

Where there's smoke...



Cannabis and Mental Health



Acknowledgements

This report was prepared by the Mental Health Council of Australia. Funding for the project was provided through the Community Sector Support Scheme of the Department of Health and Ageing. The Department played no role in the research, analysis findings or recommendations of the report.

We wish to thank the members of the MHCA Cannabis and Mental Health Working Group:

- The Hon Rob Knowles, Chair of the Mental Health Council of Australia
- Professor David Castle, Mental Health Research Institute of Victoria
- Ms Donna Bull, CEO, Alcohol and other Drugs Council of Australia (ADCA)
- Mr Tony Fowke, Mental Health Carers Association of Relatives and Friends of the Mentally Ill (ARAFMI) Australia and MHCA Board member
- Mr Wayne Chamley, National Network of Private Psychiatric Sector Consumers and Carers and MHCA Board Member
- Dr Nick Kowalenko, Australian Infant, Child, Adolescent and Family Mental Health Association
- Dr Oliver O'Connell, Regional Director Drug and Alcohol Services, Northside Centre, Ramsay Health
- Mr John Mendoza, CEO, MHCA
- Mr John Castley, Senior Project Officer, MHCA

The Council also acknowledges the contributions of Professor Wayne Hall, Professor Rob Donovan, Dr Simon Lenton and the EPPIC Team at ORYGEN Youth Mental Health Service.

Copyright Mental Health Council of Australia 2006

Copies of this report can be downloaded or ordered at www.mhca.org.au/mhcashop

Suggested Reference: Where there's smoke... - Cannabis and Mental Health

ISBN 0 97754415 X

Design: Levitate Graphic Design

Printing:

Foreword

In recent years there has been a serious re-evaluation of the relationship between cannabis use and mental disorders. Until recently, cannabis has been seen as a relatively safe drug, and this has resulted in the propagation of mixed messages about its status and risk within both clinical settings and across the wider community. Increasing concern among clinicians, families, the media and community leaders, combined with some influential recent research studies have contributed to a changing attitude to illicit drug use in general, and to cannabis use in particular. This is an arena where anxieties and other emotions run high, so this MHCA report with its objective approach to the issue, drawing on the latest available evidence is most timely.

The information provided in this report is of the highest quality and the recommendations are generally reasonable and practical, especially in the context of recent and overdue reform and investment in mental health by Australian governments. Some challenging issues remain however and I will only mention two. Firstly, cannabis is an illicit drug, yet despite this, availability, arguably the main driver of levels of morbidity from drugs and alcohol, is almost universal. Secondly, the major harm in terms of mental health flowing from cannabis, as emphasised in the report, occurs in a minority of those who try or continue to use the drug. Combined with the extreme difficulty in limiting availability, this implies that the major focus should be on the prevention of progress from initial or occasional to harmful use. Of particular concern are those with a vulnerability to psychosis, and those with an established or revealed mental illness, again especially psychoses, such as schizophrenia. The most harm in these vulnerable subgroups comes from heavy use and from combined poly drug abuse. These facts tend to support more emphasis on targeted rather than universal approaches, though both have their place as recommended in the report. The problem we still face with both approaches is the relative lack of effective, evidence-based interventions either at the population, targeted or clinical levels. This is particularly obvious in clinical services, where interventions which will reliably reduce moderate to heavy cannabis use are simply not available. In preventive terms, focusing on attitudes in younger people prior to use may help, but we cannot yet be confident of this. All this means that we need to invest in the creation of better intervention strategies at all levels, from the community to the clinic, and be much more committed to clinical trial and health services research in this area. Better integration of mental health and drug treatment services is a crucial goal and this is a long overdue piece of health services research that we should tackle nationally.

The range of reform strategies funded under the COAG initiative in mental health will create new opportunities to confront these issues. For example, in relation to the *headspace* communities of youth services, which will take shape during early 2007, our goal is for early intervention for emerging mental health problems in young people to be provided alongside treatment for substance use disorders, within the same service model and in a genuinely seamless fashion. It will be vital to explore new approaches and test them rigorously in real world conditions within local communities and novel service systems. This philosophy should be extended to the state-funded specialist mental health and substance abuse treatment systems, and I am encouraged that some states have moved in this direction by appointing ministers with special responsibility for both mental health and substance use disorders. Much more progress needs to follow at the service and clinical level, including major improvements in workforce quality, cohesion and coverage.

This report is the latest in a series of excellent initiatives pursued and delivered to the Australian community by our dynamic and highly committed Mental Health Council of Australia. I recommend it unreservedly and congratulate the authors and other contributors, and the leadership of MHCA on this valuable contribution.

Patrick McGorry

Professor of Youth Mental Health, University of Melbourne

Director, ORYGEN Youth Health and Research Centre

Chair, Executive Committee, headspace: The National Youth Mental Health Foundation.



Abbreviations

ACT	Australian Capital Territory
AFHO	Australian Federation of Homelessness Organisations
AIHW	Australian Institute of Health and Welfare
AOD	Alcohol and other drugs
CALD	Culturally and Linguistically Diverse (communities/populations)
CBT	Cognitive Behavioural Therapy
CEN	Cannabis Expiation Note (South Australian Act 1987)
COAG	Council of Australian Governments
CRUfAD	Clinical Research Unit for Anxiety and Depression
DAMEC	Drug and Alcohol Multicultural Education Centre
DEST	Department of Education, Science and Training
DSM	Diagnostic and Statistical Manual of Mental Disorders
EPPIC	Early Psychosis Prevention and Intervention Centre
GP	General (Medical) Practitioner
MBS	Medical Benefits Scheme (Medicare)
MCDS	Ministerial Council on Drug Strategy
MDMA	Commonly known as Ecstasy
MHCA	Mental Health Council of Australia
NDC	National Drug Campaign
NDARC	National Drug and Alcohol Research Centre
NDSHS	National Drug Strategy Household Survey
PBS	Pharmaceutical Benefits Scheme
SAMHSA	Substance Abuse and Mental Health Services Administration (USA)
THC	delta-9 tetrahydrocannabinol

Table of contents

1	Executive Summary	7
2	Recommendations	12
	Policy, Strategy & Legal Frameworks.....	12
	Investment	12
	Research	12
	Prevention & Intervention Initiatives	13
3	Introduction and Context	15
	3.1 Current political and policy context.....	15
	3.2 Legislative and policy responses to cannabis in Australia - A short history	15
	3.3 Different roles, different perspectives	17
	3.4 Bridging the gap between anecdote and evidence.....	19
4	Cannabis use in Australia.....	21
	4.1 Patterns and trends in cannabis use	21
	4.2 Cannabis dependence	23
	4.3 Cannabis use in the context of other drug use.....	24
	4.4 Cannabis use by people with mental illness	24
	4.5 Cannabis use in indigenous communities	25
	4.6 Cannabis use in culturally and linguistically diverse communities	26
	4.7 Cannabis potency.....	27
5	The relationship between cannabis use and mental illness.....	29
	5.1 Pyschosis (specifically schizophrenia).....	30
	5.2 Depression.....	32
	5.3 Anxiety, Bipolar and other Disorders.....	34
	5.4 Cognitive impairment.....	35
6	Factors influencing use of cannabis.....	37
	6.1 Factors influencing general drug use	37
	6.2 Motives influencing use of cannabis by people with psychosis	39
7	Preventing and treating co-occurring cannabis abuse and mental illness	41
	7.1 Current intervention frameworks and approaches.....	41
	7.2 Considerations for Targeting Investment.....	43
	7.3 Prevention Strategies to reduce or delay onset of the use of cannabis	47
	7.4 Current evidence supporting treatment approaches and programs.....	59
	Appendix 1 – Terms of Reference – MHCA Cannabis and Mental Health Working Group	72
	Appendix 2 – Excerpts From <i>Not for Service</i>: Experiences of injustice and despair in mental health care in Australia.....	73
	Appendix 3 – The Current Legal Status of Cannabis Use in Australia.....	76
	Appendix 4 – Summary of the Evidence on the Relationship Between De-criminalisation and Cannabis Use..	78
	Appendix 5 – Introduction to Social Marketing	82
	Appendix 6 – DSM IV Definitions of Substance Abuse and Dependence	84
	Appendix 7 – What is Motivational Interviewing?	86



1 Executive Summary

In March 2006 the Board of the Mental Health Council of Australia (MHCA) established a working group to prepare a report on cannabis and mental health. The terms of reference are set out in Appendix 1. The decision to establish the working group came at a time of increasing public debate about the relationship between cannabis use and mental illness and what to do about it. The increasing concern about cannabis and its role in mental illness has not been confined to Australia.

In December 2005 the United Kingdom's Home Office Advisory Council on the Misuse of Drugs published a report on the classification of cannabis under UK law. In June 2006, the United Nations Office on Drugs and Crime released the World Drug Report 2006, which argued for a stronger international response to cannabis.

In Australia, on 9 May 2006, the Hon Christopher Pyne MP, Parliamentary Secretary to the Minister for Health and Ageing, announced a \$23.7 million third phase of the National Illicit Drugs Campaign, targeting illicit drug use among young people and to increase community awareness of the harm caused by cannabis and psycho-stimulants such as ecstasy and amphetamines. On 15 May 2006, at a meeting of the Ministerial Council on Drug Strategy (MCDS), state and territory governments endorsed the development of a National Cannabis Strategy. In July, a further \$73.9 million was also committed by the Federal Government under the COAG National Mental Health Action Plan for 'Improved Services for People with Drug and Alcohol Problems and Mental Illness' for the non-government drug and alcohol sector.

Just prior to this, the MHCA's *Not for Service* report (2005) acted as a lightning rod for community concern about mental health services in Australia. The issue of substance abuse, including cannabis, was prominent in the voices of carers and clinicians gathered through the community consultations.

This report aims to provide a balanced and informed view on the relationship between cannabis and mental illness. It summarises the research and states the MHCA's position on activities and directions that governments and the mental health sector should pursue based on the existing evidence. It also highlights where the need to invest in the development of better prevention, intervention and treatment responses.

The Historical Context

Australia, like many developed nations, first responded to the issue of cannabis in the 1920s, passing laws banning its importation, exportation and cultivation. The prohibition model was applied with little evaluation or indeed evidence of cannabis use in Australia. With use becoming evident in the 1960s the response was to increase penalties for use and trafficking. In some jurisdictions reductions in penalties for personal use started to occur in the early 1970s. Decriminalisation and the introduction of fines first occurred in South Australia in 1987 with the ACT following suit in 1992. At the same time the public health model for drug use emerged in Australia.

Unlike countries such as the United States, Australia has largely avoided a punitive and moralistic drug policy, developing instead harm minimisation strategies and a robust treatment framework embedded in a strong law enforcement regime. Nonetheless, in the recent public debate in Australia, the legal status of cannabis has been implicated as a factor in the continuing high rate of cannabis use and therefore as a contributing factor to mental illness. This view is supported by the reports from carers who see cannabis use as the cause of a loved one's mental illness.

Clinicians in both mental health and alcohol and other drug (AOD) sectors also point to an increase in the incidence of cannabis use among clients. Among consumers the perceived link between their mental illness and their cannabis use varies dramatically. Some mental health consumers who use cannabis report using the drug to alleviate the symptoms of their illness – as a means of self-medication. Others, notably long term users of cannabis, report that they continue to use cannabis because it relieves feelings such as anxiety and depression. These differences in

perspectives all contribute to the apparent confusion and disagreement over the relationship between mental illness and cannabis use.

Scientific research into causality is essential, particularly for developing better prevention programs. However, an overemphasis on strict causality can miss the simple fact that many people with mental illness are using cannabis (often with other drugs, including alcohol) and this is making their illness worse. From a practical point of view, identifying evidence-based ways to assist these people in a range of areas, including decreasing or stopping cannabis use, is arguably more important than establishing causality.

Cannabis Use

Cannabis is the most widely used illicit drug in Australia. Its use steadily increased from the time national data became available in 1973 to a peak in 1998 when over 60% of people aged 20-29 reported having ever used cannabis. Since then, reported use has declined in all population groups though it remains high in both historical and comparative terms.

The decreases in recent use among 14-19 and 20-29 year age groups since 1998 are pronounced, however one concerning feature in this period is a trend to use at a younger age. The average age for first use for 12-19 year olds is now at 14.9 years. This is of particular concern because it occurs at a time of physiological changes in the brain.

Cannabis is now recognised in Australia as the third most prevalent drug of dependence following alcohol and tobacco. About 10% of those who try cannabis will develop dependence at some point in their lives. Given the high level of use, this equates to 3.4% of the entire Australian population – that is, nearly 700,000 Australians.

Among people with mental illness, particularly psychosis, the rates of cannabis dependence are significantly higher than the general community. Weekly cannabis use has been shown to be 3.3 times more prevalent among people with psychosis than among the general population. People with anxiety and depression also show higher rates of heavy cannabis use.

While there is limited data at present, it suggests that heavy cannabis use is also significantly more evident among indigenous populations and that up to one in two cannabis users in remote communities experience adverse mental health effects.

Recent public debate has also raised conjecture over the increasing potency of cannabis. Hydroponically grown cannabis, the advent of European-bred sinsemilla cannabis plants and increased use of more potent heads have all been identified as reasons for an increase in the potency of cannabis used in Australia. However there is a lack of data to support this assertion.

Cannabis and Mental Health

There is a significant and growing body of evidence on the relationship between mental illness and cannabis. Strong associations are consistently found between mental illness and cannabis – but this is not the same as a causal link. The evidence increasingly suggests that regular cannabis use, particularly by those who begin using at a young age, increases the risk of mental illness. There is evidence of a genetic vulnerability to psychosis being, in effect, triggered by cannabis use. Nonetheless, the social context in which cannabis use occurs clearly contributes to the strong association between cannabis use and mental illness.

In short, the evidence shows that:

- Cannabis use precipitates schizophrenia in people who have a family history of that mental illness
- There is a 2-3 times greater incidence of psychotic symptoms among those who used cannabis, however, the epidemiological data shows that cannabis cannot be considered a major causal factor



- More frequent cannabis use is associated with higher relapse rates for people with psychosis and more severe symptoms were associated with increased risk of cannabis relapse
- Cannabis can induce schizophrenia-like symptoms in otherwise healthy individuals
- There is little evidence to support the idea that people commence using cannabis because of pre-existing illness, however it may be a factor in continuing to use cannabis (to alleviate the symptoms)
- There is no clear causal link between cannabis and depression, however there appears to be a link between early and regular cannabis use and later depression
- The link between suicide and cannabis use remains to be clarified
- There has been too little research into the links between cannabis and other mental illnesses such as bipolar disorder and personality disorders to draw conclusions
- There is no doubt that heavy cannabis users suffer significant cognitive impairment for up to a week after cessation of use but there does not appear to be either lasting or irreversible cognitive impairment

Risk and Response

The reasons for cannabis use are broadly no different to those for other licit and illicit substances. Long term, sustainable improvements in mental health and substance abuse are likely, therefore, to rest on influencing factors that lie outside the traditional domains of both mental health and drug and alcohol treatment.

The current responses for the prevention and treatment of cannabis use and mental illness are set out in several national policy frameworks – the National Drug Strategy, the National Mental Health Plan and most recently the COAG Mental Health Action Plan. Statements from the Federal Government to align these frameworks are welcome and may result in improved coordination at the strategy, policy and service levels and improved accountability.

Given the early onset of both mental illness and initiation of cannabis use, it is clear that the bulk of the prevention and early intervention investment must be targeted at younger age groups. There are also very strong reasons for investment in treatment and harm reduction options for older age groups. Despite what we know about the early onset of mental illness and cannabis initiation, we also know people aged 25–44 years and 45–64 years are more than twice as likely as those aged under 25 years to receive an active treatment for a mental illness when seen in general practice. A similar pattern of delayed help seeking is seen in relation to problematic cannabis use, where the bulk of those seeking treatment are in the 30+ age group.

Also of concern is the fact that, while the prevalence of cannabis use amongst the 30-39 year age group appears now to be declining modestly, widespread use in this age group is a relatively new phenomenon. The need for effective treatment for adults as a prevention mechanism for children is particularly evident for people with psychosis, given that 59 per cent of women with psychosis are mothers and 25 per cent of men with psychosis are fathers.

Further, there is a population of adults who are heavily dependent on cannabis and have serious mental illness. There do not appear to be effective treatments available for this group in Australia at this time.

It is clear that we need much more sophisticated interventions than currently used. Prevailing attitudes and the proportion of the Australian community who have used means careful planning and execution particularly in relation to social marketing campaigns. Social marketing is an appealing and highly visible response to prevention and early intervention and has a proven track record in responding to many health issues. The limited number of successful and evaluated programs aimed at reducing cannabis use have been marked by defined target groups, extensive research to understand beliefs and motives, selection of communication channels for the target audience and providing opportunities for information seeking and behaviour change. They have also been part of a broader approach and been sustained rather than 'one-off' media campaigns.

In the area of prevention for young people, there is an increasing recognition of the need for comprehensive approaches to tackling drug use problems. It is now recognised that there are multiple layers to drug use, involving the individual, their relationships to peers, family, school and community, as well as broader structural factors, all of which interconnect and impact on a young person's health outcomes.

The response must be multi-faceted, including interventions in school and non-school settings such as the juvenile justice system, complemented by mass media and targeted social marketing initiatives. Evidence clearly shows that the effectiveness of cannabis interventions deteriorate over time, indicating that the response must be sustained to ensure benefits do not erode.

In relation to cannabis and mental illness, the investments announced to date by COAG and the Australian Government are all welcome but do not appear to be adequate given the epidemiology, the nature of the problem and the need for significant investment in research on both prevention and treatment responses.



2 Recommendations

Policy, Strategy & Legal Frameworks

1. That Australian policies and strategies on drugs, cannabis, mental health, suicide prevention and comorbidity be better aligned and integrated and agreed to by all Australian governments through the relevant ministerial councils and committees.
2. That revised national policy frameworks and strategy documents adopt a clear outcomes focus and incorporate both drivers for change and clear timetables for achieving those changes. This should include a commitment to a National Mental Health Report Card with clear performance and outcomes measures to monitor and report annually on progress under these policies and strategies.
3. That any changes to the legal basis of cannabis in Australia be considered in the context of the :
 - evidence of its known effects
 - prevailing community attitudes - in particular, the recognition that compliance with the law is heavily influenced by the perceived legitimacy of the laws, and
 - evidence from previous changes to legal status from Australia and internationally as it has affected cannabis use

Investment

4. That state and territory governments commit the necessary resources to ensure that access to evidence-based alcohol and drug and mental health services is available across their jurisdictions. Such investments should complement the Federal Government's COAG initiative and the investment in the youth mental health foundation, *headspace*.

Research

5. That a national priority research agenda be developed to direct the research effort in relation to better understanding the relationship between cannabis and mental illness and the interventions to treat cannabis users with mental illness/es.
6. That priority funding be provided for research to develop and evaluate intensive treatment programs for Australian adults who are heavily dependent on cannabis with serious mental illnesses. At present there does not appear to be any effective treatments available for this group.
7. That analytical studies on the chemical consistency and potency of cannabis seizures by law enforcement authorities be more regularly undertaken and the results published.

Prevention & Intervention Initiatives

8. That the Federal Government, in collaboration with the states and territory governments and the mental health and alcohol and drug sectors, develop and implement a significant social marketing campaign to inform the Australian community on the relationship between mental illness and cannabis use.
9. That any social marketing campaign be:
 - Based on extensive research and detailed understanding of the beliefs and motives of the target audience
 - Targeted for both young people and Australians of parental age (25-44 years)
 - Integrated within a comprehensive approach to tackling drug use and cognisant of the broader social and structural factors affecting drug use behaviours. In particular, be complemented by a range of other family, school and community-based interventions that target risk and protective factors in general for youth at risk

- Sustained for sufficient period to affect knowledge, beliefs and potentially behaviours – drawing on the experience of 30 years of anti-tobacco campaigns
- Delivered in the places where young people congregate as well as through mass media.
- Able to seek changes to the way drug use is often positively depicted in entertainment popular with young people
- Rigorously evaluated to assess the community-level impact of social marketing on cannabis use behaviour

10. School-based programs for cannabis prevention should be:

- Adequately funded to support system-wide implementation, including sufficient support for teacher development
- Addressed within a broader health education context
- Timed to occur prior to the onset of experimentation with licit and illicit drugs
- Designed to involve credible peers in leadership roles
- Sustained over the school careers of students
- Rigorously evaluated

11. Communication messages must:

- Recognise that cannabis has been used by a majority of Australians at some point in their life, without long-term adverse effect
- Accurately reflect the state of knowledge about the relationship between cannabis use and different mental illnesses including that:
 - a. Cannabis use increases young people's risk of mental illness, particularly those with a family history of psychosis
 - b. Cannabis makes almost any mental illness worse
 - c. Cannabis use is associated with other adverse outcomes
- Be designed to inform while avoiding moralistic appeals
- Target both young people in junior high school (or earlier in some communities where use is evident at a younger age) and adults 22-44 years of age

12. That further studies on the prevalence and nature of cannabis use among indigenous populations be undertaken and appropriate interventions developed.

13. That programs be funded and promoted to develop the competence and capacity of GPs to undertake brief and effective screening and other interventions for problematic cannabis and other drug use. Programs that support GPs undertaking collaborative care with specialist mental health and alcohol and other drug professionals should also be promoted.

14. That significant investment in professional development for those working in both the mental health and alcohol and drug sectors be undertaken.

15. That state and territory governments provide funds to support integrated care planning between specialist public alcohol and drug and mental health services. [The Australian Government has already announced \$63 million for this objective within the NGO sector].



3 Introduction and Context

3.1 Current political and policy context

The issue of cannabis use and its relationship to mental illness is currently attracting a great deal of interest both nationally and internationally.

In December 2005, the UK Home Office Advisory Council on the Misuse of Drugs published its report into the reclassification of cannabis, recommending against reclassification as a Class B drug – a class that includes amphetamines and barbiturates. In June 2006, the United Nations Office on Drugs and Crime released the World Drug Report 2006, which argued for a stronger international response to cannabis.

On 9 May 2006, the Hon Christopher Pyne MP, Parliamentary Secretary to the Minister for Health and Ageing, announced a \$23.7 million third phase of the National Illicit Drugs Campaign, targeting illicit drug use among young people and increased community awareness of the harm caused by cannabis and psycho-stimulants such as ecstasy and amphetamines. On 15 May 2006, at a meeting of the Ministerial Council on Drug Strategy (MCDS), state and territory governments endorsed the development of a National Cannabis Strategy.

The Mental Health Council of Australia's report *Not for Service: Experiences of injustice and despair in mental health care in Australia* (2005) acted as a lightning rod for community concern about mental health services in Australia. The issue of substance abuse, including cannabis, was prominent in the voices of carers and clinicians gathered through submissions and public forums. Concerns were raised not only about the high incidence of co-occurring substance abuse and mental illness but the inadequacy, or absence, of services to assist people in this situation¹.

The Council of Australian Governments (COAG) National Action Plan on Mental Health 2006 – 2011, released on 14 July 2006, included an additional \$73.9 million for 'Improved Services for People with Drug and Alcohol Problems and Mental Illness' for the non-government drug and alcohol sector. Also of relevance is the Australian Government's \$50 million commitment to the establishment of *headspace* – the national youth mental health foundation which will address issues relating to both mental health and alcohol and other drug use for people aged 15-25 years.

3.2 Legislative and policy responses to cannabis in Australia - A short history

Australian legislative responses to cannabis commenced in response to pressure from the United Kingdom. In 1926, the Commonwealth Customs (Prohibited Imports) Proclamation proscribed the importation and exportation of cannabis. Australian states gradually followed suit, with most enacting some form of legislation between 1934 and 1959. However, cannabis was little known or used in Australia until the 1960s.

It has been argued that the lack of a domestic problem meant that legislation was accepted uncritically; no pressure groups existed to stimulate debate or mount opposition, and the absence of a drug problem meant that it was impossible to evaluate the costs and benefits of the prohibitionist model – it was simply assumed that the model worked effectively (Australian Institute of Health and Welfare (AIHW), 1994).

As cannabis use became more widespread in the 1960s, the legislative response was to focus on law enforcement by increasing penalties, reversing the onus of proof (making convictions easier) and shifting the emphasis away from drug users to traffickers. There was no interest in any medical or public health model of drug use at this time. Research soon demonstrated the widespread use of cannabis and governments experienced difficulties administering some drug laws, leading to legislative and policy changes in the mid to late 1970s. These included non-enforcement policies for simple cannabis offences and more lenient penalties for first offences (AIHW, 1994).

Further legislative changes were made by a number of States in the 1980s, generally providing for decriminalisation, reduced penalties for cannabis use and increased penalties for trafficking. In 1987, South Australia introduced a system of 'expiation notices' involving a fine, which, if paid within 60 days, results in no conviction being recorded.

¹ Relevant passages from the *Not for Service* report are provided in Appendix 2 of this document.

The A.C.T. followed suit in 1992. Legislative positions in other states vary but penalties for commercial cultivation and trafficking are consistently harsher than use. Programs also exist in a number of States to divert cannabis users from the courts into treatment programs (AIHW, 1994). A summary of the current legal status of cannabis use in Australia States and Territories is provided at Appendix 3.

