injecting risk and drug use under appropriate circumstances.
Drug free units	Ⓜ	No Australian evaluations. One US evaluation recommends extension to pre-release programs.
Reward programs	Ⓜ	Good theoretical base. No specific evaluations.
Education	Ⓜ	No specific evidence for effectiveness but some similar programs successful in the community.
Transitional support and release preparation	Ⓜ	No direct evidence but sound theoretical base.
Provision of bleach to decontaminate injecting equipment	Ⓜ	Has the potential to kill HIV. Not known whether bleach will destroy hepatitis C (HCV).
Needle and syringe exchange	★	International evidence positive. No Australian experience.

Key:

- Limited investigation
- ☒ Evidence is contra-indicative
- Ⓜ Warrants further research
- ★ Evidence for implementation
- ★★ Evidence for outcome effectiveness
- ★★★ Evidence for effective dissemination

HARM REDUCTION STRATEGIES

see: Monograph Chapter 14

Introduction

Harm reduction strategies seek to minimise or limit the harms associated with drug use without necessarily seeking to eliminate use. These strategies are distinct from treatment approaches that aim to reduce the level of drug use. In their focus on reducing harm without necessarily reducing drug use, they operate in a similar way to developmental protective factors although they typically apply at a later stage in the development of drug use problems. Together with demand reduction and supply reduction, harm reduction is an integral part of a harm minimisation approach and has been part of Australian national drug policy since the first policy was developed in the mid 1980s. Although harm reduction is often thought of mainly in terms of reducing the spread of BBVs among injecting drug users, it covers a much wider range, with initiatives relating to the use of tobacco, alcohol, illicit drugs and pharmaceuticals. This chapter discusses initiatives across all these areas.

The programs

Tobacco

In Australia, there are few harm reduction initiatives relating to tobacco as it has been thought such moves might encourage smokers to continue smoking. This has not been the view in other countries and some new approaches are emerging, including non-smoking nicotine delivery systems. Sweden has shown that tobacco that can be nasally ingested can take significant market share away from cigarettes. Low-tar 'light' cigarettes, developed apparently to persuade smokers that there is a safer way to smoke, have generated significant international concern as it has been shown that smokers tend to compensate by inhaling harder. There are also concerns that misleading promotion could lead to increased use.

The wide range of restrictions to prevent passive smoking are effective and enjoy high public support, even among smokers.

Reducing drink driving

Australia is a world leader in reducing drink-driving with effective programs. Random breath testing has been particularly successful in Australia because of the way it is implemented, including testing of all stopped drivers, high-visibility policing and frequent public advertising campaigns emphasising the likelihood of being detected. Other drink-driving strategies include lower blood alcohol concentration (BAC) limits for inexperienced drivers, for which the current evidence is inconclusive, and 'designated driver' schemes, which have been widely implemented although some compliance problems have been noted. Ignition interlocks require drivers to provide a breath sample before starting their vehicles. They are a promising new intervention although they tend to be effective only while they are actually fitted and operating, with drivers often re-offending after the lock is removed.

Reducing alcohol intoxication

A number of strategies are designed to reduce violence in and around licensed drinking environments, such as pubs and clubs. Staggered closing times have been suggested, to reduce the potential for large numbers of intoxicated people to gather, but may increase harm if resulting in an overall extension of trading hours. Replacing glass with plastic drinking vessels removes possible weapons, while serving food with alcohol can substantially reduce BACs. These and other approaches have been part of alcohol Accords (see page 39), which can reduce harm in the short-term but may be difficult to sustain over time.

Some Indigenous communities have developed night patrols which provide transport to safe locations for intoxicated people, and sobering-up shelters that provide a temporary supervised haven for intoxicated people who are at risk of harming themselves or others. These are promising interventions which require more evaluation.

Thiamine supplementation of foods is a well-established intervention to prevent Wernicke-Korsakoff's syndrome, a form of serious brain damage caused by long-term heavy alcohol use. In Australia, bread-making flour is supplemented but one study suggests it would be more cost-effective to supplement beer.

Reducing harms associated with illicit drug use

The high rate of opiate overdose was a distressing feature of Australian life in the 1990s. Strategies developed to address this included educating drug users, and protocols for police and emergency workers attending overdoses. Distribution of naloxone (Narcan) to users has been proposed but not trialled, despite international evidence to indicate it may be effective. One supervised injecting centre has been established in Australia, at Kings Cross, Sydney, and positive evaluation reports confirm international experiences.

