

# Cannabis

The Public Health Issues  
1995–1996

## Relevant Public Health Goals

- To improve Māori health status so in the future Māori will have the opportunity to enjoy at least the same level of health as non-Māori.
  - To improve and protect the health of young people.
  - To improve and protect the health of adults.

## Objective

- To improve health by minimising harm related to substance abuse.



MANATU HAUORA

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# Foreword

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This paper is one of a new series of papers on public health issues developed by the Public Health Group of the Ministry of Health. This document should be read in conjunction with *A Strategic Direction to Improve and Protect the Public Health* which provides an overall framework for improving the health of New Zealanders.

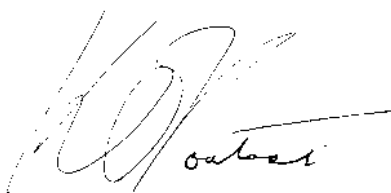
As a result of the latest amendments to the Health and Disability Services Act 1993, the Ministry of Health is required to improve, promote and protect the public health. A Director of Public Health has been appointed by me to advise on matters relating to public health, including personal health and regulatory matters. As Director-General, I am required to produce an annual report on the state of the public health which is to be tabled in the House of Representatives. In accordance with the Act as amended, a Public Health Group has been established within the Ministry. It is required to regularly consult the public, those involved in the provision of public health services and other appropriate persons.

The regional health authorities are required to consult on their intentions relating to the purchase of public health services as well as personal health and disability services.

The new statutory and administrative arrangements for public health will ensure that public health strategies make a significant contribution to achieving gains in health status in the future.

I wish to thank staff of the Public Health Group for their efforts in developing these new papers. The extensive consultation undertaken by staff has ensured that the issues related to important public health matters have been well canvassed and systematically analysed. Such analysis provides a good basis for quality policy advice to the Minister.

The Public Health Group invites comment on strategies to address the issues contained in this paper. Please send your comments to the address shown at the back of this paper.



Karen O Poutasi (Dr)  
Director-General of Health

# Acknowledgements

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I would like to thank the many individuals and organisations who commented on the drafts of the issues-based paper *Cannabis: The Public Health Commission's advice to the Minister of Health 1995–1996* prepared initially by the Public Health Commission (PHC). These comments helped formulate the final paper *Cannabis: The public health issues 1995–1996* which was prepared by the Public Health Group (PHG) of the Ministry of Health. Comments on the draft document were received from:

- regional health authorities
- Crown health enterprises
- academic departments
- local government
- independent service providers
- ministries and government departments
- individuals and groups with an interest in public health
- non-government organisations and other statutory bodies
- Māori
- Pacific Islands organisations.

The issues-based papers form part of the framework for public health presented in the document *A Strategic Direction to Improve and Protect the Public Health* which was published by the PHC in 1994. These papers systematically review the issues associated with public health policies, programmes and research and information relevant to the appropriate objectives listed in the strategic direction. The first review of public health activities and the setting up of outcome monitoring systems will be completed in 1996/97. In the same year, the strategic direction will be reviewed in the light of the state of the public health, and the outcome of public consultation. Your comments on the review of the strategic direction are welcomed and these can be sent to the address shown at the back of this paper.

I hope that the publication of this issues-based paper provided to the Minister of Health, illustrates the importance the PHG places on the consultation process.

The PHG also acknowledges the contribution of David Fergusson, John Hannifin and John Waldon in peer reviewing this particular paper.



Dr Gillian Durham  
Director of Public Health and  
General Manager, Public Health Group

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# Introduction

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The public health objectives, as set out in the Health and Disability Services Amendment Act 1995 include: to improve, promote and protect the public health.

Public health services are concerned with whole populations, or population groups such as Māori or children, rather than individuals. Areas of responsibility include environmental health (for example, water quality), food and nutrition, the prevention and control of communicable diseases, major lifestyle and public health problems (such as tobacco and alcohol), and the public health needs of Māori and of special groups.

The Public Health Commission's (PHC) document *A Strategic Direction to Improve and Protect the Public Health* (PHC, 1994b) provides a framework for public health in New Zealand and forms the basis for the development of the Public Health Group's issues-based paper on cannabis.