Since the 1970s there have been numerous parliamentary inquiries examining drug policy, including policies directly targeting cannabis. One of the most significant of these was the Senate Standing Committee on Social Welfare (the Baume Committee) which produced its report 'Drug Problems in Australia – an Intoxicated Society' in 1977. This report placed alcohol and tobacco centre stage as drugs - at that time a radical suggestion outside the medical profession (Baume, 2000). The report recommended:

- legal controls that do not inhibit rehabilitation of the user or cause more social damage than the use of the drug causes
- legislative recognition of the significant differences between opiate narcotics and cannabis in their health effects and in the criminal impact on users and the community
- replacement of criminal sanctions with fines for possession of cannabis
- preservation of heavier penalties for hashish, hashish oil and purified delta-9-tetrahydrocannabinol (THC) because of their potency (AIHW, 1994)

While the government of the day rejected many of the report's findings, the report was influential in promoting a medical and public health model of drug use and emphasising the relative harms associated with use of alcohol and tobacco.

Unlike countries such as the USA, Australia has largely avoided a punitive and moralistic drug policy, developing instead harm minimisation strategies and a robust treatment framework embedded in a strong law enforcement regime.

With the exception of the rhetoric of the 'Drug Offensive' and 'Tough on Drugs' campaigns, public health concepts in Australia have had significant influence on national drug strategies (Bammer et al., 2002).

A summary of the current evidence on the relationship between de-criminalisation and cannabis use is provided at Appendix 4.

3.3 Different roles, different perspectives

An understanding of the different perspectives of health researchers, carers, consumers, clinicians and policy makers can assist in making sense of the current debate around cannabis and mental illness. Of course, the perspectives below are necessarily simplified and cannot represent the full range of views held within each group, nor are the groups mutually exclusive. They can, however, help to explain the apparent conflicting views over concepts such as 'self medication' and causality.

Health & social researchers

Health researchers have focused heavily in the last two decades on the extent to which cannabis causes mental illness. When two events occur together, it is human nature to conclude that one has caused the other. Researchers do not challenge the strong association between cannabis and mental illness – this is clearly demonstrated in data from a wide range of sources – but they point to a range of alternative hypotheses that could also explain the association. The two other most commonly examined hypotheses are that:

- cannabis use is a consequence of mental illness (often referred to as the 'self-medication hypothesis')
- other underlying causes exist that explain both cannabis use and mental illness (the 'common cause hypothesis').

Researchers argue that determining if cannabis causes mental illness is fundamental to identifying interventions that will achieve the desired outcome of reducing mental illness.



Health researchers have also focused on the mechanisms – psychological, environmental as well as potential genetic pathways - through which cannabis use has a direct or even causal relationship with mental illness. Understanding these mechanisms is a key to effective targeting of prevention, early intervention and cessation strategies.

Over 80 years have passed since international concern at cannabis use was formally recognised in the 1925 Geneva Convention on Opium and Other Drugs. Since then, repeated attempts by developed nations to reduce the use of cannabis have been largely ineffective. Without a good understanding of causal mechanisms, it is likely that these attempts, particularly preventative efforts, will continue to fail.

Carers

Particularly in recent years, carers have expressed concern about the apparent increase in the incidence of co-occurring mental illness and cannabis abuse.

Carer representatives report frequent approaches from distressed parents and spouses who claim that cannabis use has caused their relative's mental illness. *Not for Service* (MHCA, 2005) captures many of these voices, for example:

My son [X] committed suicide 2 years ago - he was 26. He was extremely intelligent, creative and a good athlete. His story started when he was 17 and started smoking marijuana and became quite depressed. My husband and I encouraged him to go to the local mental health service – where he saw [Y] and was encouraged by [Y] not to “prostitute” his ideals or lifestyle choices. I also went to see [Y] separately (as did my husband) who more or less said it was none of my business - he’s 17... admitted to Cumberland Hospital after stabbing himself in the stomach 3 times in front of us (not long before he died) and being assured by the psychiatrist that this time they would keep him there and he would get help - but because he was smart and presented well – he was out in 3 days - obviously not a well boy - but the system is overloaded - people don’t care - just move on. The main point I want to make is that it was so difficult for me to get any help for [X] because he was over 17. He realised just before he died he really wanted to turn his life around and we thought he was just about there when he suddenly decided to end his life. Parents need to be heard – young people can’t always help themselves to get the right treatment.

(Carer, Mother, New South Wales, Submission #122)

Just as researchers attempt to establish causality, so do carers and family. In a strict scientific sense, it is likely that carers overstate the causal link between cannabis and the development of mental illness. At the same time, however, they clearly see the harmful effects of cannabis and other substance abuse on people with mental illness and their concerns need to be heard and responded to, as they are often at the frontline caring for and supporting people with mental illness.

Clinicians

Clinicians in both the mental health and alcohol and drug sectors also point to an increase in the incidence of cannabis use among patients, leading to relapse or worsening of their illness.

Most studies that set out to determine causality between cannabis use and mental illness find associations that far exceed those found in the general population. Invariably, these rates of association are greatly reduced ‘when confounding factors are taken into account’. Such confounding factors could be family violence or alcohol abuse that make it impossible to assign causality to cannabis use alone. The search for ‘pure’ causality is a fascinating and necessary research task but clinicians know that very few patients present without a range of confounding factors. They tend to see a constellation of contributing factors to mental illness of which cannabis is only one.

Again, *Not for Service* (MHCA, 2005) provides an insight into the perspective of clinicians:

Cannabis abuse needs to be carefully assessed and treated. Treatment will help the client come 'out of the fog' and face life issues (like getting a job and communicating with family members). Cannabis use may be particularly dangerous for psychiatric and dual diagnosis clients. These clients especially should be clearly advised of the risks they face if they continue to use cannabis and offered good assessment and treatment.

(Clinician, New South Wales, Submission #181)

Consumers

Consumers present a more diverse range of perspectives than any other group. Many people who use cannabis infrequently for social reasons view it as similar to having a few drinks with friends. For people with a vulnerability to mental illness, there is little evidence to indicate that this is not the case. However, research conducted in New Zealand indicates that one in seven (14%) cannabis users reported experiencing 'strange, unpleasant experiences such as hearing voices or becoming convinced that someone is trying to harm you or that you are being persecuted' (Copeland et al., 2004). Given this, it is likely that most cannabis users have either experienced, or been with someone who has experienced, anxiety, dysphoria, panic or paranoia during intoxication or for a period afterwards. A proportion of these will recognise their vulnerability and avoid further use, while others will take longer to make the connection, if ever.

Amongst people with mental illness, awareness of the negative consequences of cannabis use varies dramatically according to factors such as age, the nature of a person's illness and their exposure to influences that encourage insight. Clinicians and researchers at ORYGEN Youth Health and the National Drug and Alcohol Research Centre (NDARC) report that many people, especially younger people, do not see a connection between their 'bad feelings' and their cannabis use. It often takes a period of engagement to assist them to make the connection and take action to reduce or stop their cannabis use.

As will be discussed later in this paper, there is good evidence that many people experiencing psychosis use cannabis because they believe it will alleviate the distressing feelings and emotions that are associated with their illness, despite the negative impact it has on their psychosis. Like carers, consumers on the road to recovery often identify with the concept of 'self-medication'. In *Back to Reality*, a video produced by ORYGEN Youth Health, five young people recently recovered from psychosis discuss the role of cannabis in their illness and recovery. The following is a brief excerpt:

Years ago I loved it (cannabis) but now I think back to my symptoms and how bad it was and the problems it caused my life and I just really think it's not worth it.

– Ben

Each of the young people in the video describes the process of gaining insight into their harmful cannabis use, demonstrating that treatment can assist people with mental illness to gain insight and motivate them to change. The 'Stages of Change' model used in drug and alcohol counselling has proven to be a useful model for people experiencing co-occurring mental illness and substance abuse and will be discussed in more detail later.



3.4 Bridging the gap between anecdote and evidence

Well-designed scientific research into causality is essential, particularly in determining prevention programs and strategies.

At the same time, an overemphasis on strict causality can miss the main issue that many people with mental illness are using cannabis (often with other drugs, including alcohol) and this is making their illness worse. From a practical point of view, identifying evidence-based ways to assist these people in a range of areas, including decreasing or stopping cannabis use, is arguably more important than establishing causality.

The gap between anecdote and evidence has narrowed in the last few years. As more scientific evidence has come to light, many researchers are calling for policy action to communicate the potential harms of cannabis use generally, and especially to groups we know are vulnerable – those who begin use early or who use frequently, and those already at risk of mental illness for other reasons. In regard to schizophrenia, for example, researchers now recognise that, while the causal link has not been proven 'beyond reasonable doubt', evidence now supports the link 'on the balance of probabilities'. Research into the causal relationship between cannabis and mental illness and the mechanism by which this occurs is now being accompanied by research-based evaluations of clinical interventions. While limited, these evaluations are resulting in the identification of promising prevention and treatment models. The understanding of motives for using cannabis among people with psychosis has given rise to more effective treatment interventions (Castle 2004).

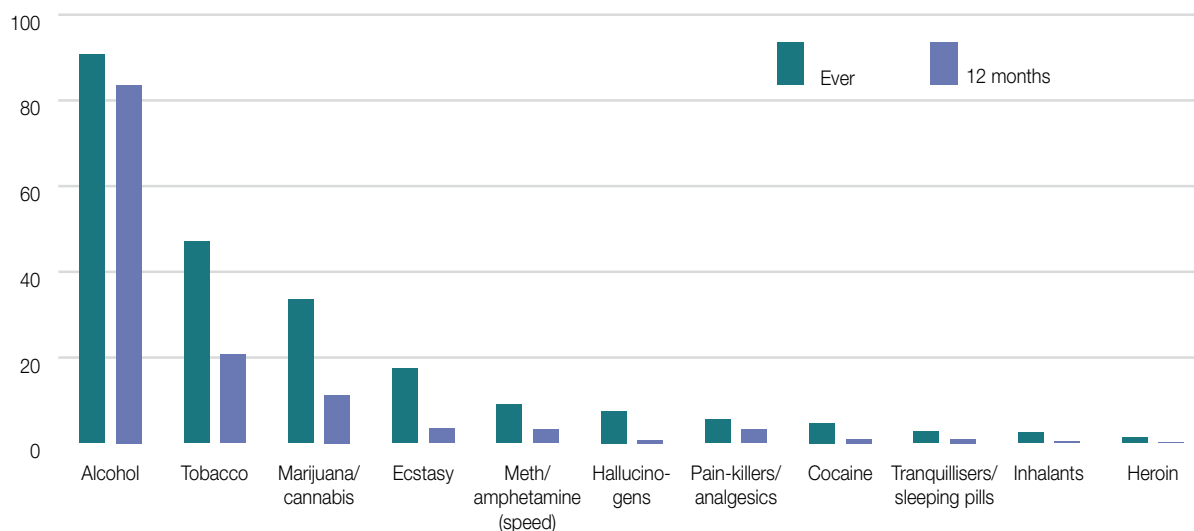
This report aims to provide a balanced and informed view on the relationship between cannabis and mental illness. It summarises the research and states the MHCA's position on activities and directions that governments and the mental health sector should pursue based on the existing evidence. It also highlights where the need to invest in the development of better prevention, early intervention and treatment responses.

4 Cannabis use in Australia

4.1 Patterns and trends in cannabis use

Cannabis is the most widely used illicit drug in Australia and, indeed, the world. The following graph shows cannabis use in relation to alcohol and tobacco, compared with a range of other illicit drugs.

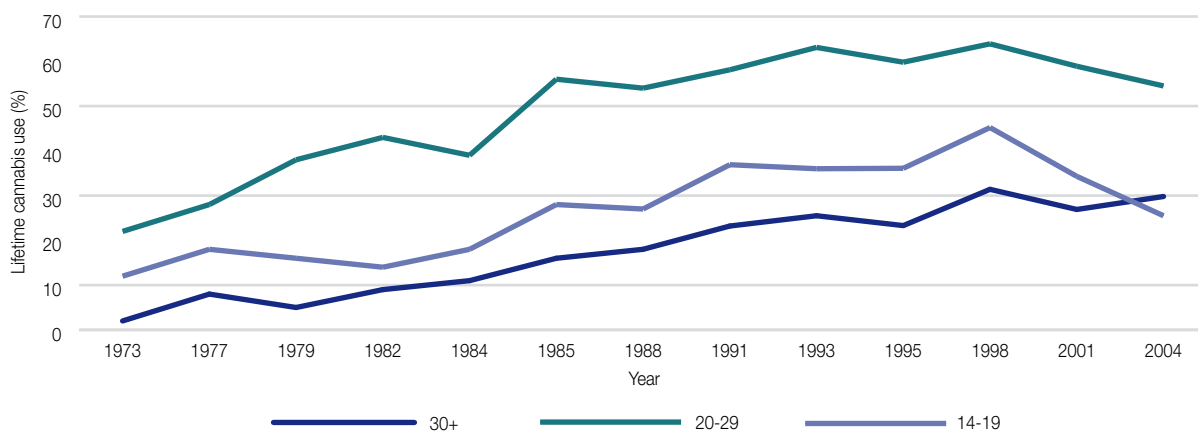
Figure 1: Prevalence figures for illicit drugs among Australians adults in comparison to alcohol and tobacco²



Typical patterns of cannabis use are similar in most developed regions of the world, with heaviest use occurring when a person is in their early 20s, followed by a steady decline into the 30s, explained by major role transitions such as employment and family responsibilities. Approximately 90% of experimental or social recreational users of cannabis do not go on to use the drug daily or for a prolonged period, most having discontinued their use by the time they are in their late 20s (Solowij N. & Grenyer F.S., 2002).

The following graph shows the percentage of the Australian population 14 years and over who have ever tried cannabis. It shows clearly that cannabis use in Australia has increased steadily from the early seventies to a peak in 1998, after which there have been steady declines, especially among younger users.

Figure 2: Lifetime prevalence of cannabis use among Australians 1973-2004 by age³



² NDSHS 2004. Excludes Other opiates/opioids, Barbiturates, Ketamine, GHB, Steroids, and Methadone.

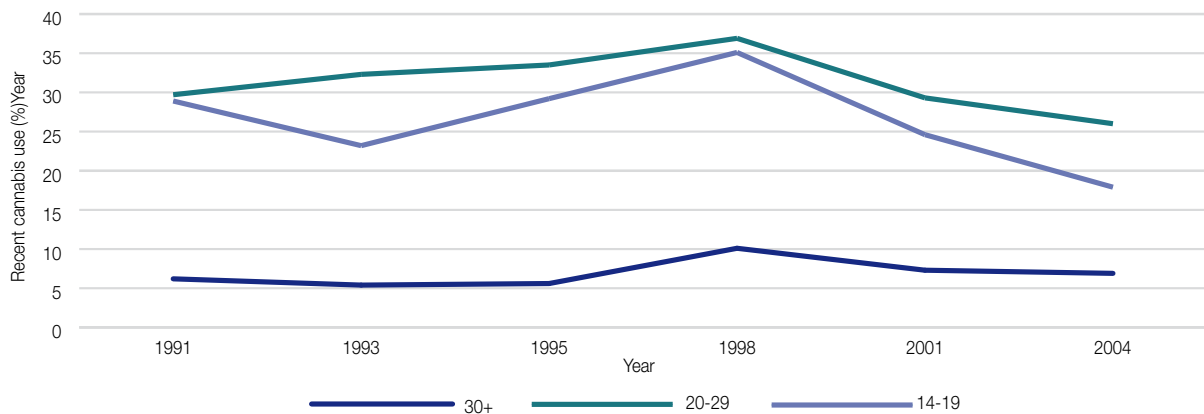
³ Source: Bammer, G., Hall, W., Hamilton, M., Ali, R. (2002) Harm Minimisation in a Prohibition Context – Australia. ANNALS, American Academy Political and Social Science: 582: pp 80-88. Additional data provided by AIHW: National Campaign Against Drug Abuse Household Survey 1991, 1993; National Drug Strategy Household Survey 1995, 1998, 2001, 2004.



Note that there has been a significant decrease in use amongst the 14-19 and 20-29 age groups, though figures are still high in historical terms.

The following graph shows recent use (in the last 12 months) and paints a similar picture.

Figure 3: Prevalence of recent cannabis use (last 12 months) among Australians 1991-2004 by age⁴

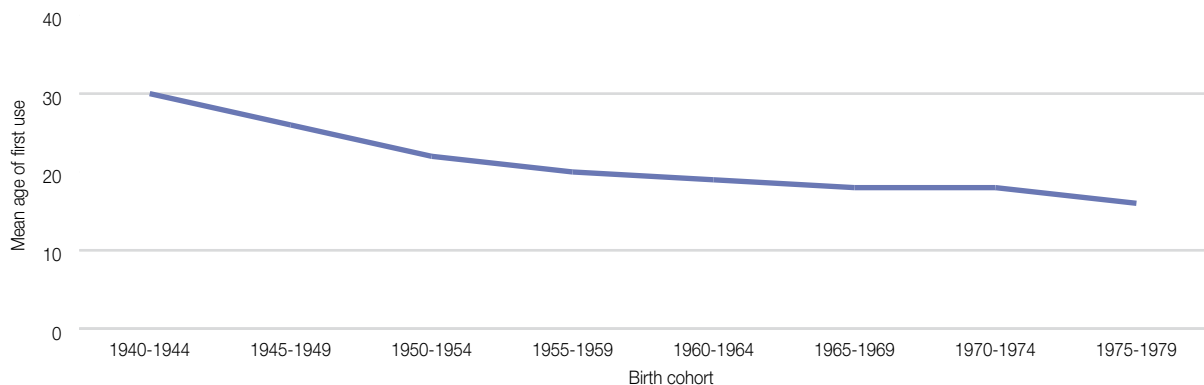


The decreases in recent usage among the 14-19 and 20-29 year old age groups since 1998 are pronounced. Decreases among the 30+ age group are visible, though less dramatic.

Researchers are unable to confidently pinpoint reasons for the decline in cannabis use since 1998 but one suggestion from a number of clinicians and researchers is the rise in popularity of MDMA (ecstasy) over the same period. The 2004 National Drug Survey Household Survey shows that recent usage rates for MDMA rose nearly fourfold in the 14-19 year age group between 1995 and 2004 (from 0.9% to 3.4%) and nearly threefold in the 20-29 year age group (from 5.1% to 15.1%). Cannabis usage amongst adolescents in Australia and the USA has shown similar decreases since a peak in the early to mid-nineties (O'Brien & Swift 2005). This trend is also reflected in data from the UK, though at a slower rate (Home Office Advisory Council on the Misuse of Drugs, 2005).

Despite these recent drops, rates of use still remain high in historical terms and there has been a marked trend towards earlier use of cannabis. The following graph shows that the mean age of first use fell steadily from 30 years of age for those born 1940-1944 to 16 years of age for those born 1975-1979.

Figure 4: Age of first use of cannabis by birth cohort⁵



4 AIHW: National Campaign Against Drug Abuse Household Survey 1991, 1993; National Drug Strategy Household Survey 1995, 1998, 2001, 2004.

5 Source: Degenhardt, L., Lynskey, M., Hall, W. (2000). Cohort trends in the age of initiation of drug use in Australia. Australian and New Zealand Journal of Public Health; Aug 2000; 24, 4; ABI/INFORM Global pg. 421.

Data from recent National Drug Strategy Household surveys show that this trend has continued, with the average age of first use for 12-19 year olds now at 14.9 years (AIHW, 2004). The use of cannabis in adolescence is concerning because it occurs at an important time of transition between childhood and adulthood when brains are still undergoing physiological changes.

4.2 Cannabis dependence

For many years cannabis was not considered to be a drug of addiction. In more recent years, cannabis dependence and a withdrawal syndrome have been shown to be very real. Symptoms of the latter include craving for cannabis, decreased appetite, sleep difficulty and weight loss and may sometimes be accompanied by anger, aggression, increased irritability, restlessness and strange dreams.

Experiments on rats clearly indicate that chronic administration of cannabinoids leads to adaptive changes in the brain, some of which are similar to those seen with other drugs of dependence (Iversen, L. in Castle & Murray, 2004).

In Australia and the USA cannabis dependence is the most common form of drug dependence after alcohol and tobacco. About 10% of those who ever use cannabis will become dependent at some point in their lives. Given that 33.6% of Australians have tried cannabis, this equates to about 3.4% of the population, a significant number from a population health perspective. However, it should also be seen in the context of the risk of dependence for other substances such as alcohol (15%), opioids (23%) and nicotine (32%) (Hall, W. & Solowij, N., 1998).

Heavier use is associated with a higher risk of dependence, increasing to between one in five and one in three among those who use cannabis more than a few times, and approximately one in two among those who become daily users (Hall & Pacula, 2003). Early involvement with cannabis increases the risks of becoming cannabis dependent and experiencing the adverse health effects as a consequence (Solowij N. & Grenyer F.S., 2002). A similar finding has been made in relation to the early adoption of tobacco, indicating the need for a similar prevention strategy to delay experimentation.

4.3 Cannabis use in the context of other drug use

One of the most difficult challenges for cannabis research is the high level of poly-drug use, making it difficult to isolate the effects of cannabis from other drugs. Copeland et al. (2004) illustrate this through figures from the 2001 National Drug Strategy Household Survey, which show that alcohol was very commonly used in conjunction with cannabis (95.1%), followed by amphetamines (26%) and ecstasy (19.9%). Only 2.7% reported not having used any other drug with cannabis.

4.4 Cannabis use by people with mental illness

Compared to the general population, research shows much higher rates of cannabis use and dependence among people with mental illness, particularly psychosis. Castle (2006) has summarised the research relating to psychosis and notes the following:

- The Australian Study of Low Prevalence (psychotic) Disorders (Jablensky et al 2000) showed that lifetime rates of illicit substance use or dependence amongst people with psychotic disorders was 36.3% for men and 15.7% for women (compared to 3.1% and 1.3% 12 month prevalence for the general population). Cannabis was the most commonly abused illicit substance, followed by amphetamines, LSD, heroin and tranquilisers.
- A review by Cantor-Graae and colleagues (2001) found lifetime rates for abuse of 'any substance' between 40-60%, with alcohol and cannabis being the two most commonly abused.
- Spencer et al (2002) found that around 50% of psychosis patients regularly used more than one substance.



Loxley et al. (2004) provide data from the Australian National Survey of Mental Health and Wellbeing that shows markedly higher rates of use of all substances by people with psychosis. The data show that cannabis is used weekly by nearly a quarter of people with psychosis, 3.3 times the rate of use by the general population.

Table 1: Prevalence of substance use in people with a psychotic disorder⁶

Substance	General population %	People with psychosis %	Factor of increase %
Current tobacco	23.0	60.0	2.6
Daily alcohol	15.0	21.5	1.4
Weekly cannabis	6.8	22.6	3.3
Pycho stimulant in the past year	1.3	9.2	7.1
Opiates in the last year	0.6	5.1	8.5

Rates of use by people with anxiety and depression also show increased rates of heavy cannabis use. O'Brien and Swift (2005) cite a 2001 analysis of the National Survey of Mental Health and Wellbeing by Degenhardt, Hall and Lynskey where it was found that among people who met the criteria for cannabis dependence in the past year:

- 14% met criteria for an affective (mood) disorder compared with 6% for non-users
- 17% met criteria for an anxiety disorder compared to 5% of non-users

In the light of these findings, it is easy to see how many people in the community reach a conclusion that cannabis causes mental illness. However, research does not support such claims at anything like these levels. This issue is examined further in Chapter 5.

4.5 Cannabis use in indigenous communities

Very little detailed information is available on cannabis use in Australian urban or remote indigenous communities. Copeland et al. (2004) cite 2001 National Drug Strategy Household Survey (NDSHS) results which show that 27% of Aboriginal and Torres Strait Islander respondents reported using cannabis in the last 12 months compared with 13% of non-indigenous Australians. However, NDSHS results are likely to under-report cannabis use in non-urban aboriginal populations because communities are often small, isolated and highly mobile, making data collection highly problematic. What little detailed information is available on remote indigenous communities comes mainly from targeted studies of several communities in the 'top end' of Australia's Northern Territory (Clough et al, 2004a).

These studies show a relatively recent and widespread pattern of problematic cannabis abuse that far exceeds anything seen in the mainstream non-indigenous population. A survey conducted in the mid-1980s by Watson et al. failed to detect any cannabis use in top end indigenous communities. By the late 1990s unpublished information collected by the Aboriginal Research Council suggested that cannabis was already being used by 31% of males and 8% of females in eastern Arnhem Land. A further study in 2002 found that cannabis was being used regularly by 67% of males and 22% of females aged 13-36 (Clough et al., 2004b).

Particularly striking is that unlike data for the Australian population as a whole, where rates of cannabis use in the last 12 months are only about one third of those ever using cannabis (11.3% and 33.6% respectively), the researchers found only a few percentage points difference between rates of regular use and lifetime use. In other words, nearly all indigenous people in these communities who begin using cannabis remain

⁶ Source: National Survey of Mental Health and Wellbeing. Table adapted from Loxley et al., 2004.

problematic cannabis users. Similar patterns are seen only in other highly disadvantaged populations where protective factors are low and risk factors are high, for example, juveniles in the justice system⁷. Quite apart from the physical and mental health effects of cannabis use, the researchers found very high spending on cannabis of between 31% and 62% of median weekly income, which led to additional pressure on family members who were often called on to make good shortfalls, sometimes under threat of violence (Clough et al., 2004b).