There is strong evidence that treatment (particularly methadone maintenance) for opiate dependence is effective in preventing both overdose and the transmission of BBVs. Needle and syringe programs have been the cornerstone of Australia's response to BBVs. Between 1991 and 2000, needle and syringe programs were estimated to prevent around 25,000 cases of HIV and 21,000 cases of hepatitis C, an economic saving of between \$2.4 and \$7.7 billion for an investment of \$150 million.

Vaccination can prevent hepatitis B but many drug injectors are not vaccinated. Better ways are needed of making vaccines available to all injectors, including free vaccine programs.

Retractable syringes are intended to be used only once and are a recent development to prevent BBVs, but it is considered impossible to produce syringes that cannot be shared and there are concerns that retractable syringes will actually increase sharing because of their high price.

It is difficult to document the harms associated with ecstasy use because most ecstasy pills contain a variety of substances, and most users are poly-drug users. Ecstasy-related deaths are most commonly the result of hyperthermia, ingestion of excessive amounts of water, and/or ingestion of substances other than MDMA (the purported active ingredient of ecstasy but which is often partially or entirely replaced by unknown substances). Harm reduction programs have focused on providing advice about proper hydration, managing body temperature, and avoiding risky behaviours (such as unsafe sex) whilst intoxicated. Various organisations have developed conduct guidelines for dance parties or nightclub

venues but it is not clear whether these guidelines reduce harm. On-site pill testing programs have been used to identify the contents of ecstasy tablets and inform users but again, there is little conclusive evidence on the effectiveness of such programs.

Concern about drink-spiking with flunitrazepam (Rohypnol) led the manufacturers to introduce a blue dye to the drug, however, other brands do not contain the dye. Flunitrazepam has recently been moved to Schedule 8 to make it harder to obtain.

School-based education for harm reduction

There is some promising Australian work that shows that alcohol harm reduction education in schools is effective in helping young people to prevent some of the harmful aspects of alcohol use. A similar approach has been proposed for illicit drug use but has not, to date, been trialled.

Conclusions

Harm reduction is often thought of only as needle and syringe programs but many more strategies are used and, in many cases, have been shown to be effective. Programs for which there exists the strongest evidence are:

- regulations to reduce passive smoking;
- random breath testing;
- needle and syringe distribution;
- treatment of opiate dependence to reduce risk of overdose and blood-borne viruses; and
- hepatitis B vaccination.

Light cigarettes, staggered closing times and retractable syringes are programs that evidence suggests are contra-indicated.

Summary: The effectiveness of harm reduction interventions

Intervention	Strength of evidence	Comments
Tobacco harm reduction		
Light cigarettes	O	Unlikely to reduce harm; concern about misleading promotions which may cause increased consumption.
Alternative nicotine delivery systems	Ⓜ	Good theoretical base and reports of successful national implementation in other countries. No apparent evaluation data.
Regulations to reduce passive smoking	★★★	Strongest evidence that legislation reduces environmental tobacco smoke exposure to non-smokers.
Alcohol harm reduction: drink-driving		
Lower BAC limits for young drivers	★	Evidence base inconsistent although half of studies show effectiveness.
Random breath testing implementation.	★★★	Strongest evidence of effective Australia-wide implementation.
Ignition interlocks	★★	Few but large scale studies with positive outcomes; sound rationale.
Designated driver schemes	★	Sound rationale. Modest success in US studies. Successful Australian implementation although some studies have reported compliance problems.
Alcohol harm reduction: other		
Thiamine supplementation to reduce Wernicke-Korsakoff's syndrome	★★	Supplementation of foods reduces brain damage related to heavy alcohol use. Effective Australian implementation through supplementation of flour although the most cost-effective approach has been found to be supplementing beer.
Harm reduction through licensing Codes of Conduct	★	Evidence for short-term reductions in violence in 2/3 studies.
Staggered closing times	Ⓜ	Limited evidence. Increases harm if results in overall extension of trading hours.
Plastic (or tempered) glasses	★	Sound theoretical rationale. No research evidence of effectiveness but anecdotal evidence of reductions in injuries.
Food service	★	Known biological mechanism and evidence-based rationale. Not specifically evaluated.
Harm reduction educational approaches	★	One well-controlled Australian study. Great potential for wide dissemination.
Alcohol harm reduction: strategies in Indigenous communities		
Night patrols	Ⓜ	No outcome studies. Sound rationale, wide implementation with strong community support.
Sobering up shelters	Ⓜ	Minimal evaluations. Sound rationale, wide implementation with strong community support.

continued on next page ...