*A Strategic Direction To Improve and Protect the Public Health* provides recommendations at three levels of detail: public health goals, objectives, and targets.

This issues-based paper provides recommendations on outcome targets and identifies policy, programme, and research and information issues related to the outcomes. The programme issues include new initiatives or improvements in effectiveness and efficiency of established programmes.

All of the issues-based papers have a common structure which is summarised as follows:

- **Title**
- **Background**
- **Objective**

The objective identifies the public health objectives to which this paper relates.
- **Setting Outcome Targets**

This briefly describes the health status issues and provides justification for the choice of some outcome targets. Where relevant, there is some discussion of risk factors and protective factors. Recommendations for outcome targets are included.
- **Healthy Public Policy Issues**

This section describes some of the key policy issues and may also provide justification for further policy development work. Such work may include, for example, developing discussion documents or holding consensus conferences.

- **Public Health Programme Issues**

These include programme issues related to regional health authorities' (RHA) purchasing.

- **Research and Information Issues**

These include research issues that would normally be addressed by research funding agencies. The issues provide information for research workers who may wish to develop research proposals in these areas. Funders such as the Health Research Council may want to consider funding high quality proposals to address the hypotheses listed.

The information issues also relate to improving the availability or quality of data.

- **Summary of Benefits**

Benefits of addressing the issues are listed in the paper. As with personal health services, formal cost benefit studies are currently available for only a minority of public health programmes.

- **References**

The references which have been used for each paper are listed.

# Background

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Cannabis is the third most popular recreational drug in New Zealand, after alcohol and tobacco. It is the most widely used illegal drug. However, a 1990 New Zealand survey of drug use in two regions (Black and Casswell 1993) reported that 43 percent of the sample had tried marijuana, but about half of these (23 percent) had tried it less than five times. This illustrates a general pattern of cannabis use in which a large number of people try cannabis, the majority do not appear to use it regularly, and only a small proportion are defined as frequent users. This pattern of usage appears similar to that reported in Australia. Hall (1994) reports that the proportions of the Australian population who have ever used alcohol, tobacco or cannabis are: 95 percent, 70 percent, and 33 percent respectively, while the proportions who are weekly users are: 66 percent, 29 percent, and five percent.

Because cannabis is an illegal drug, it is difficult to obtain reliable data on its production, use, and abuse. It is evident, however, that cannabis does not present the same level of public health problem as tobacco and alcohol, largely because of the pattern of use described above.

Current research and anecdotal evidence suggests that cannabis is a widely used drug amongst some population groups: youth, including young men and Māori youth, and in the wider Māori community (Drugs Advisory Committee et al 1995). Until prevalence data on Māori usage, gathered within a Māori research framework and of at least the same order as Black and Casswell's survey is available, the extent of this use cannot be quantified.

Cannabis use in New Zealand has many similarities with use in countries such as Australia. However, New Zealand faces particular problems arising from the relative ease with which cannabis is grown in New Zealand. This makes it difficult to control supply, and there is a consequent increase in the use of cannabis in the highly concentrated, hash-oil form (Drugs Advisory Committee et al 1995). The implications of the increased use of hash-oil in New Zealand are not discussed within this paper, because of the lack of research on this issue.

According to Hall (1994), assessment of the health effects of cannabis is improved by the health issues being more clearly distinguished from debate about the legal status of cannabis. Failure to separate the two issues means that people's views about the legal status of cannabis often prejudice their analysis of its effects on health. Further, treating drugs differently because of their legal status results in ambiguities and problems. Both legal and illegal drugs are used and abused and, as judged by most indicators, legal drugs present more serious problems for societies than illegal drugs. Moreover, studying either legal or illegal drug use also ignores one of the best-documented relationships in drug research literature, poly-drug use, the use of more than one drug. Cannabis is commonly used along with other substances, particularly alcohol and tobacco.

Therefore, this paper has not considered the issue of the legality of cannabis use in New Zealand, but focuses on health issues and developing an appropriate public health response to these issues.