Nearly one in every two remote indigenous cannabis users experienced adverse mental health effects related to cannabis use, with 46% of cannabis users showing 'anxiety-dependency' symptoms such as memory impairment, fragmented thought processes and confusion, indications of tolerance to the effects of the drug, withdrawal effects and difficulties in controlling consumption (Clough et al., 2005). Top end aboriginal people with mental illness are vulnerable to poor treatment outcomes through high rates of comorbid substance misuse – especially alcohol and marijuana - exacerbated by poor physical health, social disadvantage, and an enormous burden of grief and loss through physical illness, suicide, homicide, and incarceration. In a study of reasons for relapse following discharge following psychiatric treatment, the researchers found that cannabis use was cited by health workers even more frequently than alcohol as a cause of psychiatric relapse - 85% and 97.6% respectively (Nagel, 2006).

There is clearly a need for further research on the adverse mental health effects of cannabis in both urban and remote indigenous communities, and the provision of effective prevention, treatment and relapse prevention strategies in these populations.

4.6 Cannabis use in culturally and linguistically diverse communities

Even less is known about rates and patterns of cannabis use in culturally and linguistically diverse (CALD) communities in Australia. National Drug Strategy Household Surveys have consistently shown that people from CALD communities have lower rates of substance use than the general population. The 2001 survey found that only 5% of people from a CALD background used cannabis in the last 12 months versus 13% of the non-CALD population (Toms, 2003).

In recent research into several CALD communities in NSW, the Drug and Alcohol Multicultural Education Centre (DAMEC) has reported lifetime prevalence of cannabis use amongst the Chinese community of 2.9% and the Vietnamese community of 6.8%, compared with the national average of 33.6% (see Figure 1). Data expected to be released shortly shows much higher rates of use among Pacific Islander communities, though still below the national average. An earlier DAMEC study also found higher levels of cannabis use in Italian and Spanish communities than in other CALD communities (cited by Toms 2003).

Rates of drug and alcohol use vary between and within cultures and there are populations within CALD communities that are particularly vulnerable to mental health problems. These include refugees who have experienced trauma, extreme physical and mental stress, isolation and poor nutrition. People from CALD communities tend to be overrepresented in high risk categories for alcohol and other drug use, including lower socio-economic status and high levels of anxiety. At the same time, however, it appears that CALD communities have traditionally maintained some distance from harmful illicit drug use through a protective system of close family relationships, strong spiritual values, a highly developed sense of obedience to family, community and the law, and a healthy fear of illicit drugs (Toms, 2003).

⁷ Among respondents of the 1999 Juvenile Justice Survey, for example, the lifetime rate of cannabis use was 92% and 'at least weekly' use was 83% (Copeland et al., 2003). The authors also noted that respondents were predominantly male, with an alarming over-representation of indigenous Australians of 33% compared with the NSW population rate of 1.7%.



Other DAMEC findings were that:

- drug treatment services are under-utilised by CALD drug users
- GPs were the most commonly used source of information and help for people from a CALD background
- many CALD drug users or their families support abstinence as a treatment outcome and short term treatments like rapid detoxification rather than long term harm minimisation approaches
- many CALD families are ashamed to seek help outside the family for drug problems or are ignorant of services

4.7 Cannabis potency

The constituent of the plant that is primarily responsible for the psychoactive effects sought by cannabis users is known as delta-9-tetrahydrocannabinol or THC. THC is primarily found in the resin that covers the flowering tops and upper leaves of the plant. Marijuana, the dried leaves or flowers of the cannabis sativa plant, is by far the most common form of cannabis and has a THC content of approximately 1% to 4%. The other less common forms are hashish (2% to 8%) and hash oil (9% to 23%) (O'Brien & Swift, 2005).

There is much conjecture surrounding the increasing potency (and possible contamination) of cannabis, including the following:

- Cannabis potency, particularly of strains of European-bred sinsemella, has increased dramatically
- Cannabis products sold today are more 'manicured' to include only the more potent heads
- Indoor hydroponically grown cannabis is more potent (possibly because the crystalline resin droplets found on the heads of the plant are not removed by wind)
- Hydroponically grown cannabis often contains fertilisers that are not properly 'flushed' from the plant before harvest
- Growers of hydroponic cannabis use toxic pesticides that remain in the end product and cause health problems

There is evidence that the first two points contain some truth. However, most of Australia's cannabis is grown locally and it is believed that only a small proportion is the European sinsemella which is known to have increased dramatically in potency in the last couple of decades.

The second point is undoubtedly true, though there is evidence that younger users prefer stronger forms of cannabis, typically heads, while older users tend to choose the less potent leaf of the plant (Copeland et al., 2004). These researchers also point to data from the National Drug Strategy Household Survey which indicates that young people in the 14-19 year age group have a much higher use of bong (water pipes), a form of smoking that enables maximum THC absorption. These data could mean that young cannabis users are exposed to greater levels of THC than older users. The question of whether this is a new phenomenon would need to be validated by following users for many years in a longitudinal study, as it is possible that people tend to use milder forms as they age.

In relation to the last three points, Copeland et al. (2004) conclude that there has been no systematic investigation and are unable to provide any evidence.

Professor Wayne Hall (personal correspondence, 2006) also points to the absence of good data on changes in the potency of cannabis. Testing is not required by law and is therefore not done consistently, and the media tend to publicise unusual cases. US data show modest increase in levels of THC from 3% in early 1980s to 4% in late 1990s.

Systematic research is required to answer these questions in the Australian context.

5 The relationship between cannabis use and mental illness

The body of research on cannabis and its relationship with mental illness is significant and growing, though by no means comprehensive. By far the greatest volume of research relates to psychosis, particularly schizophrenia. This reflects the severity rather than the prevalence of schizophrenia, which affects approximately 1% of the population. Smaller but substantial bodies of research exist in relation to higher prevalence illnesses such as depression and anxiety. Significant gaps exist in relation to other mental illnesses, particularly bipolar affective disorder and personality disorders.

Other imbalances also exist in the current body of research, with larger volumes seeking to establish whether a causal link explains the high associations found between cannabis use and mental illness. Less research exists on effective forms of prevention and treatment. These imbalances need to be redressed.

Explaining the relationship - association versus cause

As indicated earlier, strong associations are consistently found between mental illness and cannabis use. However, association does not prove a causal link. The three main hypotheses put forward to explain the association are described by various authors (eg Copeland et al., 2004; O'Brien et al., 2005). They are:

- Cannabis use is a consequence of mental health problems (the 'self-medication hypothesis')
The 'self-medication hypothesis' states that people use cannabis after experiencing signs of a mental health disorder in order to alleviate symptoms. Self-medication tends to have a stricter meaning for medical researchers, who test the hypothesis by following people over a number of years in longitudinal studies to determine whether the emergence of their mental illness preceded cannabis use. Other researchers, as well as many clinicians, carers and consumers, argue that, even if cannabis use preceded the onset of mental illness, ongoing cannabis use may well be motivated by an attempt to escape the distress of living with mental illness. This is discussed in more detail in Chapter 6.
- Cannabis use causes mental disorders (the 'causal hypothesis')
Strictly speaking, this hypothesis covers two scenarios – that cannabis use causes mental disorders in people who would not otherwise develop them, and that cannabis precipitates mental disorders that were previously lying dormant. If we assume that cannabis use does cause or precipitate mental illness, secondary questions arise as to how this occurs – are the mechanisms biological, such that cannabis use alters brain chemistry or biology in people with or without genetic predisposition to mental illness? Or are the effects socially mediated, such that cannabis users are exposed to greater levels of other risk factors for poor mental health, for example, association with substance using peers, school drop out, unemployment and crime?
- Mental illness and cannabis use may occur together because of common variables (the 'common cause hypothesis')
This is the most difficult for researchers to rule out because many variables co-exist for both cannabis users and people with mental illness, including family difficulties, other substance use and unemployment. It is also possible that there are common genetic factors that predispose individuals to cannabis use and mental illness.



A question of methodology – cross-sectional versus longitudinal studies

To investigate these hypotheses, researchers use cross-sectional and longitudinal studies, giving more weight to the latter. Cross-sectional studies collect data on a sample population at a point in time and often rely on recall of earlier life experiences. They are useful for showing absolute rates of co-occurring cannabis use and mental illness but do not enable researchers to confidently determine which is cause and which is effect. Longitudinal studies follow sample populations over time, capturing information about cannabis use, mental illness and a range of other factors that might affect the relationship. They allow researchers to identify whether cannabis use preceded mental illness or vice versa; they avoid problems associated with participants' recall; and they provide greater ability to statistically adjust for a range of confounding factors (O'Brien et al, 2005).

Which hypothesis is correct?

An attempt to summarise the evidence for each hypothesis in relationship to mental illness generally risks oversimplification. However, O'Brien and Swift (2005) have summarised the evidence for each hypothesis. They argue that there is little support for the strict self-medication hypothesis, namely that mental illness causes cannabis use. The evidence increasingly suggests a combination of the other two hypotheses, such that regular cannabis use, particularly by those who begin using at an early age, adds to the risk of mental health problems in adolescents who are at risk for other reasons. They cite primary sources which indicate that:

- the social consequences of regular use, including educational failure, school drop out, unemployment and crime, are all factors that may lead to higher rates of mental disorders (Patton et al., 2002)
- early cannabis use appears to encourage a series of behaviours including affiliations with substance-using peers, early school leaving and moving from home that in turn increases risks of substance abuse, antisocial behaviours and unemployment (Fergusson & Horwood, 1997)
- cannabis use may set in train a cascade of consequences that increase later psychosocial risk (Kandel et al., 2002)
- a pharmacological effect also remains a possibility, particularly as some studies have found that risks seem to be confined largely to daily users (Patton et al., 2002); there is evidence of a genetic vulnerability to psychosis (e.g. Arseneault et al, 2002); and there is a plausible biological mechanism underlying a causal association (Verdoux et al., 2003)

5.1 Psychosis (specifically schizophrenia)

In reviewing the evidence for a relationship between cannabis use and schizophrenia it is helpful to begin with findings about which there is greater confidence.

Exacerbation of symptoms

The negative effect of cannabis on individuals already experiencing schizophrenia has been known for many years. Blending clinical observations with findings from longitudinal studies, Castle (in press) provides the following summary:

Certainly in clinical settings today it would be relatively unusual for people with psychotic illnesses and acute relapse to have not had some exposure to cannabis. It is clinically very clear that some people with disorders such as schizophrenia inevitably appear to relapse on exposure to cannabis and that their relapse is worse if they are exposed to a high concentration of high potency cannabis. It is also clear from longitudinal studies that ongoing cannabis use in people with schizophrenia is associated with a worse outcome in terms of

more severe symptoms, a greater chance of relapse and more psychosocial decline. This has been shown in people with long standing schizophrenia as well as in first episode samples (Negrete et al. 1986; Linzen et al. 1994). Indeed, it appears that one of the best predictors of a poor outcome in people with schizophrenia is abuse of cannabis and other drugs.

A recent study by Hides et al (2006) found evidence of a two way relationship between psychosis and cannabis, whereby more frequent cannabis use was associated with a higher risk of psychotic relapse, and more severe psychotic symptoms were associated with increased risk of cannabis relapse.

Cannabis can cause transient psychotic episodes

Also well established is that cannabis can induce schizophrenia-like symptoms in healthy individuals (D'Souza et al., in Castle & Murray, 2004). The authors point out that this adds cannabis to a small list of other drugs, including dopaminergic stimulants (amphetamine), serotonergic agents (LSD and psilocybin) and glutamatergic antagonists (ketamine) that have this potential. However, symptoms of transient psychoses generally cease with abstinence.

Does cannabis cause schizophrenia?

As already noted, there is a clear association between cannabis use and schizophrenia. Arsenault et al. (2004) cite cross-sectional national surveys from the USA, Australia and The Netherlands that found rates of cannabis use among people with schizophrenia approximately double those of the general population. As already discussed, however, association alone does not prove causality.

In a summary of the evidence, Hall et al. (2004) draws the following conclusions:

- Evidence for the self-medication hypothesis (that cannabis use commences because of pre-existing schizophrenia) is not compelling. The distress caused by schizophrenia (referred to as the 'negative symptoms') may, however, be a factor in maintaining cannabis use.
- There is consistent evidence from several large and well-designed longitudinal studies that cannabis precipitates schizophrenia in people who are vulnerable because of a personal or family history of schizophrenia.
- There is still doubt that cannabis causes schizophrenia that would not otherwise have occurred in its absence, as rates of schizophrenia appear to have remained stable or decreased, despite substantial increases in cannabis use over the past few decades.

Castle (in press), adds to the picture:

- Large longitudinal studies such as the NEMESIS Study from Holland, Dunedin and Christchurch Cohort Studies from New Zealand as well as an Israeli Army Study, found that those who used cannabis had between two and three times the risk of later developing psychotic symptoms over the period of the study.
- Overall, these epidemiological findings converge in a conclusion that cannabis can be considered a causal factor in schizophrenia. However, it is clear that it cannot be a major causal factor in terms of the number of 'cases' of schizophrenia that result. This conclusion can be drawn because the rates of schizophrenia across the world are fairly uniform despite significant variations in cannabis consumption. Also, despite alleged increases in the potency of cannabis over the last two decades, there has been no major increase in the rate of schizophrenia. Furthermore, the vast majority of people who use cannabis do not develop schizophrenia and also the vast majority of people who have schizophrenia have not 'got' schizophrenia simply because of cannabis consumption.
- The conclusion that can be drawn, then, is that for a few individuals it might be that cannabis acts as the 'straw that broke the camel's back'. Thus, cannabis could be considered to be a 'cumulative causal factor' acting in synergy with other factors (genetic or early environmental factors which are known to be risk factors for schizophrenia, such as obstetric complications) to result in the manifestation of schizophrenia.



A finding common from multiple studies is that risks are greater for those who begin at an earlier age and are regular (daily or near daily) users.

The social context

Along with these findings, there is also a social context for those using cannabis with a serious mental illness. They are often in a highly vulnerable state – that is, unemployed, homeless and unable to access MBS and PBS services. Of all homeless Australians, half are estimated to have a drug dependence problem and half are estimated to have a mental disorder (Loxley et al., 2004). According to the Australian Federation of Homelessness Organisations (AFHO) this is likely to be a significant under-estimate (consultation with AFHO, May 2006).

There is good evidence that people with psychosis report using cannabis in an attempt to alleviate the emotional and psychological distress associated with their illness (See Chapter 6).

5.2 Depression

Does cannabis cause depression?

The evidence for a causal link between cannabis and depression is not clear cut, but there does seem to be a link between early and regular cannabis use and later depression.

As discussed in Degenhardt, Hall and Lynskey's 2001 review of the National Survey of Mental Health and Wellbeing, among people who met the criteria for cannabis dependence in the past year, 14% met criteria for an affective (mood) disorder compared with 6% for non-users. Once regular tobacco use, alcohol use disorders and other drug use were taken into account, however, the association was no longer significant (O'Brien and Swift, 2005). Similar findings have been made in numerous cross-sectional studies in Australia and overseas, with only a few exceptions.

A number of longitudinal studies have found that heavy cannabis use increases the risk of later depression and this relationship is partly but not completely explained by confounding factors. However, it is worth noting that Degenhardt et al (in Castle & Murray, 2004) examined one large study (Bovasso, 2001) and found that only 1.9% of depressive symptoms which developed over 15 years could be attributed to cannabis abuse. The authors conclude that if we assume on the current evidence that regular cannabis use and depression are causally related, the proportion of depression that is attributable to cannabis use is very modest.

It is important to note that these findings relate to whether cannabis plays a causal role in the development of later depression, not whether it exacerbates depression that may have been precipitated by a range of other factors - it is well known by clinicians that ceasing or reducing the use of any illicit psycho-active substance is very important in the recovery of people with depression. Rather, the findings provide evidence that a range of other factors may be implicated in the development of depression, suggesting that the problem cannot be fixed simply by targeting cannabis. This is borne out by literature on comorbidity, (for example Degenhardt, Hall & Lynskey in Teeson & Proudfoot, 2003) who conclude their paper What is comorbidity and why does it occur?:

There is a broad convergence of risk factors for both problematic substance use and mental disorders; a plausible hypothesis for the co-morbidity between these disorders is that substance use and mental disorders (mood disorders, anxiety disorders, personality disorders and psychotic disorders) share common risk factors and life pathways. A number of longitudinal cohort and twin studies have explicitly examined this hypothesis and have concluded that common factors explain the comorbidity between alcohol, tobacco and cannabis use (Lynskey et al., 1998); dependence on different illicit drugs (Tsuang et al., 1998); alcohol and nicotine dependence (True et al., 1999); and nicotine dependence and major depression (Fergusson et al., 1996; K. Kendler et al., 1993).

The problem of substance use has been likened to a balloon – you can squeeze it in one place (cannabis) but unless you address the underlying risk factors common to all illicit substance abuse, it will bulge in another (e.g. ecstasy).

Does depression cause cannabis abuse?

A number of longitudinal studies have also examined the question of whether depression causes later cannabis use (the 'self-medication' hypothesis) and all have found that depression in adolescence does not predict later cannabis use. One study by Kandel and Davies (1986) found that males with depression at age 16-17 were less likely to use cannabis at age 24-25 years (Degenhardt et al. in Castle & Murray 2004).

Summary

In summary, infrequent cannabis use does not seem to increase risk of depression but there appears to be a modest association between early-onset regular or problematic cannabis use and later depression. There is little research evidence for a biological causal effect, that is that cannabis causes changes in the neurotransmitter systems that make depressed mood more likely but greater evidence to support the other form of the causal hypothesis, in which the effects of regular or problematic cannabis use are socially mediated (Degenhardt et al. in Castle & Murray 2004). Evidence for both hypotheses is limited and there is clearly a need for further well designed longitudinal studies, including studies that examine cannabis use amongst older Australians.

Does cannabis contribute to adolescent suicide?

The simultaneous increase in cannabis use, depression and youth suicide has been cited by a number of authors as the fuel for community concern about a possible causal link between cannabis and non-psychotic mental illness.

O'Brien and Swift (2005) summarise the research in this and below are some relevant findings:

- A cross-sectional study found that use of cannabis weekly or more often among 14-15 year olds was associated with a 13 times greater risk of reporting a suicide attempt in the same year compared with non-users, after adjusting for confounding factors. The association declined with age (Fergusson, Horwood & Swain-Campbell, 2002).
- A survey of 2066 Victorian secondary school students who used cannabis weekly found a fivefold increase in incidents of self harm (Patton et al., 1997).
- Evidence from a small number of longitudinal studies concerning the relationship between cannabis use and suicide among adolescents is mixed.



- The association between heavy cannabis use and youth suicide is substantially reduced when factors such as the use of alcohol and other drugs, depression and having a history of psychiatric treatment are taken into account.
- Research by Fergusson et al (2002) which controlled for an extensive range of potential confounding factors does suggest, however, that there may be increased risk of suicide among younger, regular users of cannabis.

Given the differences between findings in cross-sectional studies and the mixed findings in the methodologically superior longitudinal studies, caution is required in drawing conclusions. O'Brien and Swift (2005) conclude by stating that the question of whether cannabis makes an independent contribution to the risk of suicide, either directly or through its effects on the risk of other mental disorders, remains to be clarified.

5.3 Anxiety, Bipolar and other Disorders

In addition to findings on depression, Degenhardt, Hall and Lynskey's 2001 review of the National Survey of Mental Health and Wellbeing also found that among people who met the criteria for cannabis dependence in the past year 17% met criteria for an anxiety disorder compared to 5% of non-users. Again, however, once regular tobacco use, alcohol use disorders and other drug use were taken into account, the association was no longer significant (O'Brien and Swift, 2005).

Hall and Solowij (in Castle & Murray, 2004) review the evidence on the relationship between cannabis and anxiety and find that cannabis clearly has the potential to both induce and to alleviate anxiety. They note that:

- many longer term users report that they continue to use cannabis because it relieves unpleasant feeling states such as anxiety and depression (Gruber et al., 1997)
- paradoxically, anxiety and panic attacks are among the most common negative reactions to cannabis (Hall & Solowij, 1998)

The authors conclude that factors which give rise to different effects are not yet clear – they could be related to distinct phases of effect, different dosages or individual vulnerability.

There has been very little research into the link between cannabis use and bipolar disorder. Degenhardt et al. (in Castle & Murray, 2004) list a number of studies from the 1980s and 1990s that investigated substance abuse among people with bipolar disorder. These found rates of cannabis abuse of between 3% (Sonne et al., 1994) and 19% (Marken et al., 1992) but the studies did not set out to determine whether the association was causal. It is worth noting, however, that more severe episodes of bipolar disorder can involve psychosis and findings in relation to the latter may support the role of cannabis in exacerbating bipolar disorder and understanding the motives for use. Degenhardt et al. (in Castle & Murray, 2004) report that a study by Grinspoon and Bakalar (1998) found that persons with mania or bipolar disorder used cannabis to moderate their manic symptoms. As explained further in Chapter 6, understanding motives for cannabis use among people with psychosis has led to breakthroughs in the identification of appropriate interventions and it has been suggested that this could also apply to bipolar disorder.

Research into cannabis and personality disorders is even rarer, despite evidence that the highest rates of substance use disorders are found amongst people with an antisocial personality disorder (84%) (Teesson & Proudfoot, 2003). Loxley et al. (2004) mention a US study by Brook and colleagues that found that heavier cannabis use at age 16 predicted personality disorder at age 22, after controlling for initial mental health status. However, given the paucity of research, it is not possible to draw any firm conclusions.

5.4 Cognitive impairment

A review of the evidence on the residual cognitive effects of cannabis was conducted by Pope and Yurgelun-Todd (Castle & Murray 2004).

The greatest evidence for cognitive impairment comes from several well-designed studies that show that heavy cannabis users perform significantly more poorly than non-users or infrequent users in tests of manual dexterity, memory, learning and word fluency for several days after discontinuing cannabis use. One such study by Pope and colleagues in 2001/2002 tested 77 current heavy smokers (median 18 500 times) with 87 infrequent users (median 10 times) on days 0, 1, 7 and 28 of a 28-day supervised period of abstinence. The study found that the heavy users scored significantly more poorly than infrequent users at days 0, 1 and 7 but that the scores of the two groups had largely converged by day 28. The authors conclude that the weight of evidence indicates that short term cognitive deficits (up to at least a week after cessation) are truly attributable to cannabis rather than confounding factors.

In examining the evidence for longer term residual damage, the authors conclude that even heavy cannabis use does not appear to cause lasting or irreversible cognitive impairment. However, two patterns of use were identified as warranting further research, namely early onset heavy cannabis use and lifetime duration cannabis use. In each case, some studies have found limited evidence that these patterns of use may result in lasting cognitive impairment. The authors express caution about these findings because of a phenomenon called 'cultural divergence' which predisposes heavy cannabis users to test poorly on standard tests because their vocabulary is non-standard. Further meticulously designed studies are required to answer these questions.

In summary, there is very strong evidence that regular cannabis use can cause a range of cognitive deficits that are likely to result in considerable psychosocial difficulty. The evidence shows that heavy users are likely to be operating at a decreased level of cognitive function that would contribute to a range of poor outcomes such as unemployment, educational failure and relationship breakdown. The news for people who discontinue heavy cannabis use seems more promising, though concerns still remain for early onset and lifetime users.



6 Factors influencing use of cannabis

Before looking at the factors which influence the use of cannabis, it is worth briefly examining the factors which influence the use of any illicit or licit drug (e.g. alcohol, tobacco).

6.1 Factors influencing general drug use

Supply

Supply is a key factor influencing use of any drug, determining ease of access, price and, where prevalent, contributing to perceptions that use of the drug is 'normal'. The impact of supply on cannabis use is dramatically illustrated in the case of the remote indigenous communities discussed in Chapter 4. The use of cannabis in those communities grew from zero in the mid-1980s to regular use by 67% of males and 22% of females aged 13-36 in 2002 (Clough et al., 2004b), a change attributed to an unchecked increase in supply in a context of socioeconomic disadvantage predisposing individuals to harmful drug use. Law enforcement activities to reduce the supply of drugs, especially when conducted in conjunction with local communities, are an essential strategy for reducing drug-related harms. In an interview on ABC Radio National's Health Report in February 2006, Alan Clough and Sheree Cairney reported modest but promising decreases in cannabis use amongst these communities, attributable, they believe, to joint action police and community leaders to reduce the supply of cannabis to remote communities. However, it is difficult to replicate such approaches in larger communities.

The emergence of high rates of comorbidity between serious mental illness and substance abuse is another case in point. It is suggested by some observers that the increase is a direct consequence of the increased supply of alcohol and other drugs to young adults who grew up in the post de-institutionalisation era. Receiving most of their care in the community, these individuals had ready access to alcohol and other illicit drugs, leading to an escalation in co-occurring mental health and substance use problems (SAMHSA, 2002).

Demand

The demand for a drug is influenced by a multitude of factors. In the two examples provided above, the effect of an increase in supply on escalating drug use is clear. But why was the increase among indigenous communities so far above rates of use in non-indigenous populations? Were there other factors leading to a similarly disproportionate increase in harmful drug use by people with serious mental illness? According to a growing body of research evidence, the answer in both cases is yes – demand plays a key role and is greatest where there are greater numbers of risk factors (and few protective factors) that predispose individuals and populations to harmful drug use.

What are risk and protective factors?