Intervention	Strength of evidence	Comments
Illicit drug harm reduction		
Education to users about preventing heroin overdose	★	Sound rationale. Few evaluations.
Emergency services and police protocols for overdose	★	Improvements in overdose (OD) callout rates noted. Broadly implemented.
Treatment of opiate dependence to reduce risk of overdose and blood-borne viruses.	★★★	Highest level evidence shows that engagement in treatment, especially methadone, is protective against overdose and HIV/AIDS. Evidence for protection against Hepatitis C is more equivocal but rationale is sound.
Provision of naloxone for peer administration	Ⓜ	Sound rationale. Promising international data but no comprehensive evaluations.
Needle and syringe distribution	★★★	Highest level international and Australian evidence of efficacy including economic evaluation.
Supervised injection centres	★	Sound rationale. Interim Australian evidence suggests lives saved.
Hepatitis B vaccination	★★★	Known biological mechanism and strong rationale. Widely implemented.
Retractable syringes	ⓧ	Weak rationale based on international reviews. Unlikely to be of benefit and may cause harm.
Information campaigns for users of dance drugs	Ⓜ	Sound rationale. No formal evaluation.
Guidelines for provision of safe venues at dance parties/nightclubs	Ⓜ	Harm is often a function of environment, such as overheating. Sound theoretical rationale for guidelines.
Pill testing at venues	Ⓜ	Sound rationale. Consumer acceptance. Widely implemented internationally. No evaluation.
Pill testing at home	O	Some concern about accuracy of tests
Dyes in benzodiazepines to reduce drink-spiking	O	Plausible rationale but no evidence of efficacy.
Harm minimisation drug education	Ⓜ	Evidence for effectiveness for alcohol but no studies of applications for illicit drug use.

Key:

- O Limited investigation
- ⓧ Evidence is contra-indicative
- Ⓜ Warrants further research
- ★ Evidence for implementation
- ★★ Evidence for outcome effectiveness
- ★★★ Evidence for effective dissemination

INCREASING PROTECTION AND REDUCING RISK ACROSS THE LIFE COURSE

see: Monograph Chapter 15

This final chapter presents recommendations for policy and future investment to prevent drug use, risky use and harm, based on an overview and comprehensive, critical review of the evidence.

A framework for action

Firstly, the authors propose adoption of a **Protection and Risk Reduction approach to prevention**. This would provide a policy framework that:

- integrates knowledge of developmental processes throughout the life-course with knowledge of broader social influences on behaviour and health outcomes;
- emphasises the importance of reducing the known developmental risk factors that lead children and young people to become involved with risky drug use and harm while also enhancing protective factors;
- acknowledges the importance of targeted early intervention strategies focused on strengthening protective factors for children and young people with a high number of developmental risk factors;
- emphasises the use of brief interventions, treatment and harm reduction strategies to reduce drug-related harm for drug users who have a high number of risk factors, while also improving developmental opportunities for children; and
- includes law enforcement as an essential element, not just for controlling the supply of drugs but also in influencing community values about drug use, diverting early offenders and acting to protect the community from crime and social disorder.

Secondly, the authors suggest that the Protection and Risk Reduction approach be implemented through a **systems approach** (see Figure 1, page 5) that acknowledges:

- the many levels of society at which there are influences on patterns of drug use and harm;
- the many levels at which interventions may be delivered; and
- the importance of consistency across levels and sub-systems to ensure a common understanding of influences and interventions.

Within this model, intervention at the **local community level** is of fundamental importance. The local community is thus one of the primary levels at which planning needs to be integrated and coordinated. The local community offers:

- the potential for action to address some of the broad social determinants related to both social disadvantage and disconnection that underlie aspects of drug-related harm; and
- a promising arena for the coordinated implementation of evidence-based prevention strategies.

It is of critical importance that policies, legislative models and regulations at national and State/Territory levels are based on evidence about drug-related risk and harm, and enable and empower local communities to develop effective prevention strategies.

Continued and enhanced investment is recommended in four broad areas to obtain maximum benefit from simultaneous and complementary strategies. Areas are listed.