This approach raises a number of issues.

- ‘... the evaluation of the health hazards of any drug is difficult for a number of reasons. First, causal inferences about the effects of drugs on human health are difficult to make, especially when the interval between use and alleged ill effects is a long one’ (Hall et al 1994: 1). It is possible that apparent links between cannabis and health outcomes may arise from other factors associated with both cannabis and health outcomes.
- There are problems with the rigour of evidence in the field. Hall et al (1994: 2) argue that ‘... doses of illicit drugs over periods of years are difficult to quantify because of the varied dosages of blackmarket drugs and the stigma in admitting to illicit drug use. Interpretation is further complicated by correlations between cannabis use and alcohol, tobacco and other illicit drug use’.
- Finally, ‘... appraisals of the hazards of drug use are affected by the social approval of the drugs in question. The countercultural symbolism of cannabis use in the late 1960s has introduced an unavoidable sociopolitical dimension to the debate about the severity of its adverse health effects’ (Hall et al 1994: 2).

The Public Health Group believes that the approach that should be adopted in assessing the health effects of cannabis should be the same as that used for alcohol and tobacco. This approach begins with a presumption that a drug is likely to harm health when used at some dose, some frequency or duration of use, or by some methods of use (Hall 1994). The health effects of cannabis in New Zealand have recently been summarised by the Cannabis Working Party in *Cannabis & Health in New Zealand* (Drugs Advisory Committee et al 1995), and are quoted in this paper.

The current paper argues that few health problems are reported by persons using cannabis only occasionally. This is the predominant pattern of use (Black and Casswell 1993). These health problems are not of great public health significance unless they occur in a high-risk situation, such as operating machinery. More serious health problems, predominantly to the user, are reported when cannabis use becomes regular over long periods (Hall 1994). As noted earlier, only 3 percent of Black and Casswell’s sample were defined as frequent users.

Overall, the current public health risks of cannabis use are small to moderate in size, and are significantly less than the public health risks of tobacco and alcohol. However, we must not be complacent about this situation, particularly given the lack of prevalence trend data in New Zealand. If there were a significant increase in the number of long-term cannabis users, or a particular group in New Zealand was found to have a significantly higher rate of use, the assessment of the public health importance of cannabis use would increase.

## Objective

To improve health by minimising harm related to substance abuse.

As this paper deals with cannabis in particular, the aim is:

- to improve health by reducing cannabis-related harm.

# Setting Outcome Targets

## The nature of cannabis

### Cannabis: an overview

Cannabis is the generic name for several preparations of the plant *cannabis sativa*. Its primary psychoactive constituent is delta-9-tetrahydrocannabinol (THC).

There are three common forms of cannabis:

- **Marijuana** – dried leaves, flowering tops and small stalks of the plant. THC content is generally between 0.5 and 5 percent, but varies between 0.1 and 10 percent.
- **Hashish** – dried resin and compressed flowers. THC content is generally between 2 and 8 percent, but can be as high as 10 to 20 percent.
- **Hash oil** – a viscous or gummy substance made by extracting soluble substances from cannabis leaves and the flowering tops of the plant and concentrating the extract. This is the strongest preparation, with THC content of the New Zealand oil generally between 10 and 20 percent, but varying between 5 and 50 percent (Hall et al 1994; Drugs Advisory Committee et al 1995).

Only marijuana and hash oil are used commonly in New Zealand.

Te Urikore Lux et al (1993) state that cannabis and its derivatives have become stronger in potency in New Zealand in recent years. While the Institute of Environmental Science and Research (ESR): Forensic, which conducts intermittent surveys of the potency of cannabis in New Zealand, has found no evidence of this (K R Bedford, personal communication, 1995), recent reports of very potent cannabis in Europe, particularly in the Netherlands, with THC levels as high as 20 percent, suggest cannabis potency may be a concern in New Zealand in the future (K R Bedford).

The psychoactive and other effects of cannabis (as with other drugs including alcohol and tobacco) are determined by factors such as:

- ‘the THC content or strength of the drug
- the method of administration
- the circumstances in which the drug is taken
- the mental state of the person using the drug
- the individual’s history of drug taking
- whether other psychoactive drugs are also used
- individual physiology’ (Drugs Advisory Committee et al 1995: 4).