Drug use predictors are characteristics measured before the emergence of drug use behaviour that are statistically associated with an increased probability of subsequent emergence of the predicted behaviour (Loxley et al. 2004).

A drug use risk factor is a special class of predictor for which there is evidence that the risk factor predicts the target behaviour even after adjustment for other known influences. Identified largely through longitudinal research studies, there is generally a high standard of evidence supporting the validity of individual risk factors.

Loxley et al. (2004) describe protective factors as a special class of predictor that act to moderate and mediate the effect of risk factors. Protective factors can be naturally occurring, for example, good parenting or a good relationship with an adult outside the family, or they may be interventions specifically targeted at individuals known to be at risk of problematic drug use because of known risk factors. Prevention initiatives, treatment and harm minimisation strategies can all be viewed as protective factors.

Risk and protective factors exist at the genetic, biological, behavioural, psychological, sociocultural, economic, environmental and demographic levels, and a thorough exploration is beyond the scope of this report. However, the table below provides an indication of risk and protective factors for young people in relation to drug use. Protective and risk factors also change according to the developmental period so this list is not exhaustive.

Table 1: Risk and Protective Factors for Young People⁸

Levels	Risk Factors	Protective Factors
Community ‡		
	<ul style="list-style-type: none"> • Availability of drugs • Poverty • Transitions in schooling and into the community • Low neighbourhood attachment and community disorganization 	<ul style="list-style-type: none"> • Cultures of cooperation • Stability and connectedness • Good relationship with an adult outside the family • Opportunities for meaningful contribution
School ‡		
	<ul style="list-style-type: none"> • Poor relationships in school • Academic failure, especially in middle years • Early and persistent antisocial behaviour and bullying • Low parental interest in children 	<ul style="list-style-type: none"> • A sense of belonging and fitting in • Positive achievements and evaluations at school • Having someone outside your family who believes in you • Attendance at pre-school
Family ‡		
	<ul style="list-style-type: none"> • History of problematic alcohol and drug use • Inappropriate family management • Family conflict • Alcohol/drugs interfering with family rituals • Harsh/coercive or inconsistent parenting • Marital instability or conflict • Favourable parental attitudes towards risk taking behaviour 	<ul style="list-style-type: none"> • A sense of connectedness to family • Feeling loved and respected • Proactive problem solving and minimal conflict during infancy • Maintenance of family rituals • Warm relationship with at least one parent • Absence of divorce during adolescence • A 'good fit' between parents and child
Individual/Peer ‡		
	<ul style="list-style-type: none"> • Constitutional factors, alienation, rebelliousness, hyperactivity, aggression, novelty seeking • Seeing peers taking drugs • Friends engaging in problem behaviour • Favourable attitude toward problem behaviour • Early initiation of the problem behaviour 	<ul style="list-style-type: none"> • Temperament/activity level, social responsive, autonomy • Development of special talents/hobbies and zest for life • Work success during adolescence • High intelligence (not paired with sensitive temperament)

8 Source: Drug Expert Policy Committee (2000). Developing a Framework for Preventing Drug Problems.



So strong is the evidence base for the effect of social determinants on health status, including drug use behaviour, that Loxley et al. (2004) assert that researchers and policy makers must demonstrate that the recommendations they make for interventions can be linked to this research base.

Common risk and protective factors for drug use and mental illness

The latest National Mental Health and National Drug Strategies both acknowledge that many of the risk and protective factors and social determinants for problematic drug use and for mental health difficulties are shared. Long term sustainable improvements in mental health and substance abuse are likely, therefore, to rest on influencing factors that lie outside the traditional domains of both mental health and drug and alcohol treatment.

6.2 Motives influencing use of cannabis by people with psychosis

Is there evidence for 'self-medication'?

While most longitudinal studies have found that the development of a mental illness does not precede cannabis abuse at levels beyond chance, there is empirical evidence to suggest that mental illness, particularly psychosis, can lead to increased use of cannabis. How do we reconcile these two findings?

The concept of illicit drug use as 'self-medication' has entered the vernacular and would be familiar to most consumers and carers. In most medical research, the term appears to have been interpreted strictly to mean that the use of an illicit drug, in this case cannabis, is an attempt by an individual to alleviate the primary, or in medical parlance the 'positive', symptoms of a mental illness. Positive symptoms include delusions, hallucinations and mania. In order to test the hypothesis, they argue that onset of mental illness must logically precede first cannabis use and cite longitudinal studies which show mental illness does not precede first cannabis use at levels beyond what would occur by chance.

However, there is a more relaxed and arguably more common interpretation of the term 'self medication' that would strike accord with many consumers, carers and clinicians. This explanation states that people with psychotic illness use cannabis not to relieve the positive symptoms of their illness but to relieve unpleasant feelings or emotions - described in medical parlance as 'negative symptoms' - that may be a secondary result of their mental illness.

Most people with schizophrenia would admit that cannabis use makes their hallucinations worse but research shows that a high proportion of people with schizophrenia use cannabis to cope with unpleasant feelings such as worry or boredom (Spencer in Castle & Murray, 2004; Schofield et al, 2006). If you also relax the requirement that the onset of mental illness must precede first cannabis use, the research does in fact support a version of the self medication hypothesis.

How do motives lead to dependence?

A number of researchers have investigated the reasons for cannabis use among individuals with psychotic disorders and found that they are not significantly different from those among the general population. A range of motives can be grouped into the following four categories:

- coping with unpleasant affect (to relieve emotional distress)
- enhancement (to have fun)
- social interaction (to affiliate with others)
- conforming (to fit in)

(Spencer in Castle and Murray 2004; Schofield et al. 2006)

In reviewing the evidence, Spencer finds that the first two tend to predict heavy use while the last two generally do not, with use to relieve emotional distress and to relieve psychotic symptoms and medication side effects leading to stronger dependence. Importantly, Spencer found that it was not the existence of subjective distress alone that predicted heavier cannabis use and dependence - rather, it was the expectation that use would relieve distress or help a person cope:

People with psychosis may initially use substances to change affect, achieve a cognitive state or to facilitate social contact. They then develop dysfunctional substance-related beliefs about the substance use, for example, 'if I don't use cannabis, I will be unable to cope'. Motives for use ... maintain use and are the generative mechanism through which distress from psychiatric symptoms influences cannabis use. In other words, for those individuals with clear expectations or beliefs about the effects cannabis will have on their affect, worsening psychiatric symptoms or distress will lead to a worsening of cannabis dependence (Spencer in Castle and Murray, 2004).

Motives as a guide for interventions

Understanding the motives for cannabis use among people with psychosis has significant implications for designing interventions. It allows clinicians to find interventions that support a person to satisfy their needs in another way, thereby reducing reliance on cannabis to cope. For example, if someone is using cannabis in the expectation that it will help them to cope with distressing feelings or emotions, then interventions targeted at reducing stress are likely to be beneficial in reducing cannabis use. If using is to 'have fun', then helping the person to find other ways of having fun is likely to succeed.



7 Preventing and treating co-occurring cannabis abuse and mental illness

7.1 Current intervention frameworks and approaches

The National Drug Strategy

The National Drug Strategy: Australia's integrated framework 2004-2009 (Ministerial Council on Drug Strategy, 2004) firmly establishes a harm minimisation approach:

The principle of harm minimisation has formed the basis of successive phases of Australia's National Drug Strategy since its inception in 1985. Harm minimisation does not condone drug use, rather it refers to policies and programs aimed at reducing drug-related harm. It aims to improve health, social and economic outcomes for both the community and the individual, and encompasses a wide range of approaches, including abstinence-oriented strategies.

In relation to prevention the Strategy acknowledges that:

It has become clear that drug use is 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.

It states, as an explicit objective, to 'increase access to a greater range of high-quality prevention and treatment services' and as a priority area to 'improve access to quality treatment', followed by commitments during 2004-2009 to take action to:

- minimise barriers to treatment
- support effective treatment interventions and promising new treatment options
- build strong partnerships between drug treatment services and mental health services to enhance responses to co-existing drug and mental health problems
- increase the involvement of primary care such as general practitioners, specialists and hospitals, in early intervention, relapse prevention and shared care
- improve access to treatment programs and services (including diversion programs) in the criminal justice system
- improve knowledge of the effectiveness of culturally secure treatment for specific groups

Improving co-ordination and accountability

Given what has been known for many years about the common determinants of mental illness and substance abuse, proposals to better align the National Drug Strategy and National Mental Health Plan 2003-2008 are welcome.

The recent announcement in the COAG National Action Plan of an additional \$73.9 million for 'Improved Services for People with Drug and Alcohol Problems and Mental Illness' for the non-government drug and alcohol sector and the recent release of the National Cannabis Strategy also provide some hope that this much neglected area is beginning to receive some investment.

However, there is still a fundamental lack of coordination between strategies, highlighted by the recent report by the Senate Select Committee on Mental Health which recommended that Australian Health Ministers integrate the

National Drug Strategy, the National Mental Health Plan and the National Suicide Prevention Strategies and the delivery of services under these strategies.

Conspicuously absent from all plans are tangible outcome measures and a clear reporting framework – the National Drug Strategy (and also the National Cannabis Strategy) report to the Ministerial Council on Drug Strategy; the National Mental Health Plan reports to the Australian Health Ministers' Conference; and the National Suicide Prevention Strategy reports informally to the Mental Health Standing Committee. Clearly there are problems with three separate strategies driving separate policy and program responses and no clear reporting framework across the strategies. It is unsurprising that there has been to date little evidence of real progress in key areas of the National Comorbidity Initiative relating to the development of 'Service Planning Models to move towards Nationally Agreed Frameworks' and 'Through Research, Improving Information available on Developing, Supporting and Sustaining a Quality Mental Health Workforce'.

As with the broader mental health crisis in Australia, the biggest problems lie not with policy but with the political will across states and territories to commit funds and drive national implementation of models of service that are already working in pockets of excellence. For example, the range of services provided by ORYGEN Youth Health in Melbourne are internationally recognised as world best practice in early psychosis prevention and other treatment options for youth with co-occurring mental and substance abuse problems, yet the services are unable to meet demand even within ORYGEN's north western catchment area, let alone greater Melbourne or moreover, Victoria.

The Australian Government's *Headspace* initiative, launched on 18 July 2006, provides a much needed \$50 million boost (over four years) to research, training and coordination for youth mental health and substance abuse. But this investment alone will probably not result in substantial improvements to health outcomes unless there is a massive increase in real services accompanied by robust accountability measures. The MHCA's Time for Service report (MHCA, 2006) called for a total investment of \$300 million per annum to ensure quality youth mental health services are nationally available and adequately resourced. To date state and territory governments have not come forth with anything like that scale of investment.

7.2 Considerations for Targeting Investment

Balancing investment on younger between older age groups

Given the early onset of both mental illness and initiation of cannabis use, it is clear that the bulk of the prevention and early intervention investment must be targeted at younger age groups. The following research findings lend weight to this argument:

- Risk periods for initiation of cannabis use are mainly over by age 20 years and initiation after age 29 is very rare (Loxley et al., 2004).
- A longitudinal study following a representative sample of 1037 people from 11 through to 26 years of age found that 73.9% of those who met DSM criteria for a mental illness at 26 had received a diagnosis before 18 years of age (Kim-Cohen et al., 2003).
- 75% of serious mental illness can be traced to problems that began before the age of 25 (Kessler et al., 2005).

While efforts to discourage initiation and reduce cannabis use should clearly be targeted at younger age groups, there are very strong reasons why investment in treatment and harm reduction options is critical for older age groups. Despite what we know about the early onset of mental illness and cannabis initiation, we also know people aged 25–44 years and 45–64 years are more than twice as likely as those aged under 25 years to receive an active treatment for a mental illness when seen in general practice (Hickie, Davenport, Naismith et al. 2001). A similar pattern of delayed help seeking is seen in relation to problematic cannabis use, where the bulk of those seeking treatment are in the 30+ age group.



Also of concern is the fact that, while the prevalence of cannabis use amongst the 30-39 year age group appears now to be declining modestly, widespread use in this age group is a relatively new phenomenon. Even if use may not result in acute harm to these individuals, it nonetheless has important implications given that many of these people will be parents and parental drug use is a known risk factor for children. The need for effective treatment for adults as a prevention mechanism for children is particularly evident for people with psychosis, given that 59 per cent of women with psychosis are mothers and 25 per cent of men with psychosis are fathers (Gilbert and Castle, 2006).

Finally, there is a population of adults who are heavily dependent on cannabis and have serious mental illness. There do not appear to be effective treatments available for this group in Australia at this time. There is an urgent need for research and development of intensive programs to provide care for this group.

The need for a sophisticated response

It is clear that we need much more sophisticated interventions that we currently have. In the area of prevention for young people, there is an increasing recognition of the need for comprehensive approaches to tackling drug use problems. It is now recognised that there are multiple layers to drug use, involving the individual, their relationships to peers, family, school and community, as well as broader structural factors, all of which interconnect and are relevant to a young person's health outcomes. One-off, single approaches are viewed as limited (DEST, 2004). Even intensive one-off programs can contribute to an abandonment cycle for high risk youth.

The response must be multi-faceted, including interventions in school and non-school settings such as the juvenile justice system, complemented by mass media and targeted social marketing initiatives. Evidence clearly shows that the effectiveness of cannabis interventions deteriorate over time, indicating that the response must be sustained to ensure benefits do not erode.

Cannabis and the Prevention Paradox

Loxley et al. (2004) describe an interesting phenomenon in relation to cannabis that provides evidence that targeted programs are important for cannabis prevention.

The 'Prevention Paradox' is a term coined by the eminent UK epidemiologist Geoffrey Rose to describe that it is often the lower risk individuals who collectively contribute the bulk of preventable illness. The classic example is that the numerous individuals with moderately elevated blood pressure collectively experience more heart attacks than do the smaller number of people with highly elevated blood pressure. Loxley and colleagues used data from a major study of 9000 Victorian secondary school students and allocated a risk for each student of low, medium and high according to levels of risk and protective factors identified using a scale developed in the US. They then mapped these risk ratings against data on harmful substance use, which was defined for the purpose of the study as:

- drinking five or more drinks on one day, at least weekly
- smoking cigarettes at least weekly
- smoking cannabis at least weekly
- and using any other illicit drug at least weekly.

Their study found an interesting difference between the legal drugs (tobacco and alcohol) and the illegal drugs (cannabis and other illicit drugs). While adolescents with a high number of developmental risk factors and low protective factors are more likely to use all types of drugs in a potentially harmful manner, it is the bulk of children at low or average developmental risk who engage in smoking and drinking regularly by year 11. That is, the prevention paradox holds true for the legal drugs. This is not the case for the all illicit drugs though, where they found that by late teens (18 years) the prevention paradox may also apply to weekly cannabis use.

These findings suggest that prevention strategies for legal drugs need to be universal in their application and relevance to young people. For cannabis and other illegal drugs, targeted programs are essential for high risk

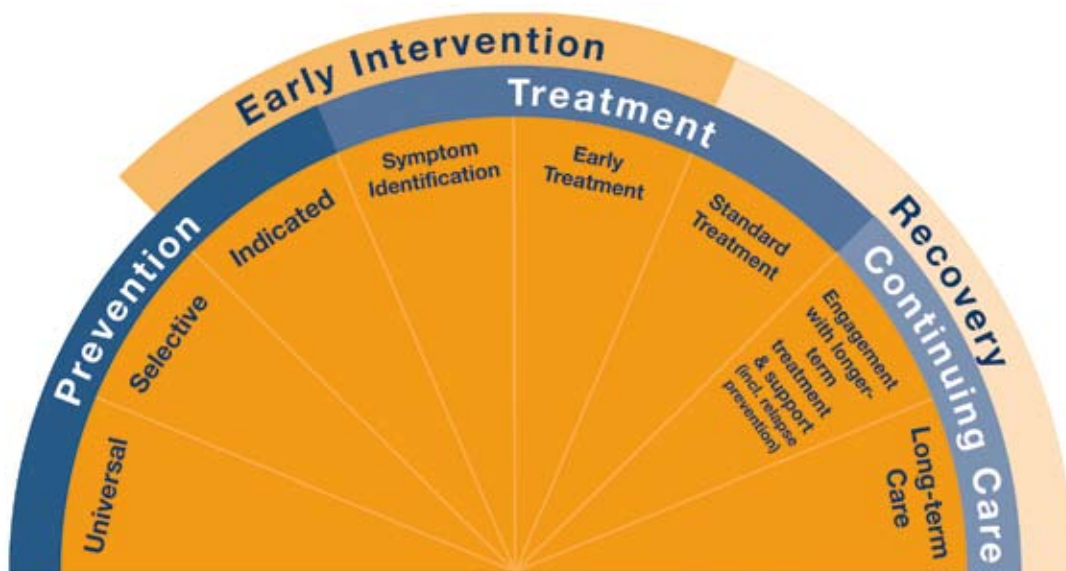
adolescents, and may need to be especially concentrated in areas of high socioeconomic disadvantage. In short, this research suggests that, for cannabis, simplistic solutions such as universal, one-off media campaigns will fail unless they are accompanied by a range of well targeted interventions.

The National Mental Health Plan - Spectrum of interventions

The National Mental Health Plan 2003-2008 provides an illustration of the range of interventions necessary to address the full continuum of mental health prevention and treatment needs. The spectrum of interventions framework will be used in the following chapters as way to categorise interventions.

Please note, that a full review of interventions is beyond the scope of this document, which sets out only to highlight one or two interventions in each category that are known to be effective or promising and worthy of further investment.

Figure 5: Spectrum of interventions for mental health



(Source: National Mental Health Plan 2003-2008 adapted from Commonwealth Department of Health and Aged Care 2000 and Mrazek and Haggerty 1994)

For the purposes of this model, prevention interventions are defined as follows:

- **Universal**
Interventions targeted to the general public or a whole population group that has not been identified on the basis of individual risk.
- **Selective**
Targeted to individuals or a subgroup of the population whose risk of developing mental disorders is significantly higher than average.
- **Indicated**
Targeted to high-risk individuals who are identified as having minimal but detectable signs and symptoms foreshadowing mental disorder, or biological markers indicating predisposition for mental disorder, but who do not meet DSM-IV diagnostic levels at the current time.



The following table provides a summary of interventions at each stage of the spectrum that are known to be effective or show promise, even if the evidence base is still emerging.

Note that the selective and indicated categories are combined as 'targeted' interventions.

Table 2: Some Examples of Effective or Promising Interventions⁹

Type of Intervention	Examples
Universal	<ul style="list-style-type: none"> • Social marketing • School-based drug education <ul style="list-style-type: none"> - Gatehouse Project – promising, early evaluations show significant decreases in cannabis and other illicit substance use at four years. - CLIMATE Schools
Targeted (Selective & Indicated)	<ul style="list-style-type: none"> • Adolescent Cannabis Check-up • Brief GP intervention
Symptom Identification	<ul style="list-style-type: none"> • A range of screening and assessment tools, including: <ul style="list-style-type: none"> - Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) - Dartmouth Assessment of Lifestyle Inventory (DALI) - Drug Abuse Screening Test (DAST) - CAGE Questionnaire. - Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) - Cannabis Amount Used and Symptom Evaluation (CAUSE) - Cannabis Use Effect Survey (CUES).
Early Treatment	<ul style="list-style-type: none"> • Early Psychosis Prevention & Intervention Centre (EPPIC) • Specialist youth mental health services, e.g. ORYGEN Youth Health
Standard Treatment	<ul style="list-style-type: none"> • GP interventions, possibly with referral to specialists, for high prevalence mental illnesses such as anxiety and depression and, in some cases, low prevalence illnesses such as schizophrenia.
Engagement with Longer-term Treatment and Support (incl. Relapse Prevention)	<ul style="list-style-type: none"> • Collaborative Therapy
Long-term Care	Interventions under Standard treatment and Longer-term treatment can be adapted as required for long term care.

⁹ This report is not a comprehensive literature review and there are undoubtedly many innovative and successful interventions that are not covered. The interventions highlighted have been identified through consultation in both the Mental Health and AOD sectors as being effective or, if in the early stages of development, highly promising based on initial results. This report attempts to profile a few promising interventions in detail rather than briefly summarising all initiatives.

7.3 Prevention Strategies to reduce or delay onset of the use of cannabis

7.3.1 Prevention messages

In the light of the evidence summarised in Chapter 5, there are a number of messages that should be communicated about cannabis primarily to young people but also to adults at risk. The following messages have been adapted largely from O'Brien and Swift (2004).

Message 1 – Cannabis use increases young people's risk of mental illness

Hall (2004) argues that it is not necessary to be certain that there is a causal relationship before advising young people about how to reduce their risk. Wayne Hall (in personal correspondence) makes the point that a major challenge will be framing the magnitude of the risk of psychosis from cannabis use given that the risk for any individual increases from around 7 in 1000 to 14 in 1000. This small individual risk belies the very serious consequences for those who are vulnerable to psychosis. The temptation is for parents and health educators to play up the risk, arguing that everyone is at risk because it is difficult to predict which young people are most vulnerable. Both Hall and Rob Donovan (in personal correspondence) believe that exaggeration of this nature undermines the credibility of the message and is likely to backfire. The challenge will be to communicate the risk while honestly acknowledging the uncertainties that remain. The following messages are targeted at groups we know to be at greater risk, as well as general 'look after your mates' message for all young people.

- Young people with relatives with psychosis
Quite a lot is known about the relationship between cannabis and psychosis. It is clearest that young people with psychosis or a first-degree relative with psychosis are at highest risk of experiencing psychotic symptoms after using cannabis. Hall (2004) argues that these people should be advised to avoid using cannabis as well as other psychosis-inducing drugs, including alcohol and stimulants (e.g. amphetamines).
- Young people experiencing symptoms of depression/anxiety
Young people who have experienced symptoms of anxiety and depression should also be included as among the 'at risk', given the non-specific nature of the early symptoms of psychosis.
- Young people who experience unpleasant, psychotic-like symptoms after using cannabis
For young people who do not belong to an identifiable 'high risk' group, those who report unpleasant psychotic-like symptoms after using cannabis are probably at greater risk of developing psychosis and should be encouraged to cease use.
- All young people
Young people who do not experience any psychotic-like effects need to be made aware that some of their peers may, as peer influence can be an important factor in young people's drug use (Hall, 2004). Persuading young people that regular, especially daily, cannabis use is not a 'safe' pattern of use may also reduce any role it plays in precipitating psychosis and other mental health problems.

Message 2 – Cannabis use makes almost any mental illness worse

As explained earlier, there is strong evidence that cannabis abuse exacerbates schizophrenia and other psychotic illnesses. Research has not directly addressed the role of cannabis in exacerbating other mental illnesses, perhaps because it is clinically self-evident. Certainly the strong evidence provided in Chapter 5 about short term cognitive impairments related to heavy cannabis use indicates that cannabis is likely to exacerbate any psychological symptoms already being experienced as a result of illnesses such as depression or anxiety.



Message 3 – Cannabis use is associated with other adverse outcomes

Frequent (greater than weekly) and early cannabis use is associated with risk for later dependence and a variety of other adverse outcomes such as poor school performance, early school leaving, unemployment and the use of other illicit drugs. A number of studies have found that the risk of psychosis and other adverse mental health outcomes is most marked for those who begin using cannabis at an early age. The dose-response relationship found in many studies highlights the importance of reducing the frequency of cannabis use among adolescents.

Given the steady decrease in age of initiation for cannabis, it is recommended that efforts begin in early adolescence, that is, at the beginning of secondary school. Education and interventions need to address contextual factors that are different from those of adults, including:

- the influence of perceived peer group norms on behaviour
- shorter histories of cannabis use (with fewer apparent negative health effects)
- developmentally different affective, cognitive, decision-making and planning processes

7.3.2 Universal prevention initiatives

7.3.2.1 Social Marketing Interventions for Cannabis Use

Social marketing utilises the key concepts and techniques used in commercial marketing to achieve socially desirable goals (Donovan, 2003). Social marketing strategies are provided predominantly through mass media.

The social marketer's goals relate to the wellbeing of the community, whereas for other branches of marketing, the marketer's goal relates to the wellbeing of the marketer (e.g., sales and profits; members and donations; political representation). As with other branches of marketing, social marketing involves extensive research with 'customers' to ensure that the advertising is believable, relevant and motivating. Research and negotiations are also undertaken with intermediaries and other stakeholders. In targeting cannabis use, for example, research might be conducted with health providers, parents, entertainment venues, legislators and law enforcement agencies. Key to the social marketing approach is offering something that the target population values in exchange for them adopting the recommended behaviour, whether they are end consumers or intermediaries. 'What's in it for me?' is a key driver in determining appropriate incentives for the various target groups in social marketing campaigns. A more detailed description of social marketing is provided at Appendix 5.

Examples of social marketing in action

Interventions utilising a social marketing approach to inform, educate and communicate harm reduction in relation to drug use are decidedly lacking. A limited review of the literature revealed a number of interventions that utilised a social marketing approach however few of these had been evaluated. Furthermore, although the interventions described below adopted a social marketing approach (i.e., a consumer orientation; research to inform message strategies; pre-testing of materials, etc), the interventions were not comprehensive marketing approaches, but relied primarily on communications to achieve attitude and behaviour change. A more comprehensive approach would provide alternative activities for youth at risk, seek changes to the way drug use is often positively depicted in entertainment popular with young people, involve parents and carers more and deliver the messages in settings where young people congregate.