- **Universal interventions to prevent tobacco use and risky alcohol use:** these legal drugs generate the great bulk of health, economic and social drug problems in Australia. The bulk of problems are found within mainstream society among people with average levels of developmental risk. Early and heavy use of legal drugs predicts later problematic use of alcohol and other drugs, as well as mental health problems. Parental and community role models encourage use among children and adolescents, suggesting the need for whole-population strategies to address overall levels of use and to break intergenerational patterns.
- **Universal interventions to reduce the supply of, and demand for, licit and illicit drugs:** law enforcement strategies are necessary to protect the community against the crime and social disorder that flow from the use of prohibited drugs. Law enforcement plays a critical role in prevention by: reinforcing community values against illicit drug use, controlling the supply of both licit and illicit drugs, and diverting early offenders to preventive interventions. Demand reduction strategies such as community-based interventions, public education and workplace interventions have demonstrated effectiveness, under appropriate conditions.
- **Targeted interventions to address vulnerable and disadvantaged groups with particular attention to Indigenous Australians:** these interventions should provide evidence-based support to families to encourage healthy development at key stages: infancy, pre-primary and primary school ages. They have the potential to address the bulk of harms associated with the use of illicit drugs as well as a significant proportion of problems with legal drugs.
- **Treatment, brief intervention and harm reduction approaches for adolescents and adults with emerging or developed risky drug use patterns.** investment in treatment, whether abstinence-oriented or harm-reducing, will reduce drug-related harm at the population level. Brief screening interventions have untapped potential for widespread application in primary health care and community settings. Family members, and particularly children, need to be involved in treatment programs to help break intergenerational patterns of substance use and related harm.

Key themes underlying recommendations in a variety of reports to address substance misuse among **Indigenous Australians** include the need for:

- addressing the social determinants of Indigenous inequality. This includes the call for real and appropriate economic development for Indigenous people;
- Indigenous people to be involved as equal partners at all stages in the development and implementation of strategies to address substance misuse;
- adequate resourcing. Funding for Indigenous affairs, over the past three decades, has failed to meet the needs or to remedy the social and economic inequalities that underlie and perpetuate the high levels of substance misuse among Indigenous Australians. This inadequacy of funding extends to Indigenous health services and Indigenous substance misuse services; and
- a holistic and coordinated approach that includes Indigenous community-controlled organisations, all levels of government and all sectors.

Table 2 sets out proposed objectives for different policy jurisdictions and operational settings within a Protection and Risk Reduction Approach to Prevention. It indicates that an important goal for supply reduction strategies is the achievement of an integrated set of operations and activities at the community level: supporting synergies between supply control, demand reduction and harm reduction programs. Program objectives for children include use reduction and delayed uptake of use; while among adults, harm reduction goals become more prominent.

Table 2: Proposed objectives for different policy jurisdictions and operational settings within a Protection and Risk Reduction Approach to Prevention

Setting	Supply control	Demand reduction / social improvement	Reduction of harm
National and State objectives	Coordinated policies and strategies for supply control. Integrated operation of border, drug (policies, laws and regulation), taxes and excise, social marketing and media controls.	Effective and coordinated policies and strategies for reduction of demand and social improvement. Integrated expenditure on health, mental health, welfare, education, prevention.	Effective and coordinated policies and strategies to reduce harm, including police (e.g. drink-drive programs), treatment programs (methadone), courts (diversion) and prisons.
Local community objectives	Effectively planned and locally coordinated supply reduction programs.	Well-planned and coordinated strategies for investment in social improvement and prevention. Reduction of local risk factors, enhancement of protective factors.	Effective and coordinated local strategies for reducing drug-related harms.
Local community activities	Licensing and enforcement, policing, distribution (alcohol, tobacco, other drugs).	Targeted early childhood programs. Parent education. Schools drug-education and organisation. Social opportunities and employment.	Community safety, needle exchange, alcohol server training.
Objectives for families and adults	The availability and price of drugs reflects evidence for their harms.	Enhanced social connection. Patterns of drug use within public health guidelines.	Reduction in risky drug use and harm.
Objectives for children and young people	Drugs are unfashionable and difficult to access.	Healthy social development.	Less drug use, delayed age of first drug use, less frequent and more moderate drug use.

Figure 3 summarises and integrates the main areas that are recommended for continued and enhanced investment to prevent drug-related harms. Central to this model is the close relationship between children’s drug use and the patterns of drug use modelled by adults, which reflects the literature suggesting that effective legal drug control influences illicit drug use and harm. A carefully coordinated mix of investment, rather than any single service strategy, has the greatest chance of success. The program complexity once again suggests the importance of tailoring the mix of investment to the specific and distinct needs of particular communities.

Figure 3: A summary of the main categories of intervention recommended for continued and enhanced investment