The most common method of use of all forms of cannabis is smoking (inhaling). Cannabis smokers, unlike many tobacco smokers, inhale deeply and hold their breath for several seconds in order to ensure maximum absorption of THC by the lungs. Cannabis is also eaten in foods (Hall et al 1994).

The major reason for the recreational use of cannabis is that it produces an altered state of consciousness characterised by mild euphoria, relaxation, and perceptual alterations, including time distortion and intensification of ordinary sensory experiences, such as eating, watching films, and listening to music. When used in a social setting, the drug often produces infectious laughter and talkativeness. Cognitive effects include a loosening of associations which makes it possible for the user to become lost in pleasant reverie and fantasy (Hall et al 1994).

There appears to be a significant cannabis economy in New Zealand based on the growing and supply of the drug. Cannabis provides a lucrative cash crop and is particularly important to local economies, such as the East Coast of the North Island and Northland, where unemployment is high. A number of writers discuss the importance of the cannabis economy to Māori (Mataira 1993; Ngata 1993; Te Runanga o Te Rarawa 1995).

## Health effects

When considering the harmful effects of cannabis use, a distinction needs to be made between:

- acute (short-term) effects, essentially acting while the drug is in the system
- chronic (long-term) effects from frequent and heavy use.

Harmful health outcomes may be associated with the acute effects of cannabis use, even when use is only occasional, but appear more likely with chronic use (Drugs Advisory Committee et al 1995).

The health risks of cannabis have been summarised (and are quoted in the boxes below) by the Cannabis Working Party (Drugs Advisory Committee et al 1995: 5–7). Additional comment and evidence is also presented.

## Methods of use

## Recreational effects

## The cannabis economy

## *Risk to others*

### USE OF CANNABIS DURING PREGNANCY

Evidence indicates that cannabis use during pregnancy causes health effects relating to fetal hypoxia similar to those associated with tobacco smoking. The effects include impaired fetal development and associated low birth weight. There is also evidence of THC in the fetus. There is a possible increased risk of abnormalities in birth or childhood abnormalities (Fried 1989; Hall et al 1994; Hollister 1988).

Fergusson et al's recent study (paper submitted for publication) of over 12,000 women on maternal use of cannabis and its impact on pregnancy outcome found no evidence of increased child morbidity or mortality as a result of cannabis use in pregnancy. However, they did find a small but statistically significant decrease in birthweight in children of mothers who were frequent users of cannabis throughout pregnancy.

### RISK OF INJURY

Short term effects relating to the use of cannabis include:

- slowed reaction time and information processing
- impaired perceptual motor co-ordination and motor performance
- impaired short term memory and attention
- slowed perception of time.

Together, these effects can contribute to increased risk of accidents leading to injury. This is of particular relevance with respect to:

- driving
- safety at work
- operating machinery and other related activities.

Levels of intoxication are related to the dose. Evidence indicates that the use of cannabis together with alcohol is of particular concern (Chait and Pierri 1992; Hall et al 1994; Solowij 1993; Solowij, Michie, and Fox 1991).

*continued/...*

#### SOCIAL/INTERPERSONAL EFFECTS

Clinical observation suggests that regular cannabis use can have a negative impact on interpersonal relationships. Intoxication from cannabis can cause difficulty in communication, and in focusing on important family functions, such as child supervision and care (Solowij et al 1991).

There are also financial costs associated with cannabis use, which are likely to affect family members.

Three submissions to an earlier draft of this paper suggested cannabis use may also increase the risk of engaging in unsafe sexual practices. There is clear evidence that alcohol use is associated with unsafe sexual practices in New Zealand (Chapman and Hodgson 1988; Hodges 1992; Lungley and Paulin 1993). Internationally, there is evidence that drug use is associated with 'risky sex' (Plant and Plant 1992; Stall et al 1986), although Miller et al (1995: 255) caution that '... research has so far failed to suggest a causal connection between psychoactive drug use and sexual risk-taking. What does emerge from available evidence is that some people take more risks than others (nb Johnson, Wadsworth, Welling et al 1994)'.