Targeting Sensation-Seeking Adolescents – US experience

This US study, described by Palmgreen et al. (2001), suggests that carefully targeted media campaigns can significantly affect cannabis use behaviour. The study evaluated the effectiveness of a television campaign airing anti-marijuana public service announcements which targeted high-sensation seeking adolescents in two counties. This Sensation-Seeking Targeting (SENTAR) prevention approach to reducing use of illicit substances rests on the premise that sensation seeking is a potent risk factor for marijuana use. Accordingly, SENTAR's style of media campaign crafts messages for television

ads using a fast-paced, unconventional, and suspenseful approach considered to appeal particularly to sensation seekers. The ads used teen actors to depict several negative consequences of marijuana use (e.g., impaired judgment, effects on relationships, loss of motivation or coordination, lung damage).

Individual interviews were conducted with 100 public school students in grades 8 to 10 who were randomly chosen each month in each county. Interviews assessed exposure to the public service announcements, television viewing, attitudes towards the use of marijuana and other substances, and risk and protective factors, specifically sensation seeking. The study was conducted over a period of 32 months and reversed an upward trend of 30-day marijuana use among high-sensation seeking adolescents ($p < .002$) (Palmgreen et al., 2001). There was no campaign effect on low-sensation seekers who had low consumption anyway.

A more recent US study (Slater et al. 2006) utilised a participatory, community-based media effort to reduce the uptake of marijuana and alcohol uptake among middle-school students, with a mean age of 12.2 years, from 16 high schools within communities. The study used a randomised community experimental design in which communities were randomly assigned to either a media treatment or control condition. Within each of the media and control conditions, half of the schools received an in-school prevention curriculum, the other half did not. Researchers collected data in four waves over a period of two years.

The media materials used in the study ('Be under your own influence') are described in Kelly et al. (2006). The media campaign consisted of a series of public service announcements focusing on themes of personal autonomy and achievement which are incongruent with drug taking behaviour.

The theory of reasoned action was used as the conceptual framework underpinning the media campaign which was designed to influence attitudes and perceived norms regarding youth substance abuse. Statistical analysis found that the number of users reduced at final post-test for marijuana (OR = 0.50, $p = 0.019$), alcohol (OR = 0.40, $p = 0.009$), and cigarettes (OR = 0.49, $p = 0.039$), one-tailed. An overall decrease in substance uptake among middle-school students by 40% was seen. Researchers suggest that a reduction in youth substance uptake can be achieved through a combined in-school and community-based media effort, and that the presence of an in-school prevention curriculum was not required for intervention effectiveness (Slater, 2006).

Australian social marketing initiatives

In Australia, the National Drugs Campaign (NDC) is part of the Tough on Drugs strategy - an initiative of the Australian Government - and to date consists of two phases. Research and consultation with key experts identified the need for complementary strategies to specifically address the differing needs of youth. The target group was divided into sub-groups: lower risk; thrill-seekers; and reality-swappers. Phase One targeted parents of children aged 8 to 17 years and was launched in March 2001. This phase provided education and support to promote confidence among parents to discuss issues relating to drugs with their children. Phase Two of the NDC, launched in April 2005, was aimed at young people using drugs. Communication strategies were designed to educate youth on the negative consequences of drug use and to promote resilience by offering positive alternatives and support for those in need.

The campaign consisted of a variety of components including: television advertising; print advertising; posters; on-line advertising; integrated media opportunities; youth and parent marketing activities; information materials; campaign information line; and a campaign website. Promising results have been seen so far with the National Household Drug Survey 2004 (AIHW, 2005) indicating that the use of illicit substances in the preceding 12 months has decreased from 16.9% in 2001 to 15.3% in 2004. Although cannabis continues to be the illicit drug used most widely, a reduction in use (proportion of people using in the preceding 12 months) was also recorded with a decrease from 12.9% in 2001 to 11.3% in 2004 (Pennay, 2006). However, although these results are encouraging, there is no comparison group against which these findings can be compared. Hence the extent to which these reductions are attributable to the campaign components is unknown. Nevertheless, given the research base of the campaign, it is likely that the campaign has had an impact on attitudes and behaviours in this area.



Applicability of a social marketing approach to Cannabis

The studies just described have been successful in applying a social marketing approach to interventions aimed at reducing the use of cannabis. The campaigns have been marked by defining target groups, extensive research with the target groups to gain an understanding of beliefs and motives, selection of communication channels effective in reaching target groups, and providing opportunities for information seeking and behaviour change. These positive results indicate that such interventions can be effective.

Loxley et al (2004) clearly state that there is no evidence of efficacy for simple 'one-off' media campaigns for drug prevention. Despite this, they point out that those proposing 'self-evident' health education investments have traditionally found it easier to gain support from private and public funding bodies.

Poorly developed health education campaigns can be counterproductive, for example, where they lead to upward estimation of the perceived peer and adult drug use. The emerging evidence for social marketing, however, indicates that it can result in significant improvements over traditional health education campaigns. In summarising, Loxley et al. acknowledge a growing evidence base for the efficacy of social marketing, and recommend that investment be continued. However, they qualified this in two ways. Firstly, they question the lack of investment in more rigorous community trials to measure behavioural change rather than relying on pre- and post-marketing consumer recall surveys. Secondly, they indicate that social marketing may be more effective if used in conjunction with other interventions such as school-based health education and community mobilisation.

7.3.3 School-based drug education

7.3.3.1 Principles of school-based drug education

Drug education has become demonstrably more effective in recent years and as a consequence there is greater understanding of the various influences involved (Midford et al, 2000). While not the answer to preventing cannabis use and harm amongst young people, school-based education has the potential to provide a solid foundation for a range of other interventions. The principles of effective school-based drug education have been well articulated in a number of recent documents (e.g. DEST, 2004; Cahill et al, 2005).

How effective is school-based drug education?

A 1998 review of school drug education reported the sobering result that most programs had small effect sizes, with only 3.7% of those who would have used drugs delaying or not initiating (White and Pitts, 1998 cited in Loxley et al., 2004). Given the number of ingredients needed to create and sustain effective school drug education programs, and some formidable barriers, this is hardly surprising. Yet a recent Cochrane Collaboration review of four randomised controlled trials involving 7287 students showed much more promising results for skills-based school cannabis education, with 20% of those who would have used cannabis not initiating because of the intervention (Faggiano et al., 2006).

Certainly, there is much room for improvement, but the principles are now well established and effective implementation depends largely on political will. What has been evident in over 20 years of school-based drug education programs in Australia, is a failure to achieve systemic implementation of evidence-based programs and that again reflects a failure to install effective accountability mechanisms.

Barriers to effective school drug education

There are many barriers to effective school drug education including:

- insufficient support for teachers, who are often expected to deliver programs on top of existing curricula with minimal or no additional resources
- a failure of governments to fund effective programs beyond the 'pilot' stage
- inherent difficulties of fidelity when expanding programs beyond a few sites.

The greatest potential barrier to good drug education has been identified as decision makers continuing to select programs on the basis of what they would like to see happen rather than on the evidence of what can realistically be achieved (Midford et al., 2000). The Australian experience includes several examples of school drug education programs that have been shown to increase alcohol and drug use by participants. Poor decisions are not only made at a government level but also within schools, where teachers have been shown to modify programs based on their own values or because they feel vulnerable supporting a harm minimisation approach that may expose them to criticism. Schools and teachers must feel supported in undertaking interventions which may not satisfy some Utopian desire to 'inoculate' young people but which are needed to keep young people safer in a world where drug use is a fact of life (Midford et al., 2000).

Given the risks associated with school-based drug education, researchers have called for 20% of program budgets to be spent on evaluations, particularly randomised controlled trials, to measure whether interventions have resulted in the desired behaviour change (Loxley et al., 2004).

Content and delivery - what works?

There is an extensive literature on the characteristics of effective school drug education. An abbreviated set of the most important characteristics identified by Midford et al (2000) is:

- Junior programs should be generic, senior programs should be differentiated
- Programs should be interactive
- Effective programs have certain essential content
- Effective programs tend to be faithfully implemented
- Credible peers need to be involved in leadership roles
- Timing of the intervention is important
- Parents and the wider community should be involved where possible.

Interactivity has been shown to be extremely important by multiple studies. Timing of intervention is also crucial, as primary prevention has been shown to be most effective if instituted before behavioural patterns are established and more resistant to change. Evidence suggests that the timing of cannabis education should be adjusted for each population by reference to the appropriate prevalence data, with the result that programs should commence earlier with particularly high-risk populations (Midford et al, 2000).

The Illawarra Program is an example of a successful Australian school drug education program targeted at Year 6 students. The program used an interactive design based on the development and performance of drama, and involved students from Year 7 who had successfully completed the program the year before. Four years later in Year 10, a follow up showed a significantly lower proportion of students had used tobacco and cannabis compared with controls (Wragg, 1990 cited in Midford et al, 2000).

Another finding from multiple studies is that the effects of programs fade significantly over time, indicating a need for ongoing interventions at important points throughout adolescence.

The following table provides a more detailed description of what works and what does not work for school-based cannabis and other drug prevention.



Table 2: What works and doesn't work in cannabis and other drug prevention programs: content and delivery features¹⁰

What works	What doesn't work
Content: Knowledge	
Short-term effects of drug use Long-term health consequences of drug use	Omission of short-term consequences
Content: Attitudes about drug use	
Feedback from school surveys of peer drug use Analysis of media and social influences that promote pro-drug attitudes	Omission of perceptions of peer drug use Omission of media influences on pro-drug attitudes Ethical or moral decision making
Content: Drug refusal-based interpersonal skills	
Perception adjustment of universal peer substance use Drug refusal skills Assertiveness skills Communication skills	Values teaching Omission of interpersonal skills, particularly drug refusal skills
Content: Intrapersonal skills	
Safety skills Coping skills Stress reduction techniques Goal setting Decision making/problem solving	Problematic if solely intrapersonal focus Problematic if solely self-esteem building exercises
Delivery	
Everyone actively involved Participation between peers Student-generated role plays Supportive comments from peers Rehearsal of drug refusal skills Sufficient practice time Peer modeling of appropriate behaviour Developmentally appropriate activities to promote bonding between younger adolescents	Passive participation Lectures Teacher-centred class discussions Unstructured dialogue sessions Effective classroom management techniques without an accompanying drug program

Emergence of comprehensive whole school / whole community approaches

In addition to research on best practice content and delivery, there is a growing recognition that interventions must be broader than classroom education alone.

Drug-related risk and harm share common causal pathways with other health and social outcomes such as youth suicide, social dislocation, mental health and sexual health problems. Prevention and early intervention along these pathways can make a difference across those outcomes (DEST, 2004).

¹⁰ Source: Tobler et al, 1999

The Health Promoting Schools Association is an example of an organisation which promotes the adoption of comprehensive health initiatives within schools. Building on the broad goals of Health Promoting Schools, Project Gatehouse (described below) is a concrete example of a whole school approach that has achieved reductions in cannabis and other substance use through targeting a range of behaviours seen as important for improving the whole school milieu.

With recognition that there are multiple layers to drug use, involving the individual, their relationships to peers, family, school and community, as well as broader structural factors, it is clear that approaches to prevention cannot begin and end in the classroom. It is critical that schools receive ongoing funding and assistance not only to deliver school drug education but also to build partnerships with organisations able to provide care for students at risk of harm.

7.3.3.2 Gatehouse Project

The Gatehouse Project is an innovative school-based program that targets the whole school as a way of achieving better health and learning outcomes. The program operates on the premise that the use of drugs and alcohol are part of a broader set of risky behaviours, such as antisocial behaviour and early initiation of sex, that are influenced by common factors. A central theme of the project is social connectedness through fostering security, communication and positive regard. Twenty six Victorian schools took part in a trial between 1997 and 2001, covering over 7500 Year 8 students. A recent evaluation (Patton, 2006) shows promising results. At four year follow up, students in participating schools showed a 25% decrease in risky behaviours, including substance use, compared with controls.

The Gatehouse Project differs significantly from other school-based drug prevention interventions but has many of the features of the South Australian TEACH initiative of the late 1980s (Coonan, W., Owen, N. & Mendoza, J. 1990) and the Queensland school drug education program of that same decade (Irwin, R. 1990). The process begins with survey of the school social environment from the perspective of students, providing a valuable source of information for identifying priorities in each school. The survey might show, for example, that deliberate social exclusion is a problem warranting special attention. A school-based action team (often called the adolescent health team) is then created or adapted from an existing team, comprising teachers, senior school administrators, student welfare, year-level coordinators and personnel from outside agencies linked with the school. Armed with information about students' perceptions of the school environment, this team then sets about shifting the focus from single health and social issues and a fragmented 'projects' approach to that of a coordinated social development program addressing a school's priorities (Patton et al, 2003).

While strategies varied between schools due to differing needs, they had to include three mandatory elements: school policy and its implementation, strategies to promote inclusive relationships within the classroom (such as class rules that are jointly negotiated by teachers and students) and curriculum elements focused on social and emotional skills.

In the first year of implementation, an average of 20 lessons (15 hours) were dedicated to Gatehouse curriculum and about 40 hours of professional development are provided to teachers by the Gatehouse implementation team from the Centre for Adolescent Health. The mentoring role provided by the implementation team was critical to supporting teachers and administrators in making changes. The curriculum is designed for use within English classes as well as classes traditionally associated with student health (e.g. physical education, personal development). Importantly for the sustainability of the program, teachers are able to use the Gatehouse curriculum at the same time as teaching English and meeting the education requirements of that subject.

The Gatehouse Project is a promising prevention strategy for a range of risky behaviours in adolescence, including cannabis use, and is an example of the holistic approach that is increasingly being recommended in the field of school-based substance use prevention.



7.3.3.3 CLIMATE Schools

CLIMATE Schools (www.climateschools.tv) is a promising web-based intervention funded by the Australian Government and developed jointly by the National Drug and Alcohol Research Centre (NDARC) and the Clinical Research Unit for Anxiety and Depression (CRUfAD) at St Vincent's Hospital, Sydney. CLIMATE Schools uses a cartoon soap opera format to educate young people about a range of issues affecting their health and wellbeing.

At the time of this report, only two modules (Stress and Alcohol) of eight planned modules are available. When finished, the developers expect there will be eight modules (48 lessons) to be delivered as part of the personal development curriculum as follows:

- Year: 7 Bullying; Stress
- Year: 8 Alcohol; Sexual Choice
- Year 9: Cannabis; Anxiety
- Year 10: Psycho-stimulants; Depression

An additional module on body image is currently being considered

Format and content

Lessons are designed to be viewed individually in computer labs. Some modules (e.g. Alcohol) are static, meaning that students simply click through a series of cartoons, while others (e.g. Stress) are interactive, offering students opportunities to explore different aspects of each cartoon by clicking on areas that interest them. The cartoons present highly engaging scenarios which were developed following focus groups with young people, employing a cast of characters who will be used for each year group but will age accordingly.

The Alcohol module takes a harm minimisation approach. It recommends abstinence as the safest option, but acknowledges that alcohol use is a reality for many young people in a society where alcohol use is commonplace. By doing so, it deliberately seeks to engage those young people who have already embarked on harmful patterns of alcohol use or who, for a range of reasons, will do so despite the best attempts to encourage abstinence.

Innovative delivery – Overcoming known barriers

As noted earlier, school-based programs are known to suffer badly from a lack of fidelity in implementation. Teachers often lack support or skills, and it is common for teachers to modify programs based on their own values. In contrast, the web-based format for CLIMATE Schools ensures absolute fidelity and is augmented by evidence-based teaching manual with interactive class activities to reduce teacher workload and allow correct adaptation to student populations (Vogl and Teesson, 2006).

Another key barrier to effective school-based interventions, and indeed many other interventions, is scalability. The history of both the mental health and AOD sectors is littered with innovative programs that are shown to be effective but fail to obtain ongoing funding. CLIMATE Schools has the benefit of being cost-effective and, thanks to delivery via the web, infinitely scalable. At a cost of approximately fifty cents per student per hour, the program retails to schools at far less than the cost of a teacher and is sustainable as a not for profit intervention. Importantly, costs are within discretion of school heads, avoiding the need for lengthy approval processes.

The long term sustainability of CLIMATE Schools is maximised by being designed to run within the existing curriculum and because it largely 'runs itself'. The interactive class activities that augment the web-based modules are well supported by the teaching manual, requiring no investment by teachers in designing curriculum and clear guidance on how to adapt it to particular student populations. An additional module is being developed to provide a 'Teachers Club' to provide continuing education for teachers.

Evidence for effectiveness

A recent randomised control trial (where the control was health classes as usual) found that the CLIMATE Schools Alcohol module was effective in:

- increasing knowledge of alcohol related harms
- decreasing perceptions of the social and emotional benefits of alcohol consumption
- decreasing average alcohol consumption, excess alcohol consumption and related harms (females only).

(Vogl and Teeson, 2006)

The gender bias for behaviour change was striking, with girls showing marked decreases in average alcohol consumption, excess alcohol consumption and related harms while boys showed no significant differences. The researchers found that lack of effect on behaviour for boys could not be explained by males not relating to the program content, as males and females both strongly agreed that the cartoon story and skills were equally relevant to current and future experiences in their lives. While further research is required to determine the exact reasons for the lack of effect on boys, the results of the evaluation suggest that:

- an achievable and realistic goal for alcohol prevention is to reduce excess alcohol consumption and related harms, rather than chase the elusive goal of abstinence in a society where alcohol use is commonplace
- CLIMATE Schools has provided an innovative new technology which successfully overcomes obstacles to effective program implementation.

(Vogl and Teeson, 2006)

Cause for cautious optimism

Given these promising early results, there is cause for cautious optimism that the cannabis module may provide a high-fidelity prevention and harm minimisation intervention for Australian schools. Given what is known about the common determinants of substance abuse, mental illness and a range of other risky behaviours, it is also encouraging to see such a wide range of issues being addressed by the CLIMATE Schools modules.

One issue that may need to be addressed is the timing of the cannabis intervention. The average age of initiation for cannabis use among 12-19 year olds is now 14.9 years (AIHW, 2004) and early initiation is emerging as an independent risk factor for the development of mental illness. The timing of the cannabis module in year 9 is arguably too late for a substantial group of young people who begin use in year 8 or earlier. There are strong arguments that in order to successfully resist the adoption of undesirable behaviour, young people need to be inoculated by prior exposure to counter arguments and have the opportunity to practice the desired coping behaviour (Loxley et al, 2004). If and when the cannabis module is shown to be successful, it is hoped that the program developers, and schools, will consider introducing it to earlier age groups, especially in schools where local prevalence data indicate early initiation to cannabis use.

7.3.4 Targeted prevention initiatives

7.3.4.1 Early life and childhood interventions

O'Brien and Swift (2005) argue that efforts in early childhood and primary school should be part of broadly targeted intervention strategies in early childhood rather than the focus of interventions directed only at cannabis (and other drug) use. The best evidence for illicit drug prevention is for early life and childhood interventions, especially those that target high risk families where there is parental substance abuse, mental illness, family breakdown, poverty etc (Loxley et al., 2004). Interventions such as family home visiting, parent education, school preparation programs and primary school organisation and behaviour management programs have good evidence of effectiveness and have



been shown to be cost effective. Because these interventions tend to target a broader range of risk factors, and are therefore less visibly linked to any single harm such as cannabis abuse or dependence, they can be less attractive to governments wishing to be seen to be tackling a particular problem. However, from both cost benefit and social justice perspectives, there are strong arguments that early life and childhood interventions should be near the top of all governments' priorities.

7.3.4.2 Brief intervention by GPs and other primary health professionals

There is a strong international body of evidence that brief interventions by General Practitioners and other primary health professionals can be effective in reducing problematic alcohol use and such interventions are highly cost-effective (Loxley et al, 2004). In Australia, GPs see a large proportion of the population each year and are uniquely placed to screen for problematic alcohol, cannabis and other drug use and, where applicable, to provide brief counselling. The challenge is how to encourage GPs to undertake this work. In practice, a range of barriers has meant that GPs' uptake has been less than optimal. In fact, the barriers are seen by some as so significant as to warrant the introduction of practice nurses to do this work. Practice nurses have been found to be more cost-efficient, less constrained by time limitations, and have more opportunities for training to deal with issues such as polydrug use and comorbidity (Roche and Freeman, 2003).

A number of recent UK studies have investigated ways to encourage greater activity by GPs in brief interventions for both cannabis and alcohol (McCambridge et al., 2003; McCambridge et al., 2004). Interestingly, the first of these studies found that motivational interviewing, originally developed for use with AOD clients, proved an effective technique for motivating GPs to screen for problematic cannabis use and follow through with appropriate interventions. In contrast, the later study on alcohol found no improvement in rates of GP interventions for drinkers.

Clearly, there is a great deal of potential to improve practice in this area and it is hoped that new initiatives such as the Australian Divisions of General Practice 'Can Do' initiative are accompanied by thorough evaluation to determine whether they have been successful in increasing detection and treatment for problematic cannabis (and other drug) use and associated mental health problems.

7.3.4.3 Adolescent Cannabis Check-up

The Adolescent Cannabis Check-Up is a brief intervention for young cannabis users being trialed by the National Drug and Alcohol Research Institute. The intervention was created in response to clear evidence that greater and earlier use of cannabis leads to an increased risk of health and psychosocial problems including mental illness. It targets young people who are suspected of high or problematic cannabis use, a group who have tended not to seek treatment.

The Adolescent Cannabis Check-Up involves three mandatory components and one optional session:

1. Education for parents and concerned others

This session focuses on education about cannabis and discussion of general communication skills and tips on engaging a young person in the check-up.

2. Assessment by/with the young person

This session consists of a structured interview designed to assess the young person's cannabis and other substance use history, perceived pros and cons of continued use, perception of risk associated with cannabis use and readiness for change, accompanied by a urinalysis to validate the self-report.

3. Feedback to the young person

This session, typically held one week later, consists of the clinician providing structured feedback to the young person, including their cannabis use compared with age-specific normative data, the pros and cons of using cannabis, and perception of interaction between cannabis use and individual goals. The feedback is provided in a motivational interviewing style with the goal of assisting the young person to make a detailed and objective assessment of their cannabis use and the role it plays in their life without feeling pressured to change or being labeled as a problematic user.

4. Optional 'skills and strategies' (CBT) session with the young person

This session aims to provide the young person with pragmatic strategies for quitting or reducing cannabis use.

An initial trial was conducted with 73 young people aged 14-19 (Martin et al, 2005). Results are promising, with 78% reporting voluntarily reducing or stopping their cannabis use during the 90 days to first follow up and 16.7% reporting total abstinence during this time. Improvements were generally sustained at 180 days, though the follow up rate fell to 63%, reducing confidence in these results.

Importantly, the intervention was highly valued by participants, with 74.6% saying they would be interested in more meetings to further discuss their cannabis use, if such meetings were available. A randomised controlled study is currently underway.

The Adolescent Cannabis Check-Up shows great promise in assisting young cannabis users reduce or stop problematic cannabis use. Importantly, studies in the US have shown similarly promising results for an Adult Cannabis Check-up and there is no reason to believe that this could not be adapted for Australia. An important qualification, however, is that these relatively brief interventions are not suited to people with serious mental illness who require longer term engagement.

7.3.4.4 Other promising prevention interventions

A number of other promising interventions identified by Loxley et al. (2004) cannot be addressed in any detail in this document. However, given what we know about the very high levels of problematic cannabis use among high risk populations such as early school leavers and youth in the legal justice system, it is critical that evidence-based programs be implemented for these groups. Mentoring, preventative case management, and youth sport and recreation are specifically identified as promising interventions for youth in non-school settings.

Community mobilisation is a broader prevention intervention in which high risk communities systematically identify risk and protective factors at the community level. Responses are then identified and implemented to build positive environments for young people in the particular community. An evaluation of one such program in Australia - Communities that Care - is expected to be completed in 2007.

7.4 Current evidence supporting treatment approaches and programs

7.4.1 Challenges and opportunities of addressing co-existing substance abuse and mental illness

When compared with consumers with either a substance use or mental health disorder, people with both disorders:

- have worse psychiatric symptomology, treatment compliance and prognosis
- use more treatment and service resources
- have greater propensity for suicidal and self-harming behaviours
- have fewer social supports
- have fewer financial resources
- exhibit the highest rates of expensive public psychiatric admissions and criminal justice system involvement
- have higher rates of infection with HIV and hepatitis
- have higher rates of adverse health and social outcomes
- have decreased capacity to maintain stable accommodation

UK Department of Health (2002) as cited in Queensland Health (2003)



The relative severity of relapse for co-existing substance abuse and mental illness can be seen in a US study which found that individuals with a single disorder (substance abuse or mental illness) were unlikely to be hospitalised. In 1996, there were 87 hospitalisations per 1000 for individuals with a mental disorder, 23 per 1000 for individuals with substance use disorder but a staggering 457 per 1000 for individuals with co-occurring substance abuse and mental disorders (SAMHSA, 2004).

It is common in AOD literature to read that substance abuse is now recognised as a 'chronic relapsing condition'. The same has been said of many mental illnesses for decades and yet there is now a growing acceptance that recovery from mental illness is not only possible, it should be a central goal of all mental health treatment. The recognition of substance abuse as a chronic and relapsing condition is partly necessary to change the unrealistic expectation that individuals should be able to go 'cold turkey' and maintain abstinence through one-off interventions. The intent is to recognise that relapse is common and does not represent 'failure'. As with mental illness, a long term optimistic perspective and a focus on self-efficacy and relapse prevention can achieve recovery for a large proportion of people. This approach is even more important for people experiencing both disorders.