There are also concerns about the impact of cannabis on families. In another submission, a psychologist involved in counselling cannabis-affected families stated, 'I constantly encounter the influence heavy cannabis use has on family violence, separations, inconsistent and neglectful parenting, and long term psychological effects on children' (Dr P Adams, personal communication, August 1995). This finding largely supports that of the Cannabis Working Party, although that group did not discuss the link between cannabis use and violence.

A further submission raised the role of cannabis use in domestic violence and sexual assault, while research evidence within the rohe of Te Rarawa, discussed in more detail later in this paper, suggests that cannabis is only a problem in relation to domestic violence when combined with alcohol (Te Runanga o Te Rarawa 1995).

However, Hall (1994: 18) suggests that cannabis '... appears to play little role in injuries caused by violence'.

## PASSIVE SMOKING AND CANNABIS

There is insufficient research to show whether there are health effects associated with the passive inhalation of cannabis smoke. However, evidence relating to the effects of passive tobacco smoke suggests that caution is appropriate (Chesher, Consroe, and Musty 1988).

Issues to be resolved include the possibility of adverse respiratory effects associated with long periods of exposure (particularly among children), and the possibility of a sedating effect on babies and young children.

### *Risk to the user*

#### RESPIRATORY EFFECTS

The use of cannabis by smoking (especially heavy use) is associated with symptoms of respiratory diseases, such as acute and chronic bronchitis. There is also an increased risk of the development of lung cancer and other cancers such as of the mouth, throat and upper respiratory tract. Risk is increased with the combined effect of cannabis and tobacco (Chesher et al 1988; Donald 1986; Hollister 1988; Tashkin 1993a; Tashkin 1993b; Tashkin et al 1987).

#### ACUTE COGNITIVE IMPAIRMENT

As mentioned earlier, short-term effects relating to use of cannabis include:

- slowed reaction time and information processing
- impaired perceptual motor co-ordination and motor performance
- impaired short term memory and attention
- slowed perception of time.

These cognitive impairments may increase the risk of injury and decrease the ability to learn (Hall et al 1994; Hollister 1988).

#### COGNITIVE IMPAIRMENT ASSOCIATED WITH LONG TERM USE

The weight of available evidence suggests that long term heavy use of cannabis does not produce severe or grossly debilitating impairment of cognitive function. Research does indicate that there can be subtle cognitive impairment<sup>1</sup> and suggests that the longer and heavier the use of cannabis the more pronounced may be the impairment (Chait and Pierrri 1992; Hall et al 1994; Hollister 1988; Solowij 1993; Solowij et al 1991).

*continued/...*

<sup>1</sup> [‘The long-term use of cannabis may produce more subtle cognitive impairment in the higher cognitive functions of memory, attention and organisation and integration of complex information. While subtle, these impairments may affect everyday functioning, particularly in adolescents with marginal educational aptitude, and among adults in occupations that require high levels of cognitive capacity’ (Hall et al 1994: 13).]

#### ACUTE EFFECTS ON MENTAL HEALTH

In the short term, adverse psychological effects of cannabis use for a small percentage of people may include feelings of anxiety, panic, a ‘fear of going mad’ or depression. Psychotic symptoms such as delusions and hallucinations, while rare, may be experienced at very high doses. The risk of experiencing psychotic symptoms may be higher among those who are vulnerable because of personal or family history of psychosis (Hall et al 1994; Hollister 1988).

#### EFFECTS ON MENTAL HEALTH ASSOCIATED WITH LONG TERM USE

Long term use may lead to the *cannabis dependence syndrome*, characterised by an increased tolerance of the drug’s effects, and an inability to abstain from use or to control use, even where there are adverse personal consequences relating to use. Cannabis dependence is more likely to occur among those users who are also dependent on alcohol (American Psychiatric Association 1994; Selman 1993; Tennant 1986).

There is some evidence that heavy use of cannabis can produce an acute psychosis in which confusion, amnesia, delusions, hallucinations, anxiety, agitation, and hypomanic symptoms predominate.

There is also suggestive evidence that heavy cannabis use may exacerbate schizophrenia in vulnerable individuals (Hollister 1988).

Among 15 year-old adolescents, frequent (as opposed to occasional) use of cannabis is strongly associated with other mental health problems, particularly alcohol use, and conduct disorder typified by truancy, persistent lying, non-confrontational stealing, and, to a lesser extent, aggressive behaviours. Heavy cannabis use among young people should be regarded as a marker for other significant mental health problems. It can also make the problems worse and more difficult to deal with (Feehan, McGee, Nada Raja et al 1994; Fergusson 1993; Fergusson, Lynskey, and Horwood 1993; McGee 1993; McGee and Feehan 1993).

#### EFFECTS AT THE CELLULAR LEVEL

Hall (1994: 9) reports on the impact of this drug at the cellular level. ‘There is reasonably consistent evidence that some cannabinoids, most especially THC, can produce a variety of cellular changes, such as alterations to cell metabolism, and DNA synthesis, *in vitro* (i.e. in the test tube).’

## Cannabis-related problems

### THERAPEUTIC EFFECTS

The Cannabis Working Party (Drugs Advisory Committee et al 1995: 9) notes:

Some of the synthetic derivatives or purified active ingredients of cannabis, have been used to treat medical conditions, such as nausea and vomiting in patients undergoing cancer therapy, weight loss and AIDS. These agents are also being researched for their usefulness as alternatives when more conventional treatments are not effective in treating muscle spasms, glaucoma and pain. In general, the same standards for trialling new medicines to treat medical conditions should apply to the synthetic or purified cannabis ingredients when they are being tested for therapeutic efficacy.

Hall et al (1994: 15) comment that 'the cannabinoids [substances unique to cannabis] have not been widely used therapeutically'. Currently, cannabis and its synthetic derivatives are not licensed medicines in New Zealand.

Marijuana-related problems seem to be of little concern to occasional marijuana users. However, related problems appear to increase with the increased use of marijuana.

Most of those in Black and Casswell's (1993) study who had ever used marijuana said they had experienced no problems due to marijuana use. The most commonly reported problems related to general physical health (4 percent), memory loss (4 percent) and loss of motivation or energy (4 percent).

The frequent users reported more cannabis-related problems. The most common problems were trouble with the law (14 percent), memory loss (10 percent), financial problems (10 percent), loss of motivation or energy (9 percent), and general physical health (7 percent).

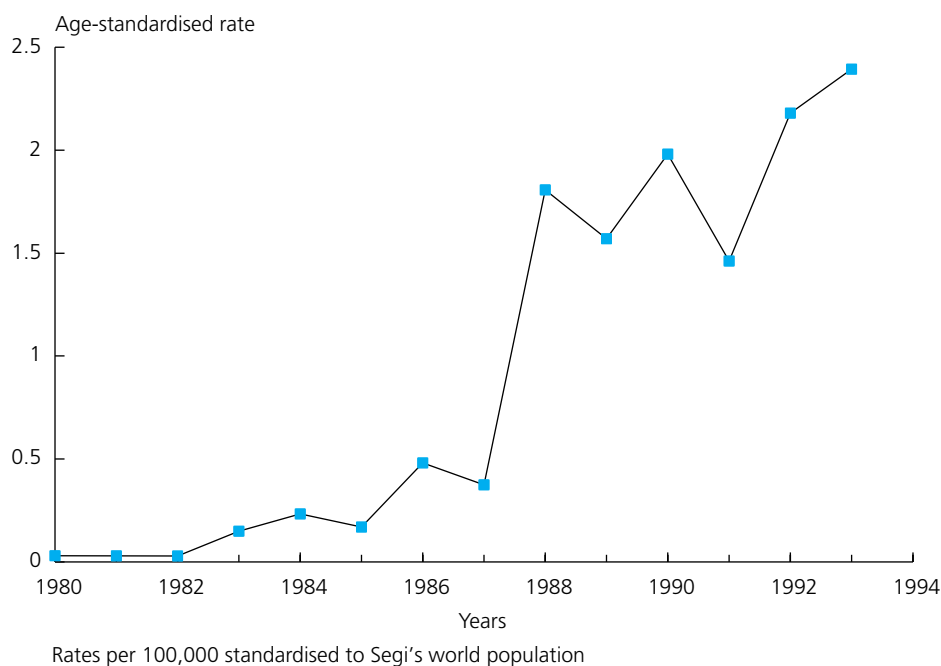
This group also reported much higher levels of alcohol-related problems than the general population. Over 40 percent of this group (predominantly males in their twenties) reported problems with financial position or energy and vitality connected to both marijuana and alcohol.