The good news is that patients with psychotic disorders who abuse substances generally have a better longitudinal course than non-using counterparts if they stop using (Crystal et al., 1999, cited in Gilbert and Castle, 2006).

However, it must be acknowledged that there is a difference in severity between substance abuse and substance dependence (see Appendix 5). Individuals who meet the criteria for substance abuse, even with more serious comorbidities, tend to be more responsive to a range of treatments including psychosocial interventions. In contrast, individuals who meet the criteria for substance dependence on its own or with less serious comorbidity are known to follow a chronic relapsing course - they can be limited in their social and occupational functioning and frequently suffer from serious and often untreated medical conditions. A senior comorbidity clinician consulted during the preparation of this report indicated that this population is currently highly challenging to treat effectively. They are often disorganised, poorly compliant with treatment and their relapse rate is high, so much so that their symptoms could easily be mistaken for chronic schizophrenia. When severe cannabis dependence occurs with a serious mental illness such as schizophrenia, patients are often relegated to the 'too hard basket'.

Traditional approaches to either condition are unlikely to have a good outcome and the result is that this population typically has the worst course and highest service utilisation. There is no shortage of opinion on how to treat this group but few resources or hard evidence. Expert opinion seems to indicate that new intensive, highly-tailored inpatient treatments may be necessary. However, pathways leading back to care in the community should be a high priority to avoid re-institutionalisation.

It is time to insist on a system-wide recovery focus for individuals with co-existing substance dependence and serious mental illness. Research is urgently needed to determine effective ways to provide care for this population.

7.4.2 Approaches to Treatment Service Delivery

A full analysis of service delivery options for co-occurring mental illness and substance abuse is beyond the scope of this paper and is separately addressed by the National Comorbidity Initiative. The Mental Health Council's overriding concern in relation to treatment is that substantial, measurable progress urgently be made towards meeting the large volume of unmet demand in the community for services addressing co-occurring mental illness and cannabis (or other drug) abuse in a way that is person-centred rather than service-centred. Services should aim to achieve a situation where 'no door is the wrong door', even if this means enlisting the help of another organisation and ensuring that engagement with the client occurs.

During preparation of the Mental Health Council of Australia's 'Out of Hospital, Out of Mind!' report (MHCA, 2003), over 270 individuals and organisations in the mental health sector were surveyed, including clinicians, carers and consumers. An indication of just how important this issue is for people in the community is illustrated by the fact that respondents rated the 'development of innovative services for persons with mental health and alcohol or substance abuse disorders' as the second most important out of the 26 top issues of concern.

The Council's *Not For Service* report (MHCA, 2005) recommended that:

- 3 d) funding to support integrated drug and alcohol and mental health services become a high priority
- 5 d) that training programs to integrate the drug and alcohol and mental healthcare workforces be undertaken in all states/territories

A key concern expressed in *Not For Service* is the 'restriction of access to acute care by exclusion on the basis of diagnosis (e.g. personality disorder, drug-related mental health problem) rather than clinical need'.

Young people's mental health services are the most difficult to access. Often they are told they are not sick enough and then told they can't get care because they have a comorbid drug and alcohol problem.

(Clinician, Queensland, Brisbane Forum #7)

There is no doubt that a massive increase in resources is required at every point along the spectrum of interventions in both the mental health and AOD sectors to implement evidence-based programs. The area where the evidence base is non-existent, and which is most urgently in need of research, is effective interventions for individuals with cannabis dependence (as opposed to less serious cannabis abuse) and serious mental illness (usually psychosis).

7.4.3 Models for delivery of treatment for co-occurring cannabis abuse and mental illness

At a system level, the models of service delivery for co-occurring cannabis abuse and mental illness do not differ substantially from models for treating mental illness and any co-occurring substance abuse. Three basic approaches exist:

- **Serial/Sequential**
The treatment of one condition (e.g. mental illness), then the other, (e.g. substance abuse). This approach has very poor evidence for efficacy and, along with its sibling – treat one condition and hope the other goes away - is arguably the default position for the bulk of Australia's under-resourced mental health and AOD treatment services.
- **Parallel**
The concurrent treatment of both conditions, but in isolation. This approach can work but often fails.
- **Integrated**
The treatment of both conditions at the same time in a coordinated approach that acknowledges the interaction between both components of comorbidity. Research evidence supporting the efficacy of an integrated paradigm is starting to emerge. While more research is required, it appears that an encouraging start has been made (James & Castle, in Castle & Murray 2004).

Australian governments at the Commonwealth and State/Territory levels have all, to a greater or lesser extent, expressed an intention to move towards the integrated approach. However, there are significant barriers to the change required to assist patients with coexisting substance abuse and mental health disorders. These include fears held by both the mental health and AOD sectors about loss of control over funding and cultural differences between services, barriers that will require strong leadership and adequate, sustained funding to overcome. In relation to funding, James and Castle (in Castle & Murray 2004) point out that the integrated approach involves significant resources, characterised by:

- case management
- close monitoring
- comprehensive services including inpatient, day hospital and community team support
- a long term optimistic perspective



Certainly, the oft quoted principle that 'comorbidity is an expectation, not an exception' is borne out both in the data and anecdotal evidence from clinicians. It should also be noted that there is disagreement about how an integrated approach should work in practice, the first option being the collocation of mental health and AOD services within the same premises and the second being strong partnerships between separate mental health and AOD services. Support for the former is provided by one clinician consulted who sees the integration of distributed services as unworkable for the patient ('Some of the young people I see have four friends and ten case workers!'). Others argue that it is Utopian to expect all services to co-locate and, while the former may be preferable, models should be flexible enough to cater for both situations. For co-existing cannabis dependence and serious mental illness, it is hard to see anything other than co-located services being effective.

7.4.4 Symptom identification

Screening & assessment

An awareness of any ongoing substance abuse is essential when determining psychiatric diagnosis, deciding on appropriate treatment interventions and planning future care. Especially in relation to psychosis, failure to identify substance use can lead to misdiagnosis and overuse of antipsychotic medication. Despite this, cannabis use regularly goes undetected (James & Castle in Castle & Murray 2004).

Brief screening interventions have an untapped potential for widespread application in primary health care and community settings (Loxley et al, 2004). Accepting the barriers to GP uptake of cannabis screening, there is clearly a need for standardised screening and assessment across Australia for all psychiatric patients and this should be a priority for the National Comorbidity Initiative. Screening tools with clinically proven validity with psychiatric patients include:

- Dartmouth Assessment of Lifestyle Inventory (DALI)
- Drug Abuse Screening Test (DAST)
- CAGE Questionnaire

The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) is a brief screening test that is increasingly being adopted in Australia.

Assessment tools with clinically proven validity with psychiatric patients include:

- Cannabis Amount Used and Symptom Evaluation (CAUSE)
- Cannabis Use Effect Survey (CUES)

These self report tools act as prompts for discussion between consumer and clinician, and can be used for research as they allow for longitudinal tracking over time. Assessment relies on patient's willingness to divulge, so it is essential to create a therapeutic relationship based on a positive collaborative rather than a punitive approach (James & Castle in Castle & Murray 2004).

A full analysis of screening and assessment tools can be found in the Review of Diagnostic Screening Instruments for Alcohol and Other Drug Use and Other Psychiatric Disorders (2002).

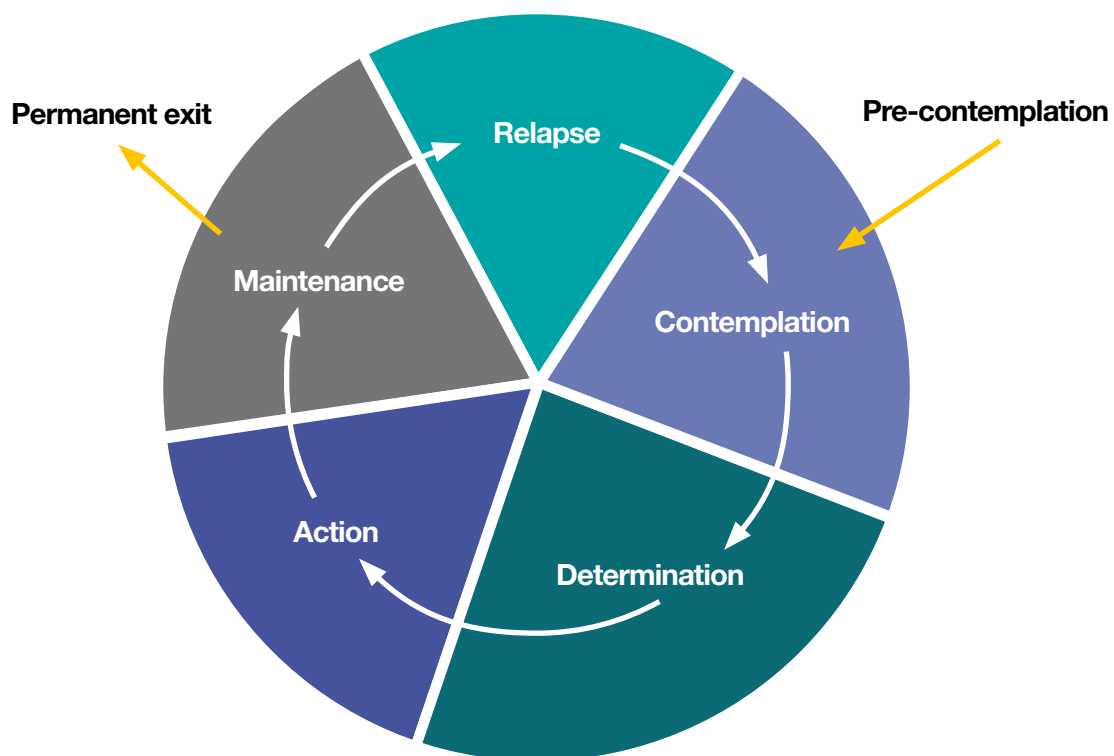
Motivation to change – SOCRATES questionnaire

The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) tool is a 19-item self-report instrument that allows health professionals and consumers to determine how ready the consumer is to embrace change in relation to their drug use. It evolved from the Trans-theoretical Model developed by Prochaska and DiClemente in 1986 and has demonstrated reliability and validity (James & Castle in Castle & Murray 2004). The Stages of Change model has been adopted for a wide range of chronic health problems that require individuals to change their lifestyle, including AOD and cancer treatment. The five stages¹¹ are:

11 <http://www.uri.edu/research/cprc/TTM/StagesOfChange.htm>

- Precontemplation is the stage at which there is no intention to change behavior in the foreseeable future. Many individuals in this stage are unaware or under-aware of their problems.
- Contemplation is the stage in which people are aware that a problem exists and are seriously thinking about overcoming it but have not yet made a commitment to take action.
- Preparation (or determination) is a stage that combines intention and behavioral criteria. Individuals in this stage are intending to take action in the next month and have unsuccessfully taken action in the past year.
- Action is the stage in which individuals modify their behavior, experiences, or environment in order to overcome their problems. Action involves the most overt behavioral changes and requires considerable commitment of time and energy.
- Maintenance is the stage in which people work to prevent relapse and consolidate the gains attained during action. For addictive behaviors this stage extends from six months to an indeterminate period past the initial action.
- Relapse is an almost inevitable stage where, usually temporarily, the person returns to the behaviour they are attempting to change.

Figure 6: Stages of Change Model¹²



¹² <http://www.hypnosis-solutions.com/files/change.gif>



7.4.5 Evidence-based treatment approaches for cannabis abuse

While twelve step programs may be effective for some people, many believe they are too stressful for many patients, with high drop out rates and poor outcomes in some areas (James & Castle in Castle & Murray 2004).

The techniques which have been shown to be effective in the treatment of cannabis abuse, including abuse that co-exists with mental illness, are the same as those used for substance use generally. The three main techniques are:

- Motivational Interviewing
- Relapse Prevention
- Harm Reduction

Motivational Interviewing, as defined by its developers, Rollnick and Miller, is 'a directive, client-centered counselling style for eliciting behavior change by helping clients to explore and resolve ambivalence' (See Appendix 7). In short, it is a technique designed to enhance a client's readiness to make the changes described in the Stages of Change model shown above. Clients in the earlier stages are more likely to benefit from exploring the pros and cons of their drug use in a non-confrontational manner until they resolve their ambivalence to change. Those who are further along the continuum of change may benefit from action-oriented strategies or training in coping skills aimed at preventing relapse.

Relapse Prevention is a behavioural self-management approach designed to teach individuals how to anticipate and cope with the problem of relapse. It combines behavioural and cognitive interventions in an overall approach that emphasizes self-management. It asserts that if an individual has an effective coping strategy to deal with a high-risk situation, the probability of relapse as an outcome decreases significantly (James & Castle, in Castle & Murray, 2004).

Harm Reduction is an umbrella term covering a range of pragmatic social policies and treatment approaches that seek to reduce the negative consequences of drug use rather than on eliminating the availability of drugs or ensuring abstinence. Harm reduction is especially important in psychiatric treatment settings because of the need to keep clients engaged. The following quote from an interview with Kathryn Elkins on ABC Radio National's Science Show provides a good illustration of harm reduction in as it applies to ORYGEN's Early Psychosis Prevention and Intervention Centre:

One of the things we tried for a long time was just telling young people not to use, and look, that does work for a considerable number of people, given the health shock they've had. But for other young people who are going to continue to use, what's very important for us is staying engaged with them, keeping them in treatment, keeping them on effective low-dose of anti-psychotic medication, and talking to them about their drug use, and really putting it to them in a health framework, and that's really where we're coming from, that young people can understand and take on the message that it's not just a prohibition, 'just say no' campaign, it's a campaign about trying to help them deal the best they can and recover the best they can from their psychosis¹³.

7.4.6 Early treatment options

7.4.6.1 Early Psychosis Prevention & Intervention

ORYGEN Youth Health's Early Psychosis Prevention & Intervention Centre (EPPIC) is a centre of excellence in evidence-based early intervention options for the treatment of first episode psychosis. EPPIC combines standard clinical treatments such as pharmacology with a strong set of psychosocial and psycho-educational interventions including motivational interviewing, relapse prevention and harm reduction. A great deal of emphasis is placed on engagement with consumers and clinicians will often go to where the consumer is rather than requiring them to attend clinics. ORYGEN's clinical programs are supported by a research arm that helps to ensure that the latest findings are incorporated into treatment.

¹³ <http://www.abc.net.au/rn/science/mind/s504050.htm>

7.4.6.2 Youthscope

Youthscope is ORYGEN's clinical program that caters for mental health problems other than first episode psychosis, such as depression, anxiety, eating disorders and personality issues.

7.4.7 Standard treatment options

7.4.7.1 GP interventions, possibly with referral to specialists, for high prevalence mental illness

GPs are at the forefront of primary care in Australia and their role in treating people with mental illness, including those with substance use problems, is set to increase with additional funding for, and enhancement of, the Better Outcomes in Mental Health Care program and the \$528 million MBS expansion under the Better Access program announced in the May 2006 Federal Budget. Under the new arrangements, GPs will be given greater incentives to spend more time with patients and to refer patients to allied health professionals such as psychologists and registered nurses.

The 'shared care' model exists across a range of health care domains, including ante-natal, mental health and AOD. Shared care has been defined as 'the joint participation of GPs and specialists in the planned delivery of care for patients with a chronic condition, informed by an enhanced information exchange, over and above routine discharge and referral letters' (Hickman, 1995 as cited in Furler et al, 2001).

As with GP screening described earlier, there are formidable barriers to overcome in making shared care arrangements work effectively. These barriers include a low sense of:

- role legitimacy (that this is a legitimate area of concern for a GP to focus on with their patient)
- self-efficacy (that effective interventions are available and able to be used by GPs)
- confidence and knowledge (for example about safe drug use and withdrawal)

(Furler et al, 2001)

There is a change process underway in relation to GP engagement with AOD treatment – from GPs feeling excluded and pessimistic because of a traditional focus on 'end stage' patients with long term irreversible damage to engagement with AOD services with an optimistic perspective (Furler et al, 2001). The Collaborative Therapy model described below may have something to offer in this regard.

One issue that will not receive attention unless explicitly included in the scope of planned change agenda is support for carers and family, who often experience psychological and physical health problems as a result of their caring role. This support may include information about their family member's mental illness, information and/or assistance in managing their own health, involvement in care planning (subject to the wishes of the consumer), and referral to other support services, including other carers.

7.4.8 Engagement with longer-term treatment and support (incl. relapse prevention)

7.4.8.1 Collaborative Therapy

Collaborative Therapy is a promising approach to mental health care developed by the Mental Health Research Institute of Victoria. While not specifically designed for the treatment of comorbidity, early results indicate that it has great potential in this area.

Overview

Approaches to health care that seek to improve the coordination between services are not new. The widespread adoption of the case manager to assist with the coordination and communication between multiple health and welfare services is an example as is the 'shared care' model.



The Collaborative Therapy model adopts many aspects of these and similar initiatives and adds several other ingredients to make it one of the most comprehensive and soundly based approaches to integrated mental health care available. There is nothing new about the individual components of Collaborative Therapy. The innovation is putting it together as a cohesive framework with clear guidance for all involved.

Collaborative Therapy is a therapeutic framework rather than a specific therapy. The system has three broad characteristics:

- **Comprehensive**
It goes beyond the traditional sphere of medical services and actively engages a wide range of clinical, psychosocial and natural supports.
- **Focused on self-efficacy**
It is firmly based in the principle of self-efficacy, encouraging consumers to participate as fully as they are able in choices about their treatment and to develop knowledge and skills to stay well.
- **Based on evidence**
It uses a range of evidence-based therapies and includes a built-in evaluation design to measure health outcomes.

The word 'collaborative' refers both to the relationship between the therapist/s and the patient, and to relationships between a range of services and other supports.

Identifying the problems

Collaborative Therapy has its roots in Western Australia where clinicians seeking to improve care for patients in transition from psychiatric institutions to the community observed that very few patients were able to describe anything about the care they had received. Without access to the medical file, they found they often had no way of knowing which interventions had already been used with a patient. This highlighted two issues. First, a lack of consumer involvement in the planning of their care resulted in a level of debilitation stemming simply from being excluded from information and choice about treatment. To address this, the clinicians decided to focus on self-efficacy as a core principle to shift in the relationship between therapist and consumer from one of expert/passive recipient to one of collaboration and partnership. Second, the lack of access to information about past treatment was frustrating for clinicians and represented a barrier to collaboration between a range of services and other supports that might be involved in the recovery of someone with mental illness.

A literature review examining barriers to effective mental health care identified several key problems, including:

- exclusion of patients from treatment on the basis of diagnosis or comorbidity
- a continued failure of services to implement evidence-based treatments
- a long history of treatment approaches that are imposed on, rather than chosen by, consumers
- high levels of relapse and failure to keep people engaged or supported to prevent relapse (the 'revolving door syndrome')
- over-burdening carers because of a lack of, or sometimes poor coordination between, essential community services such as rehabilitation, housing, employment and community support

Designing the solution

To increase consumer involvement in care planning, the program developers devised a Collaborative Treatment Journal, inspired by the 'patient-held record' being trialled in mental health treatment overseas (Laugharne and Henderson, 2004). The journal has the capacity to chart stressors, early warning signs, coping strategies, supports and other factors that influence the course and management of an individual's mental health. It is held by the consumer and places them at the centre of their treatment by providing them with effective skills to maintain good mental health and the ability to facilitate communication between themselves and the people involved in the

maintenance of their mental health. The self-efficacy approach shifts the focus from managing the person for the moment to giving them skills to take away and apply in their lives, from being 'dependent on' services to being 'supported by' them. However, it recognises that self-efficacy is not a blanket approach and there will be times when consumers may wish to take a more passive role.

The program developers identified a number of evidence-based therapies shown to be effective across a range of areas including mental health and AOD and used these to devise the generic component of Collaborative Therapy.

The three core streams of the generic component are psycho-education, coping strategies and skills enhancement, each utilising a range of tools and therapies, including action plans, CBT, motivational interviewing and relapse prevention. Underpinning all aspects of the generic component is the Stress-Vulnerability model. This model recognises the role of biological vulnerability in the development of mental illness but emphasises the ability of the consumer and other supports to influence environmental factors such as stress and protective factors, thereby speeding recovery and avoiding relapse.

Some diagnosis-specific interventions are used as additional modules to the generic component. For example, teaching patients with bipolar disorder to recognise early symptoms of manic relapse and seek early treatment, as well as to regulate their day-to-day activities, has been shown to be associated with important clinical improvements in time to first manic relapse, social functioning, and employment (Perry et al, 1999). Stress reduction techniques have been shown to be effective for parents with mental illness. The applicability of the generic component to any mental illness, however, gives rise to the claim that Collaborative Therapy is not diagnosis-specific. Where possible, therapists talk about symptoms and how to manage them rather than specific diagnoses. There are no exclusion criteria for the program, though in some circumstances an inability to speak and read English can be a practical barrier. In practice, even this can be overcome through the involvement of family members or others who can assist with translations.

Planning for the better and worse times

Collaborative Therapy aims to assist consumers to engage a wide range of natural supports, including family, GPs, case managers, community groups, or even the local hairdresser. Consumers are encouraged to develop a set of three action plans based on the Stress-Vulnerability model:

- Plan 1 – Optimal health
This plan acknowledges that everyone experiences natural fluctuations that can affect mood, sleep and general well being. Consumers are encouraged to identify things that help them when they're just having a 'bad hair day', like calling a friend, taking the neighbour's dog for a walk or having a haircut.
- Plan 2 – Sub optimal health
In the second plan, consumers identify signs and symptoms which signal that their health may be dropping below the normal fluctuations of optimal health. Signs might include sleeping or relationship difficulties that last for more than an agreed period, or feedback from nominated friends, family members or other supports, that indicate that the consumer's mental health is deteriorating. Coping strategies are agreed and, where these involve others, such as a GP, these people 'sign up' to assist.
- Plan 3 – Danger threshold
The third plan recognises that, despite their best efforts, a consumer may experience periods when they are very unwell and need to spend time in hospital. This plan makes sure the bills are paid, the kids are cared for and the dog is walked. Planning for these practicalities can greatly lessen the trauma of being in hospital.

It is not uncommon for mental health consumers to have burned their bridges with their support networks. Where personal relationships are strained or not available, consumers are encouraged to develop 'working alliances'. Over time, the process of developing and refining actions plans can assist in repairing important relationships and developing new ones. It is also not uncommon for consumers to say 'I didn't want to bother you' when asked by a



GP (or other support) why they did not ask for help when they were becoming unwell. By using an action plan, the person in the support role signs up to the plan and says 'bother me, that's what I'm here for'.

Group versus one-to-one

Collaborative Therapy modules are designed to be delivered in group or one-to-one sessions. Some people are not suited to group sessions, or there may be insufficient demand in a region to run a group session, for example in a rural area. Importantly, one-to-one sessions can be given by anyone trained in the approach, including case managers, and can take as little as 15 minutes or as long as an hour.

Caring for carers

Not only are family members often excluded from treatment planning but caring for someone with a mental illness can be highly stressful in itself. One study found an increased risk of psychological morbidity in carers of people with a psychiatric condition compared to carers of people with a physical condition (Livingstone et al., 1998, as cited in Gilbert & Castle, 2006). In response, Collaborative Therapy includes a Carers Module to assist case managers to include family in treatment planning and to assist carers to develop their own coping strategies. When developing the module, the program developers found that clinicians genuinely do not want to do harm, and often disengage with family because of this. By providing case managers and clinicians with ways to include family, Collaborative Therapy aims to improve the wellbeing of both carers and consumers.

Applicability to co-existing mental illness and cannabis (and other drug) abuse

Although Collaborative Therapy was not designed specifically to address co-existing substance use and mental illness, it provides an ideal framework for doing so because of its strength in coordinating multiple services and supports. A specific Dual Diagnosis module has been developed, and provides an integrated approach to treatment that acknowledges the interaction between both components of comorbidity.

Collaborative Therapy as an 'adjunctive treatment'

Collaborative Therapy is described by its developers as an 'adjunctive treatment', meaning that it works alongside existing treatments and supports rather than taking over coordination of a person's care. In fact, it is important to realise that the improved coordination between services is driven largely by the consumer through use of the Collaborative Treatment Journal and action plans. While training is often provided to a range of clinical and other supports, Collaborative Therapy is not a top down managerial approach to integration. System-wide integration between the mental health and AOD sectors has the potential to further improve outcomes for consumers, but is not a prerequisite for the success of Collaborative Therapy.

Evidence for effectiveness

The Collaborative Therapy approach has been examined in a randomised controlled trial and results are encouraging. Sixty-three subjects participated, of whom 58 (92%) completed a 3-month follow-up assessment of psychopathology, medication and substance use. Significant reductions in favour of the treatment condition were observed for psychopathology, chlorpromazine equivalent dose of antipsychotic medication, alcohol and illicit substance use, severity of dependence and hospitalization (James et al., 2004). It appears that Collaborative Therapy has made a promising start in an integrated treatment approach for co-existing mental illness and cannabis (and other drug) abuse and further studies are underway.