### *Cannabis dependence and abuse*

With regard to related mental health problems, Wells et al (1989) and Wells et al (1992) found that 4.7 percent of the sample in the Christchurch Epidemiology Study had met criteria for cannabis abuse/dependence at some time in their lives.

Data collected by the New Zealand Health Information Service (NZHIS) indicate increasing admissions for treatment of cannabis dependence in the period 1987 to 1993 (see Figure 1). (The data are limited to admissions to hospitals, alcohol, and drug treatment centres gazetted under the Alcoholism and Drug Addiction Act 1966 and to Queen Mary Centre, Hanmer, where the primary diagnosis on discharge was cannabis dependence.)

FIGURE 1: *Mental health admissions due to cannabis dependence, 1980–1993*

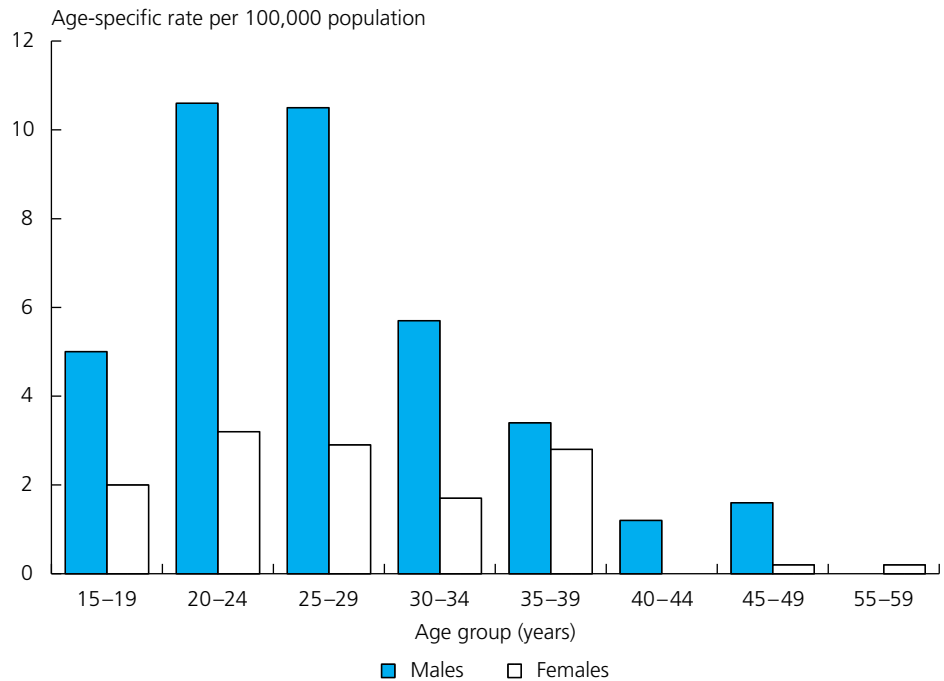


Source: *New Zealand Health Information Service 1995*

It is not possible to determine the extent to which this increase in admissions reflects an actual increase in cannabis-related problems, or results from changes in the availability of treatment services, willingness of people to present for treatment, and increased use of the ‘cannabis’ label in diagnosis.

Admissions for cannabis dependence by gender and age, as illustrated in Figure 2, largely follow patterns of use referred to earlier in this paper. Admissions are highest among men in the younger age groups with highest admissions for males aged 20 to 24 years. Admissions drop steadily from about 29 years of age.