A question commonly asked about the Collaborative Treatment Journal is 'does it work in practice'? Feedback from services such as the A.C.T., where Collaborative Therapy has been implemented service wide, suggests that the journal can be very effective but tends to work better for individuals who are relatively new to mental health treatment and do not experience it as a change to the way things have been done in the past. Randomised controlled trials of patient-held records among consumers of mental health services in the UK found no evidence of improved clinical

outcomes, partly because many consumers did not use them, but non-randomised trials found that patients who chose to use them appreciated having their own record in that it gave them a sense of ownership in their care (Laugharne et al, 2004). Continual reinforcement of the utility of the tool and a motivational style of engagement may be necessary for some consumers who may need encouragement to use the journal, while other consumers may choose not to use it. It appears, however, to be a useful tool for those who choose to use it.

Some consumers have comorbidities that are so disabling that they will be unable, at least initially, to embrace the self-efficacy approaches central to Collaborative Therapy. It is imperative that new intensive treatment services are identified and made available to this group, accompanied by pathways back into the community and, possibly, to programs such as Collaborative Therapy if and when their condition improves.



Appendix 1 – Terms of Reference – MHCA Cannabis and Mental Health Working Group

Terms of Reference

The following terms of reference were agreed by the Working Group and endorsed by the MHCA Board on 15 March 2006:

1. Examine current research relating to cannabis use and its relationship with mental illness and mental health problems.
2. Examine factors influencing use of cannabis by the general population as well as by people with existing mental illness or mental health problems.
3. Identify strategies available to governments and the wider community to reduce or delay the onset of the use of cannabis, and to ensure effective interventions are widely available.
4. Examine current evidence supporting treatment approaches and programs for co-occurring cannabis and mental illness and mental health problems and identify examples of best practice.
5. Advise the MHCA Board in responding to current community concerns regarding cannabis use and its relationship to mental illness and mental health problems.

Appendix 2 - Excerpts From *Not for Service*: Experiences of injustice and despair in mental health care in Australia

The following excerpts from *Not for Service* relate directly to cannabis use. Many others relating to substance abuse generally have not been included. The MHCA does not necessarily endorse the views expressed below but provides them as primary evidence of the high levels of distress in the community at the absence or inadequacy of services available to people with co-occurring mental illness and substance abuse.

Excellent prevention strategies are in place in regard to tobacco smoking saving many lives and millions of dollars from the health budget. We need similar public health education and awareness campaigns in relation to marijuana abuse. For example a teenager who has a joint every weekend at a party (smokes cannabis 50 times or more before 18 years) has the following increased risk of serious harm: 6.7 times greater risk of developing schizophrenia (Andreasson et al. 1987; Zammit et al. 2002); 59 times greater risk of using other illicit drugs; Increased risk of depression and suicide; Greater risk of cancer cigarette for cigarette than tobacco cigarettes (50% greater tar burden)

(Clinician, New South Wales, Submission #181)

I have watched with grave concern the impact of cannabis abuse on the mental health of many of my clients and heard too many news items with the following scenario: A client with mental health problems becomes actively psychotic and a risk to his family, often smoking cannabis heavily aggravates this psychotic episode. The family, or the client himself, seek admission and treatment for the psychotic client and are refused. The client goes out and kills or seriously injures someone and gets free treatment, detoxification and medication in jail for many years. Generally cannabis abuse has made a significant contribution to the tragic scenario – possibly precipitating schizophrenia or drug induced psychosis in the first place and then aggravating it and hindering recovery in the long term. The murder of a four year old girl recently was a tragic example of this scenario. Doubly tragic as it was so avoidable.

(Clinician, New South Wales, Submission #181)

Recognition of cannabis abuse and dependency as a problem that can be treated needs to be heightened. Most people would be able to find a Quit group for smoking quickly and easily, however there is very limited availability of Quit groups for cannabis and no public health messages as to where to find them. Access to inpatient psychiatric care should be much more readily available to those who need it. Compulsory treatment should be enforced where necessary. (I will not submit in detail on these topics but strongly support increased availability of treatment and realistic and workable conditions for compulsory treatment where necessary).

(Clinician, New South Wales, Submission #181)

Cannabis abuse needs to be carefully assessed and treated. Treatment will help the client come 'out of the fog' and face life issues (like getting a job and communicating with family members). Treatment will also dramatically reduce the risk of progressing to heroin use. Cannabis use may be particularly dangerous for psychiatric and dual diagnosis clients. These clients especially should be clearly advised of the risks they face if they continue to use cannabis and offered good assessment and treatment.

(Clinician, New South Wales, Submission #181)



Cannabis use is associated with greater psychotic symptoms and increased depression. Previous research has found raised levels of psychopathological syndromes and higher relapse and readmission rates among people with schizophrenia who abuse cannabis... Cannabis use, and years of cannabis use, was associated with increased levels of psychotic and non-psychotic symptoms, including depression and paranoid ideation.

(Clinician, New South Wales, Submission #181)

Our younger daughter called Drug & Alcohol Services on one occasion - about four years ago - and asked for assistance to quit cannabis, She was told: "you sound as if you are doing just fine" - end of story! It was an opportunity missed and unfortunately she is not doing fine - she has been hospitalised at least three times since then for periods of more than a month and is now reaching an age when she is past qualifying for any intervention at all because the emphasis in Victoria has switched to early intervention and less serious illnesses that can be treated by a GP with six sessions of psychological counselling.

(Carer, Mother, Victoria, Submission #299)

My son [X] committed suicide 2 years ago - he was 26. He was extremely intelligent, creative and a good athlete. His story started when he was 17 and started smoking marijuana and became quite depressed. My husband and I encouraged him to go to the local mental health service - where he saw [Y] and was encouraged by [Y] not to "prostitute" his ideals or lifestyle choices. I also went to see [Y] separately (as did my husband) who more or less said it was none of my business - he's 17... admitted to Cumberland Hospital after stabbing himself in the stomach 3 times in front of us (not long before he died) and being assured by the psychiatrist that this time they would keep him there and he would get help - but because he was smart and presented well - he was out in 3 days - obviously not a well boy - but the system is overloaded - people don't care - just move on. The main point I want to make is that it was so difficult for me to get any help for [X] because he was over 17. He realised just before he died he really wanted to turn his life around and we thought he was just about there when he suddenly decided to end his life. Parents need to be heard - young people can't always help themselves to get the right treatment. Although having said that now (too late for us) but there are web sites / phone lines and help now available.

(Carer, Mother, New South Wales, Submission #122)

My son is 19 and he has chronic schizophrenia and a drug abuse problem - he's been in the locked ward at Graylands for quite a while and I'm glad he's been locked up for that long because he can't cope outside the hospital. He lives with me and I worry about what will happen to him if he is released - he can't be accommodated anywhere and this is a human rights issue - there's unreasonable pressure on the family to provide care for really sick people like my son. But one of the big problems is how much people are charged to be in supported accommodation - 80% of a person's income for supported accommodation is too much because it just leaves enough for cigarettes. My son can't even get supported accommodation. He was assessed and because he said he wouldn't give up his cannabis - (he can't lie) they won't accept him. So it's really hard, because my son doesn't have the cognitive skills to give them the answers they want he gets punished. I wish I could teach him how to lie. These kids with co morbid problems like my son are becoming the new generation of homeless people. I have been contacted by a lady who has a daughter on benzo's and if she didn't provide care and accommodation for her daughter she'd be under the bridge.

(Carer, Mother, Western Australia, West Perth Forum #31)

Substance misuse in indigenous communities, and its associated problems, are well documented. Over the last five years the increased availability and use of cannabis on the NPY Lands has become of increasing concern to the [Y] membership.

(Anonymous, Northern Territory, Submission #271)

Dr Richard Matthews, Chief Executive Officer of the NSW Corrective Health Service gave evidence in 2002 to a House Representative Committee that 90.1% of women on reception in NSW have some form of mental illness or disorder as do 78.2% of men. On substance abuse he reported that compared to 2.8% in the general community, 74.5% of women on reception in NSW corrective institutions are dependent on or abuse alcohol or another drug. For men the figures are 7.1% and 63.3%. The drugs concerned are interesting. 20.5% of the men were dependent on or abused cannabis, 35.2 % on an opioid, 11.9% on a sedative, 30.8% on a stimulant and 22.4% on alcohol. The levels of dependency or abuse by women was much higher for all categories of drug.

(Families and Friends for Drug Law Reform, National, Submission #336)

As in many parts of Australian society, mental health issues are often difficult for Anangu & their families to discuss and are often only raised in relation to substance misuse. Anangu culture has many ways of supporting people at times of distress, so often help is sought only when the family's ability to care for a family member is stretched to crisis point. Ngangkari play a large role in providing ongoing mental health support in communities. They acknowledge, however, that they have little ability to deal with the effects of petrol and marijuana use.

(Anonymous, Northern Territory, Submission #271)



Appendix 3 – The Current Legal Status of Cannabis Use in Australia

The following passage is sourced directly from Copeland et al (2004), *Evidence-based Answers to Cannabis Questions: A Review of the Literature*.

The possession, use and supply of cannabis is illegal in Australia. At the national level, there is no uniform set of laws dealing with cannabis-related offences. Each State and territory enacts its own legislation. While some jurisdictions enforce criminal penalties for cannabis possession, use and supply (New South Wales, Victoria, Tasmania and Queensland), others enact civil penalties for minor cannabis offences (South Australia, Northern Territory, the Australian Capital Territory and Western Australia). Conviction for a criminal offence attracts a criminal record and may be punishable by harsh penalties such as incarceration and major fines. In contrast, civil penalties do not result in a criminal record and are generally handled by lesser fines or mandatory treatment.

Despite differences in civil and criminal penalties for cannabis-related offences, all Australian States and Territories have implemented systems where non-violent, minor and early cannabis offenders are diverted from the legal system. Thus, in areas where cannabis-related activities are considered criminally punishable, it is rare for early offenders possessing small amounts of cannabis to receive a criminal conviction.

Cannabis cautioning schemes have been implemented in several jurisdictions where minor early cannabis offenders (excluding dealers or violent offenders) are issued with a caution notice rather than face criminal proceedings. While all cautioning systems incorporate an educational component on the harms of cannabis, some also include mandatory counselling or more substantial treatment for repeat offenders (e.g. counselling, rehabilitation or detoxification).

Other jurisdictions employ cannabis infringement notice systems where the payment of a fine precludes the offender from legal action or a criminal record. As with other diversionary measures, cannabis infringements do not apply to violent offenders, dealers or people with significant contact with the law. If the fine is not paid within a specified time, further legal measures are taken with the possibility of criminal conviction.

The tables on the following page outline the key features of current schemes for minor cannabis offences, not including possession of implements¹⁴.

¹⁴ Lenton, S. (2004). Table provided as personal communication with Jan Copeland.

Prohibition with civil penalty schemes (Infringement Notices)

Jurisdiction	Penalty
SA (1987)	Less than 100 grams and no more than one plant (recently reduced from three). 60 days to expiate — adults only. Fines between \$50 and \$150, where failure to expiate usually results in a conviction.
ACT (1992)	Not more than 25 grams or five plants. 60 days to expiate — adults and juveniles. \$100 fine, where failure to expiate does not usually lead to a conviction.
NT (1996)	Less than 50 grams and no more than two plants. 28 days to expiate — adults only. \$100 fine, where failure to expiate results in a debt to the state but not conviction.
WA (2004)	Less than 30 grams and no more than two plants. 28 days to expiate — adults only. \$100–\$200 fine to expiate by payment of fines or attending a specified education session.

Prohibition with cautioning and diversion to treatment

Jurisdiction	Penalty
TAS (1998)	Less than 50 grams, plants excluded. Caution for first three offences.
VIC (1998)	Less than 50 grams, plants excluded. Up to two formal cautions, aged over 17 years.
NSW (2000)	Less than 15 grams. Statewide trial extended. Up to two formal cautions.
QLD (2001)	Less than 50 grams. Mandatory assessment and brief intervention session.



Appendix 4 - Summary of the evidence on the relationship between de-criminalisation and cannabis use

The following passage is sourced directly from Bammer et al (2002)- Harm Minimisation in a Prohibition Context – Australia.

In 1979, the South Australian Royal Commission into the Non-Medical Use of Drugs recommended that minor cannabis use not be treated as a criminal offence. After an intense and lengthy community debate, the South Australian Cannabis Expiation Notice (CEN) system was introduced in 1987. Under this system, police issue an expiation notice for minor cannabis offences, that is, possession of up to one hundred grams of cannabis, possession of twenty grams of cannabis resin or equipment for consuming cannabis, or cultivation of a specified (low) number of cannabis plants. If the expiation fee (ranging from \$50 to \$150) is paid within thirty to sixty days, criminal proceedings are avoided, and no offence is recorded. Failure to pay leads to criminal proceedings and often results in a criminal conviction.

The experience of some U.S. states that had adopted a similar approach inspired the introduction of the South Australian scheme. While the U.S. influence in that state was indirect and supportive of the change, when the Australian Capital Territory proposed a similar change in the early 1990s, the U.S. Information Service brought to Australia Dr. Gabriel Nahas, who campaigned for a more punitive approach to cannabis by holding public meetings, making media statements, and publishing an article in the Medical Journal of Australia on the toxicity of marijuana (Nahas and Latour 1992).

There were no planned evaluations of the legislative changes, but there have been a number of post-facto analyses of the impact of the South Australian system. Survey data on drug use have not found an increase in cannabis use attributable to the CEN scheme. In addition, neither the CEN scheme nor the more usual punitive approach have any deterrent effect on continuing use, as revealed by interviews with minor cannabis offenders in South Australia and Western Australia, most of whom reported that they would not stop using even if they were caught again.

The CEN scheme has led to an increase in the number of minor cannabis offences detected from around 6000 in 1987-1988 to approximately 17000 in 1993-1994 and later years (Christie 1999). This net widening was not due to changes in patterns of cannabis use. It reflected the ease with which police can issue expiation notices and a move away from police giving informal cautions to recording all minor offences.

Since the inception of the CEN scheme, the rate of payment of expiation fees has remained at around 50 percent. The majority who do not pay are convicted and receive fines similar to the original expiation fees, plus court fees. As significant numbers of those issued a summons plead guilty in writing rather than appearing in person, the burden on the court system has been reduced.

A survey of law enforcement and criminal justice personnel found strong support for the CEN scheme. It was perceived to be cost efficient, to be convenient for police officers, and to lessen the negative social impacts of a conviction. Specialist drug enforcement personnel voiced a concern about the (then) limit of ten cannabis plants in cultivation that they believed criminal groups were exploiting by combining the output of multiple plots of ten plants. As a consequence, the expiable number of plants was reduced to three, and the South Australian government is considering a further reduction to one plant and removing hydroponically grown cannabis from expiable offences.

An economic evaluation of the scheme (Brooks et al. 1999) estimated the total cost (not including police time in detecting the offence) at \$1.2 million in 1995-1996 while revenue from fees and fines was \$1.7 million. The cost-effectiveness would be greater if the proportion of offenders who paid the initial fines was increased.

The introduction of a CEN scheme seems to have confused the general population about the legal status of cannabis use. In 1993, for example, 34 percent of South Australians and 43 percent of residents of the Australian Capital Territory mistakenly believed that it was legal to possess cannabis for personal use, compared with less than 10 percent of respondents in most other parts of Australia (Bowman & Sanson-Fisher, 1994). A more recent evaluation showed similar results.

It is doubtful that the CEN scheme had any impact on the attitudes of the general population toward cannabis use. The South Australian community seems to be fairly tolerant of personal cannabis use, but so is the rest of Australia because more than 70 percent of the Australian public believe that civil, rather than criminal, penalties should apply to minor cannabis offences (Bowman & Sanson-Fisher, 1994).

Apart from the one state and two territories that have legislated prohibition with civil penalties, the other states of Australia are diverting offenders to education and treatment while retaining criminal penalties. The underlying philosophies have been different in different states. For example, in Victoria, the aim is to provide support, information, and potential referral to other services. In Western Australia, on the other hand, the program is a deliberate effort within a tough-on-drugs philosophy to “capture” as many early cannabis users as possible to receive compulsory education.

And the following excerpt...

The following passage is sourced directly from The National Drug Research Institute’s Submission to the National Cannabis Strategy (November 2005).

Work by Tomborou and colleagues comparing the Australian (Victorian) and US (Maine & Oregon) approaches to cannabis and other drugs suggested that in the ‘abstinence only’ culture of the US, rates of cannabis use by adolescents in the last 30 days were higher than in the Victorian ‘harm reduction’ context (Beyers, et al. 2004). They argued that the abstinence-oriented context seemed to increase the likelihood that adolescent rebelliousness may lead to substance use.

They found that that the greater tolerance of youth involvement in drug and alcohol use in Victoria appeared to dampen the link between individual and peer risks and substance use which they argued fitted with the “egalitarian perspective” ascribed to harm reduction policy, which attempts to be socially inclusive of substance users (Beyers, et al, 2004). O’Brien and Swift have noted that early school leaving may further marginalise and exacerbate problems so more needs to be done to support and encourage all students, but particularly those most at risk to stay and be engaged at school (O’Brien & Swift, 2005).

When policy makers think about how to encourage people to adhere to the law, they often think about increasing the certainty and severity of punishment (Tyler, 1990). In summarising the evidence on the impact of cannabis law Lenton (2005) noted that most criminological research on deterrence has shown that the certainty of apprehension, rather than the severity of punishment, is more likely to produce deterrence. However, criminal penalties are not a major deterrent to cannabis use, not least because the likelihood of being apprehended for a minor cannabis offence is very low. Yet research shows that the adverse social impacts of receiving a criminal conviction for such an offence can be considerable. A range of other factors such as public attitudes to cannabis use, the perceived fairness of the law and its enforcement, peer influences, and the utility of cannabis use are likely to far outweigh the deterrent value of a criminal conviction. In Australia, civil penalties are supported by the majority of the public, are more likely to be viewed as just by those apprehended, use fewer criminal justice resources and are no worse at deterring cannabis use than are strict prohibition with criminal penalties schemes (Lenton, 2005).

In the criminology literature cannabis use has often been used as a model offence of study. As a consequence there is considerable research on the deterrence of cannabis. A review of this literature (Lenton, 2005) concluded that:

- Severity of penalties has almost always failed to predict cannabis use.
- The certainty of penalty is not a good predictor of cannabis use.



- Evidence of deterrence effects among apprehended offenders is rare, and when it occurs it is often among those who are less likely to take risks and have the most to lose such as inexperienced offenders, new users, the employed, and women.
- Conversely, those who may be more entrenched in cannabis use or other offending, and may possibly benefit most from reducing crime or use, are least likely to change their behaviour after punishment.
- Extra-legal factors, such as peer attitudes, the perceived morality of the act, and sense of citizenship, have emerged as better predictors of both cannabis use and other offending.
- Cannabis use prior to punishment is the best predictor of use after punishment, highlighting the lack of deterrent effect of punishments
- Specific deterrence effects are most likely where offenders do not have a history of offending without getting caught.

There are a small number of policy impact studies conducted on 'natural experiments' where prohibition with civil penalties have been applied to minor cannabis offences. Taken as a whole, this research fails to find that removing criminal penalties for cannabis possession and use results in higher rates of cannabis use in the general community. Eleven US States 'decriminalised' cannabis during the 1970s.

Four controlled studies conducted on these examples provide strong evidence for the view that those states which removed criminal penalties did not experience greater increases in cannabis use among adults or adolescents, nor more favourable attitudes towards the drug, than those States which maintained strict prohibition against cannabis possession and use (Single, et al., 2000). In Australia, research on the impact of the South Australian Cannabis Expiation Notice (CEN) system, a prohibition with civil penalties scheme, concluded that the observed increase in lifetime use by SA adults was not likely to be due to the CEN scheme. Rates of recent (weekly) use, and rates of use among young adults and school students had not increased at a greater rate in South Australia than other States which had not changed their laws (Donnelly, et al., 2000).

Appendix 5 – Introduction to Social Marketing

Social marketing utilises the key concepts and techniques used in commercial marketing to achieve socially desirable goals (Donovan, 2003).

Marketing is characterised by things like a consumer orientation, segmentation and targeting, advertising and sales promotions, and extensive research with customers and potential customers to ensure that things like packaging and pricing are appropriate for the product, and that the advertising is believable, relevant and motivating. Research and negotiations are also undertaken with intermediaries such as retailers, and with stakeholders such as unions and government, to ensure that making the product attractive, available and affordable will be facilitated by distributors and not hampered by structural and regulatory restrictions. In all these areas, the notion of an exchange process between the 'buyer' (target) and the 'seller' (marketer) forms a platform of operation.

Hence a necessary (but not sufficient) condition for a successful exchange is that social marketers offer people something they value in exchange for them adopting the recommended behaviour, whether they be end consumers, intermediaries or legislators. 'What's in it for me?' is a key driver in determining appropriate incentives for the various target groups in social marketing campaigns.

Marketing draws on a number of disciplines for developing, planning and implementing marketing activities, but primarily psychology (e.g., consumer decision making; attitudes, values); communication (especially for persuasion); economics (e.g., utilities, price elasticity); and sociology (e.g., behaviour of groups and organisations; diffusion). Social marketing extends marketing's borrowings from psychology (e.g., mental health & happiness), sociology (e.g., war & conflict, social movements) and economics (e.g., globalisation effects), and further draws on disciplines and concepts that are related to community wellbeing, such as public health & health promotion, criminology, social policy & social welfare, and environmental sustainability. However, regardless of these elaborations, and regardless of whether we are targeting individual consumers or those in power to make regulatory changes, the primary paradigm is that of marketing.

What makes social marketing 'different' from other sorts of 'marketing'?

Social marketing is just one 'branch' of marketing, where the branches reflect the area of application, for example sports marketing, business to business or industrial marketing, not-for-profit marketing, religious marketing, political marketing, and so on. However, social marketing is more than just the application of marketing to social issues: the key point of difference to all other branches of marketing, is that the social marketer's goal relates to the wellbeing of the community, whereas for all others, the marketer's goal relates to the wellbeing of the marketer (e.g., sales and profits; members and donations; political representation).

Social marketing generally is far more complex than the various types of commercial and not-for-profit marketing. The issues are generally more complex (e.g., family violence versus purchasing toothpaste), the number and types of intermediaries and the negotiations for cooperation can be far more complex (e.g., simply buying shelf space in a supermarket chain versus negotiating with GPs and the government on training and reimbursements for health promotion consultations), the number of stakeholders and agendas can be quite extensive (e.g., youth AIDS prevention campaigns involve youth workers from a variety of fields – alcohol & drugs; sexual health; prostitution; homelessness; as well as organisations not just youth focused), and the number and types of competitors (e.g., sin product marketers; materialistic values; hedonism) can be insidious and almost overwhelming.

When does it work?

Just like any marketing campaign, a social marketing campaign works when it is based on good research, good planning, relevant attitudinal and behavioural models of change, when all elements of the marketing mix are integrated, and when the socio-cultural, legislative and structural environments facilitate (or at least do not inhibit) target audience members from responding to the campaign. A well-planned social marketing campaign stimulates people's motivations to respond, removes barriers to responding, provides them with the opportunity to respond, and, where relevant, the skills and means to respond.

Where social marketing campaigns have failed, it has not been because the marketing paradigm has been inappropriate, but rather, the application has been inadequate or incomplete.



Appendix 6 - DSM IV Definitions of Substance Abuse and Dependence

The following definitions are taken from the *Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition (DSM-IV)*, published by the American Psychiatric Association, Washington D.C., 1994.

Substance Abuse

A. A maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by one (or more) of the following, occurring within a 12-month period:

- 1 Recurrent substance use resulting in a failure to fulfill major role obligations at work, school, or home (e.g., repeated absences or poor work performance related to substance use; substance-related absences, suspensions or expulsions from school; neglect of children or household).
- 2 Recurrent substance use in situations in which it is physically hazardous (e.g., driving an automobile or operating a machine when impaired by substance use).
- 3 Recurrent substance-related legal problems (e.g., arrests for substance-related disorderly conduct).
- 4 Continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance (e.g., arguments with spouse about consequences of intoxication, physical fights).

B. The symptoms have never met the criteria for Substance Dependence for this class of substance.

Substance Dependence

A maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following, occurring at any time in the same 12-month period:

- 1 tolerance, as defined by either of the following:
 - (a) a need for markedly increased amounts of the substance to achieve intoxication or desired effect
 - (b) markedly diminished effect with continued use of the same amount of the substance.
- 2 Withdrawal, as manifested by either of the following:
 - (a) the characteristic withdrawal syndrome for the substance (refer to Criteria A and B of the criteria sets for withdrawal from the specific substances)
 - (b) the same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms.
- 3 the substance is often taken in larger amounts or over a longer period than was intended.
- 4 there is a persistent desire or unsuccessful efforts to cut down or control substance use.
- 5 a great deal of time is spent in activities necessary to obtain the substance (e.g., visiting multiple doctors or driving long distances), use the substance (e.g., chain-smoking), or recover from its effects.
- 6 important social, occupational, or recreational activities are given up or reduced because of substance use.
- 7 the substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance (e.g., current cocaine use despite recognition of cocaine-induced depression, or continued drinking despite recognition that an ulcer was made worse by alcohol consumption).

Specify if:

- With Physiological Dependence: evidence of tolerance or withdrawal (i.e., either Item 1 or 2 is present)
- Without Physiological Dependence: no evidence of tolerance or withdrawal (i.e., neither Item 1 nor 2 is present).

Appendix 7 – What is Motivational Interviewing?

The following description of Motivational Interviewing is taken from <http://www.motivationalinterview.org> and is attributed as follows: Reprinted with permission from Rollnick S., & Miller, W.R. (1995). What is motivational interviewing? *Behavioural and Cognitive Psychotherapy*, 23, 325-334.

Introduction

The concept of motivational interviewing evolved from experience in the treatment of problem drinkers, and was first described by Miller (1983) in an article published in *Behavioural Psychotherapy*. These fundamental concepts and approaches were later elaborated by Miller and Rollnick (1991) in a more detailed description of clinical procedures. A noteworthy omission from both of these documents, however, was a clear definition of motivational interviewing.

We thought it timely to describe our own conceptions of the essential nature of motivational interviewing. Any innovation tends to be diluted and changed with diffusion (Rogers, 1994). Furthermore, some approaches being delivered under the name of motivational interviewing (c.g., Kuchipudi, Hobein, Fleckinger and Iber, 1990) bear little resemblance to our understanding of its essence, and indeed in some cases directly violate what we regard to be central characteristics. For these reasons, we have prepared this description of: (1) a definition of motivational interviewing; (2) a terse account of what we regard to be the essential spirit of the approach; (3) differentiation of motivational interviewing from related methods with which it tends to be confused; (4) a brief update on outcome research evaluating its efficacy; and (5) a discussion of new applications that are emerging.

Definition

Our best current definition is this: Motivational interviewing is a directive, client-centered counselling style for eliciting behavior change by helping clients to explore and resolve ambivalence. Compared with nondirective counselling, it is more focused and goal-directed. The examination and resolution of ambivalence is its central purpose, and the counsellor is intentionally directive in pursuing this goal.

The spirit of motivational interviewing

We believe it is vital to distinguish between the spirit of motivational interviewing and techniques that we have recommended to manifest that spirit. Clinicians and trainers who become too focused on matters of technique can lose sight of the spirit and style that are central to the approach. There are as many variations in technique there are clinical encounters. The spirit of the method, however, is more enduring and can be characterised in a few key points.

1. Motivation to change is elicited from the client, and not imposed from without. Other motivational approaches have emphasised coercion, persuasion, constructive confrontation, and the use of external contingencies (e.g., the threatened loss of job or family). Such strategies may have their place in evoking change, but they are quite different in spirit from motivational interviewing which relies upon identifying and mobilising the client's intrinsic values and goals to stimulate behaviour change.
2. It is the client's task, not the counsellor's, to articulate and resolve his or her ambivalence. Ambivalence takes the form of a conflict between two courses of action (e.g., indulgence versus restraint), each of which has perceived benefits and costs associated with it. Many clients have never had the opportunity of expressing the often confusing, contradictory and uniquely personal elements of this conflict, for example, "If I stop smoking I will feel better about myself, but I may also put on weight, which will make me feel unhappy and unattractive." The counsellor's task is to facilitate expression of both sides of the ambivalence impasse, and guide the client toward an acceptable resolution that triggers change.



3. Direct persuasion is not an effective method for resolving ambivalence. It is tempting to try to be “helpful” by persuading the client of the urgency of the problem about the benefits of change. It is fairly clear, however, that these tactics generally increase client resistance and diminish the probability of change (Miller, Benefield & Tonigan, 1993; Miller & Rollnick, 1991).
4. The counselling style is generally a quiet and eliciting one. Direct persuasion, aggressive confrontation, and argumentation are the conceptual opposite of motivational interviewing and are explicitly proscribed in this approach. To a counsellor accustomed to confronting and giving advice, motivational interviewing can appear to be a hopelessly slow and passive process. The proof is in the outcome. More aggressive strategies, sometimes guided by a desire to “confront client denial,” easily slip into pushing clients to make changes for which they are not ready.
5. The counsellor is directive in helping the client to examine and resolve ambivalence. Motivational interviewing involves no training of clients in behavioural coping skills, although the two approaches are not incompatible. The operational assumption in motivational interviewing is that ambivalence or lack of resolve is the principal obstacle to be overcome in triggering change. Once that has been accomplished, there may or may not be a need for further intervention such as skill training. The specific strategies of motivational interviewing are designed to elicit, clarify, and resolve ambivalence in a client-centred and respectful counselling atmosphere.
6. Readiness to change is not a client trait, but a fluctuating product of interpersonal interaction. The therapist is therefore highly attentive and responsive to the client’s motivational signs. Resistance and “denial” are seen not as client traits, but as feedback regarding therapist behaviour. Client resistance is often a signal that the counsellor is assuming greater readiness to change than is the case, and it is a cue that the therapist needs to modify motivational strategies.
7. The therapeutic relationship is more like a partnership or companionship than expert/recipient roles. The therapist respects the client’s autonomy and freedom of choice (and consequences) regarding his or her own behaviour.

Viewed in this way, it is inappropriate to think of motivational interviewing as a technique or set of techniques that are applied to or (worse) “used on” people. Rather, it is an interpersonal style, not at all restricted to formal counselling settings. It is a subtle balance of directive and client-centred components shaped by a guiding philosophy and understanding of what triggers change. If it becomes a trick or a manipulative technique, its essence has been lost (Miller, 1994).

There are, nevertheless, specific and trainable therapist behaviours that are characteristic of a motivational interviewing style. Foremost among these are:

- seeking to understand the person’s frame of reference, particularly via reflective listening
- expressing acceptance and affirmation
- eliciting and selectively reinforcing the client’s own self motivational statements expressions of problem recognition, concern, desire and intention to change, and ability to change
- monitoring the client’s degree of readiness to change, and ensuring that resistance is not generated by jumping ahead of the client.
- affirming the client’s freedom of choice and self-direction.

The point is that it is the spirit of motivational interviewing that gives rise to these and other specific strategies, and informs their use. A more complete description of the clinical style has been provided by Miller and Rollnick (1991).

References

1. Arsenaault, L., Cannon, M., Poulton, R. Caspi, A., & Moffitt, T.E. (2002) Cannabis use in adolescence and risk for adult psychosis: longitudinal prospective study. *British Medical Journal*, 325, 1212-1213.
2. Arsenaault, L., Cannon, M., Witton, J., & Murray, R. (2004) Causal association between cannabis and psychosis: examination of the evidence. *British Journal of Psychiatry*, 184 pp110-117.
3. Australian Health Ministers (2003). National Mental Health Plan 2003-2008. Canberra: Australian Government. [http://www.health.gov.au/internet/wcms/Publishing.nsf/Content/mental-pubs/\\$FILE/nmhp0308.pdf](http://www.health.gov.au/internet/wcms/Publishing.nsf/Content/mental-pubs/$FILE/nmhp0308.pdf)
4. Australian Institute of Health and Welfare (1994). National Drug Strategy Legislative options for cannabis use in Australia, Monograph 26. Legislative options for cannabis use in Australia - Chapter 3 Cannabis in context: history, laws and international treaties. http://www.health.gov.au/internet/wcms/Publishing.nsf/Content/health-pubs-drug-cannabis-can_ch3.htm
5. Australian Institute of Health and Welfare (2005). 2004 National Drug Strategy Household Survey: Detailed Findings. AIHW cat. No. PHE 66. Canberra: AIHW (Drug Statistics Series No 16). <http://www.aihw.gov.au/publications/index.cfm/title/10190>
6. Bammer, G., Hall, W., Hamilton, M., Ali, R. (2002) Harm Minimisation in a Prohibition Context – Australia. *ANNALS, American Academy Political and Social Science*: 582: pp 80-88.
7. Baume, P., 2000. Power of One – Service in Three Careers. *Medical Journal of Australia*: 173: 643-646.
8. Beich, A., Gannik, D., Malterud, K. (2002). Screening and brief intervention for excessive alcohol use: qualitative interview study of the experiences of general practitioners. *British Medical Journal* 2002;325:870 (19 October).
9. Beyers, J. M., Toumborou, J. W., Catalano, R. F., Arthur, M. W. & Hawkins, J. D. (2004) A Cross-national comparison of risk and protective factors for adolescent substance use: The United States and Australia, *Journal of Adolescent Health*, 35, 3-16.
10. Bovasso, G.B. (2001), Cannabis abuse as a risk factor for depressive symptoms, *American Journal of Psychiatry*, 158(12), 2033-2037.
11. Cahill, H., Murphy, B., Hughes, A. (2005). A Toolkit of Interventions to Assist Young People to Negotiate Transitional Pathways. Australian Government Department of Health and Ageing, Canberra. [http://www.nationaldrugstrategy.gov.au/internet/drugstrategy/publishing.nsf/Content/499247D116077C0CA2571A20021F1FB/\\$File/toolkit-interventions.pdf](http://www.nationaldrugstrategy.gov.au/internet/drugstrategy/publishing.nsf/Content/499247D116077C0CA2571A20021F1FB/$File/toolkit-interventions.pdf)
12. Castle, D and Murray, R (2004). *Marijuana and Madness*. Cambridge University Press.
13. Castle, D and Gilbert, M (2006). Collaborative Therapy Programme: Adjunctive Treatments in Psychosis – Final Report. Mental Health Research Institute of Victoria.
14. Castle, D (2005). The Relationship Between Cannabis and Psychosis. *New Paradigm*.
15. Clough, A., Cairney S., D'abbs, P., Parker, R., Maruff, P., Gray, D., O'Reilly, B. (2004a). Measuring Exposure to Cannabis use and other Substance use in Remote Aboriginal Populations in Northern Australia: Evaluation of A 'Community Epidemiology' Approach using Proxy Respondents. *Addiction Research and Theory*, Taylor & Francis, Volume 12, Number 3 / June, 2004. Pages 261 - 274.
16. Clough AR, d'Abbs P, Cairney S, Gray D, Maruff P, Parker R, O'Reilly B (2004b). Emerging patterns of cannabis and other substance use in Aboriginal communities in Arnhem Land, Northern Territory: a study of two communities. *Drug Alcohol Rev* 2004;23:381 – 390]
17. Clough AR, d'Abbs P, Cairney S, Gray D, Maruff P, Parker R, O'Reilly B (2005). Adverse mental health effects of cannabis use in two indigenous communities in Arnhem Land, Northern Territory, Australia: exploratory study. *Australian and New Zealand Journal of Psychiatry* 2005; 39:612–620.
18. Coonan, W., Owen, N., & Mendoza, J. (1990), School Health Promotion in Australia. *International Journal of School Health Promotion*
19. Copeland, J., Gerber, S., Swift, W (2004). Evidence-based Answers to Cannabis Questions: A Review of the Literature. National Drug and Alcohol Research Centre, University of NSW. http://www.ncd.org.au/publications/pdf/rp11_cannabis_questions.pdf
20. Copeland J, Howard T, Keogh T, Seidler K. (2003). Patterns and correlates of substance use among juvenile detainees in New South Wales 1989 – 99. *Drug Alcohol Rev* 2003;22:15 – 20.
21. Degenhardt, L., Hall, W., Lynskey, M. (2003). Exploring the Association Between Cannabis Use and Depression. *Addiction*, 98, 1493-1504. Society for the Study of Addiction to Alcohol and Other Drugs.
22. Degenhardt, L., Hall, W., & Lynskey, M. (2003). Testing hypotheses about the relationship between cannabis use and psychosis. *Drug and Alcohol Dependence*, 71, 31-48.
23. Degenhardt, L., Lynskey, M., Hall, W. (2000). Cohort trends in the age of initiation of drug use in Australia. *Australian and New Zealand Journal of Public Health*; Aug 2000; 24, 4; ABI/INFORM Global pg. 421.
24. Department of Education, Science and Training (DEST) (2004). Principles for School Drug Education. Australian Government. http://www.dest.gov.au/sectors/school_education/policy_initiatives_reviews/key_issues/drug_education/documents/PrincSchoolDrugEd_pub_pdf.htm
25. Donnelly, N., Hall, W. & Christie, P. (2000) The effects of the Cannabis Expiation Notice scheme on levels and patterns of cannabis use in South Australia: evidence from National Drug Strategy Household Surveys 1985-95, *Drug and Alcohol Review*, 19, 265-269.
26. Donovan R, Henley N. *Social Marketing: Principles and practice*. Melbourne: IP Communications; 2003.
27. Faggiano F, Vigna-Taglianti FD, Versino E, Zambon A, Borraccino A, Lemma P (2006). School-based Prevention for Illicit Drugs' Use (review). The Cochrane Collaboration. John Wiley & Sons, Ltd. http://www.mrw.interscience.wiley.com/cochrane/clsyrev/articles/CD003020/pdf_fs.html
28. FERGUSSON, D.M. and HORWOOD, L.J. & Swain-Campbell, N. (2002). Cannabis use and psychosocial adjustment in adolescence and young adulthood. *Addiction*, 97, 1123-1135.



29. Fergusson, D.M., Horwood, L.J. (1997). Early onset cannabis use and psychosocial adjustment in young adults. *Addiction*, 92(3) 279-296.
30. Furler, J., Patterson, S., Clark, C., King T & Roeg, S. (2000). Shared care: Specialist alcohol and drug services and GPs working together. Fitzroy, Victoria: Turning Point Alcohol and Drug Centre Inc.
31. Gilbert, M. and Castle, D. (2006). Collaborative Therapy Programme - 3 year review. Mental Health Research institute of Victoria.
32. Grinspoon L, & Bakalar JB., (1998) The use of cannabis as a mood stabilizer in bipolar disorder: anecdotal evidence and the need for clinical research, *Journal of Psychoactive Drugs*. Apr-Jun;30(2):171-7.
33. Gruber AJ, & Pope HG Jr., & Oliva, P. (1997) Very long-term users of marijuana in the United States: a pilot study, in *Substance Use and Misuse* 1997 Feb;32(3):249-64
34. Hall, W. & Solowij, N. (1998). Adverse effects of cannabis, *The Lancet*, 352, 1611-1616. <http://www.cfdp.ca/lancet2.htm>
35. Hall, W et al, *The Health and Psychological Effects of Cannabis Use* (2001). Monograph Series No. 44. National Drug and Alcohol Research Centre. [http://www.health.gov.au/internet/wcms/publishing.nsf/content/5A648B4BA51D4891CA25703400033ED6/\\$File/mono44.pdf](http://www.health.gov.au/internet/wcms/publishing.nsf/content/5A648B4BA51D4891CA25703400033ED6/$File/mono44.pdf)
36. Hall, W (2001). Reducing the Harms Caused by Cannabis Use: The Policy Debate in Australia. *Drug and Alcohol Dependence* 62 (2001) 163 – 174.
37. Hall, W (2004). The Psychotogenic effects of cannabis use: challenges in reducing residual uncertainties and communicating the risks. *Addiction*, 99(4), 511.
38. Hall, W (2006). Is Cannabis Psychotogenic? *The Lancet*, Vol 367, 193-195. http://www.natap.org/2006/HIV/012506_01.htm
39. Hall, W (2006). The Mental Health Risks of Adolescent Cannabis Use. *PLoS Medicine*, Vol 3, Issue 2, e39. <http://medicine.plosjournals.org/perlserv?request=get-document&doi=10.1371/journal.pmed.0030039>
40. Hall, W & Degenhardt, L (2004). Cannabis Use and Psychotic Disorders: An Update. Australian Professional Society on Alcohol and Other Drugs.
41. Hides L, Dawe S, Kavanagh DJ & Young RM (2006). Psychotic symptom and cannabis relapse in recent-onset psychosis: Prospective study. *British Journal of Psychiatry*, 189, 137-143.
42. Hickie IB, Davenport TA, Naismith SL, et al. Treatment of common mental disorders in Australian general practice. *Med J Aust* 2001; 175 (2 Suppl): S25-S30.
43. Irwin, R. (1990), Making a window of opportunity for drug education: the school development in health education project. Proceedings from Drug Problems in Society Conference, Adelaide, 1990
44. James W., Preston N.J., Koh G., Spencer C., Kisely S.R. & Castle D.J. (2004). A group intervention which assists patients with dual diagnosis reduce their drug use: a randomized controlled trial (2004). *Psychological Medicine*, 2004 – Cambridge University Press.
45. Kandel, D.B., Davies, M., Karus, D. & Yamaguchi, K. (1986), The consequences in young adulthood of adolescent drug involvement: an overview. *Archives of General Psychiatry*, 43, 746-754.
46. Kandel, D.B. & Davies, M. (1992), Progression to regular marijuana involvement: phenomenonology and risk factors for near daily use. In *Vulnerability to drug abuse*, ed M. Glantz and R. Pickens, pp. 211-253. Washington (DC): American Psychological Association.
47. Kelly K, Leonora M, Comello G & Slater M. Development of an aspirational campaign to prevent youth substance use: "Be under your own influence". *Social Marketing Quarterly*. 2006; XII (2):14-9.
48. Kessler RC., Berglund P., Demler O., Jin R. & Walters EE. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(6), 593-602.
49. Kim-Cohen J, Caspi A, Moffitt TE, Harrington H, Milne BJ & Poulton R (2003). Prior juvenile diagnoses in adults with mental disorder: developmental follow-back of a prospective-longitudinal cohort. *Archives of General Psychiatry*. 2003 Jul;60(7):709-17.
50. Laugharne, R. & Henderson, C., (2004). Medical records: Patient-held records in mental health. *Psychiatric Bulletin* (2004) 28: 51-52.
51. Lenton, S. (2005) Deterrence theory and the limitations of criminal penalties for cannabis use., in: Stockwell, T., Gruenewald, P., Toumbourou, J. & Loxley, W. (Eds.) *Preventing harmful substance use: The evidence base for policy and practice*. (Chichester, John Wiley & Sons).
52. Loxley W, Toumbourou J, Stockwell T, et al. The prevention of substance use, risk and harm in Australia: a review of the evidence (Monograph). Canberra: Australian Government Department of Health and Ageing, 2004.
53. Mental Health Council of Australia (2003). *Out of Hospital Out of Mind*
54. Mental Health Council of Australia (2005). *Not For Service: Experiences of Injustice and Despair in Mental Health Care in Australia*.
55. Mental Health Council of Australia (2006). *Time for Service: solving Australia's mental health crisis*.
56. Martin, G., Copeland, J. & Swift, W (2005). The Adolescent Cannabis Check-up: Feasibility of a brief intervention for young cannabis users.
57. McBride, N (2003). A Systematic Review of School Drug Education. *Health Education Research* Vol.18 no.6. Oxford University Press. <http://her.oxfordjournals.org/cgi/reprint/18/6/729>
58. McCambridge J., Strang J., Platts S. & Witton J (2003). Cannabis use and the GP: brief motivational intervention increases clinical enquiry by GPs in a pilot study. *British General Practitioner*. 2003 Aug; 53(493):637-9.
59. McCambridge, J., Platts, S., Whooley, D. & Strang, J (2004). Encouraging GP Alcohol Intervention: Pilot Study Of Change-Orientated Reflective Listening (Corl). *Alcohol & Alcoholism* Vol. 39, No. 2, pp. 146-149, 2004.
60. Midford R., Lenton S. & Hancock L. (2000). A critical review and analysis: Cannabis education in schools. NSW Department of Education and Training. <http://www.schools.nsw.edu.au/media/downloads/schoolsdrug/learning/yrk12focusareas/druged/cancritrevfull.pdf>

61. Ministerial Council on Drug Strategy, The National Drug Strategy: Australia's integrated framework 2004-2009 (2004)
<http://www.nationaldrugstrategy.gov.au/pdf/framework0409.pdf>
62. Nagel, T (in press). The Need for Relapse Prevention Strategies in Top End Remote Indigenous Mental Health.
63. O'Brien, S and Swift, W (2005). Mental Health and Adolescent Cannabis Use. National Drug and Alcohol Research Centre, University of NSW.
64. Palmgreen P, Donohew L, Lorch E, Hoyle R & Stephenson M. Television campaigns and adolescent marijuana use: Tests of sensation seeking targeting. *American Journal of Public Health*. 2001; 91 (2):292-6.
65. Patton, G.C, Harris,R., Carlin, J.B, Hibbert, M.E., Coffey,C., Schwartz,M and Bowes,G (1997). Adolescent suicidal behaviours: a population-based study of risk. *Psychological Medicine*, 27(3), 715-724.
66. Patton, G.C, Coffey,C., Carlin, J.B, Degenhardt, L., E., Lynskey, M. and Hall, W. (2002). Cannabis use and mental health in young people: cohort study. *British Medical Journal*, 325, 1195-1198.
67. Patton, G., Bond, L., Butler, H., & Glover, S. (2003) Changing Schools, Changing Health? Design and Implementation of the Gatehouse Project. *Journal of Adolescent Health*, 33 pp 231-239.
68. Patton, G.C, Coffey, C., Carlin, J.B., Sawyer, S. & Wakefield, M. (2006). Teen Smokers Reach Their Mid Twenties. *Journal of Adolescent Health*, 39, 214-220.
69. Pennay D, Blackmore D, Milat A, Stewart C, Carroll T & Taylor J. (2006). National Drugs Campaign: Evaluation of phase two. Canberra: Commonwealth of Australia; 2006.
70. Perry, A., Tarrier, N., Morriss, R., McCarthy, E., & Limb, K, (1999). Randomised controlled trial of efficacy of teaching patients with bipolar disorder to identify early symptoms of relapse and obtain treatment *BMJ* 318:149-153 (16 January)
71. Pope, Harrison G., Yurgelon-Todd, D., & Gruber, A. (2001) Neuropsychological Consequences of Long-term Substance Abuse, Department of Psychiatry Harvard Medical School.
72. Queensland Health (2003). VISIT Project Report. Violence and Illicit Substances in Treatment. Queensland Government.
73. Roche, A & Freeman, T., (2003). Brief Interventions: Good in theory but weak in practice. National Centre for Education and Training on Addiction, Flinders University. Paper presented to the International Research Symposium, Preventing Substance Use, Risky Use and Harm: What is Evidence-Based Policy? 24-27 February 2003. Fremantle, Western Australia.
74. Schofield, D., Tennant, C., Nash, L., Degenhardt, L., Cornish, A., Hobbs, C., & Brennan, G. (2006). Reasons for cannabis use in psychosis. *Australian and New Zealand Journal of Psychiatry* 40, 570-574.
75. Single, E., Christie, P. & Ali, R. (2000) The impact of cannabis decriminalisation in Australia and the United States, *Journal of Public Health Policy*, 21, 157-186.
76. Slater M, Kelly K, Edwards R, Thurman P, Plested B, Keefe T, et al. Combining in-school and community-based media efforts: reducing marijuana and alcohol uptake among younger adolescents. *Health Education Research*. 2006; 21 (1):157-67.
77. Solowij N. & Grenyer F.S., (2002). Are the adverse consequences of cannabis use age-dependent? *Addiction*, Volume 97, Issue 9, Page 1083 - September 2002.
78. Sonne SC, Brady KT, & Morton WA. (1994). Substance abuse and bipolar affective disorder. *The Journal of Nervous and Mental Disease*, 1994, June, 182(6), 349-52
79. Teesson & H. Proudfoot (Eds.) (2003). *Comorbid Mental Disorders and Substance Use Disorders: Epidemiology, Prevention and Treatment*. Sydney, Australia: National Drug and Alcohol Research Centre, University of New South Wales.
80. Tobler, N.S, Lessard, T., Marshall, D., Ochshorn, P. & Roona, M. (1999). Effectiveness of School-Based Drug Prevention Programs for Marijuana Use. *School Psychology International*, Vol. 20, No. 1, 105-137 (1999).
81. Toms, M. (2003). No Place for Complacency: Substance use in CLDB communities. *Australian Mosaic*, Issue 4, Spring 2003, pages 30-31.
82. Toms, M. & Munot, S (2005). Prevalence of Alcohol, Tobacco & Other Drugs (ATOD) in the Chinese and Vietnamese Communities Conference Paper presented at the Australasian Professional Society on Alcohol and Other Drugs (APSAD) conference 2005.
83. Tyler, T. (1990) *Why people obey the law* (New Haven, Yale University Press).
84. UK Home Office Advisory Council on the Misuse of Drugs (2005). Further consideration of the classification of cannabis under the Misuse of Drugs Act 1971.
85. Verdoux, H., Gindre, C., Sorbara, F., Tournier, M. & Swendsen, J.D. (2003), Effects of cannabis and psychosis vulnerability in daily life: an experience sampling test study. *Psychological medicine*, 33, 23-32.
86. Vogl, L., Teesson, M., Swift,W., Harvard, A., Dillon P., & McKetin , R. (2006) CLIMATE Schools: Psychostimulant and Cannabis Module: The development and evaluation of an interactive computer based prevention program for Psychostimulants and Cannabis, National Drug & Alcohol Research Centre (NDARC)
87. Watson C, Fleming J & Alexander K (1988) , A Survey of Drug Use Patterns in Northern Territory Aboriginal Communities: 1986-1987, Northern Territory Department of Health and Community Services, Darwin.
[4http://www.drugs.gov.uk/publication-search/acmd/cannabis-reclass-2005?view=Binary](http://www.drugs.gov.uk/publication-search/acmd/cannabis-reclass-2005?view=Binary)
88. Substance Abuse and Mental Health Services Administration (SAMHSA) (2002). Report to Congress on the Prevention and Treatment of Co-Occurring Substance Abuse Disorders and Mental Disorders. U.S. Department of Health and Human Services. (2002, November).
<http://alt.samhsa.gov/reports/congress2002/CoOccurringRpt.pdf>