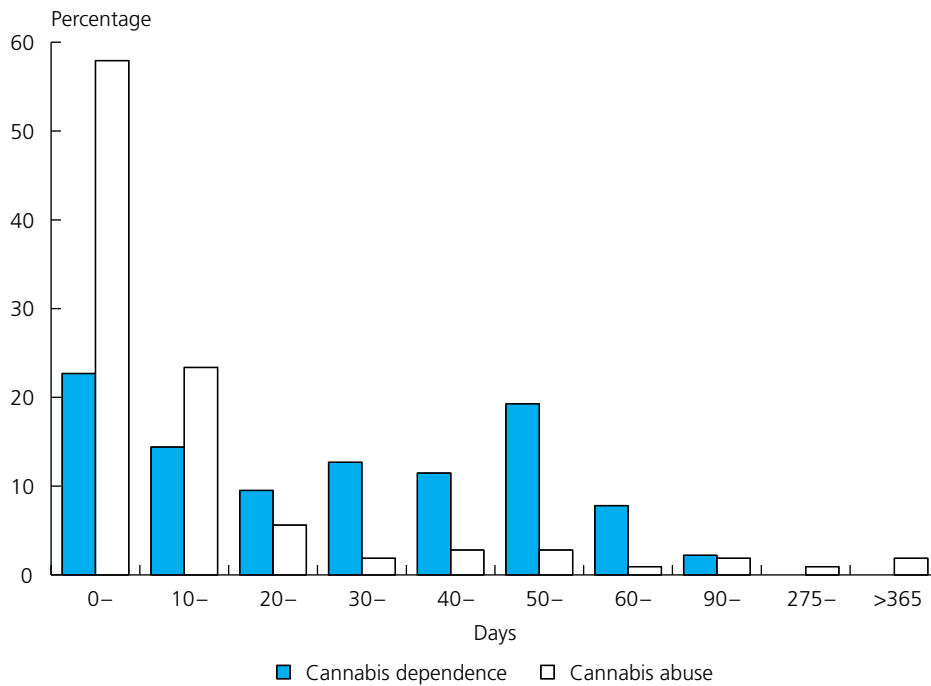
FIGURE 2: All admissions due to cannabis dependence, by gender and age, aggregated for 1988–1993



Source: New Zealand Health Information Service 1995

Figure 3 indicates lengths of stay for treatment of cannabis dependence and cannabis abuse. Most people with cannabis dependence stayed from 10 to 50 days (median 35 days) indicating they were more likely to participate in a treatment programme. The majority of people with cannabis abuse stayed less than 10 days (median 7 days) indicating the admission was most probably for detoxification and assessment. Long hospital stays for treatment of cannabis abuse suggest that reasons other than cannabis abuse resulted in these admissions.

FIGURE 3: *Length of stay, 1988–1993*



Source: *New Zealand Health Information Service 1995*

Data on outpatient treatment of cannabis dependence and abuse have not been collected recently. However, for a number of years the Alcohol Advisory Council (ALAC) collated information supplied on a voluntary basis by alcohol and drug treatment services identifying the number of people who reported problems associated with cannabis use. In 1989, the last year that these data were analysed, 13 percent of those who received community-based treatment services reported such problems (compared with 45 percent reporting problems associated with alcohol use).

There is evidence of significant comorbidity between cannabis dependence and abuse, and other mental health disorders such as alcohol dependence and abuse, conduct disorders and acute psychotic disorders including schizophrenia (Smith et al 1992). However, until data are available for analysis for more than just the primary presenting disorder, one can only guess at the size of the population presenting for mental health treatment which includes problematic cannabis use as one aspect of the disorder(s). Data for 1994, including secondary diagnoses for cannabis dependence or abuse, are currently being collated by NZHIS.

## Prevalence and patterns of use among the population as a whole

Two studies (Black and Casswell 1993; Wells et al 1989; 1992) on the prevalence of marijuana use in New Zealand use different measurements, but have similar findings – that a significant group of the population have used marijuana and that a small group use marijuana regularly at some time.

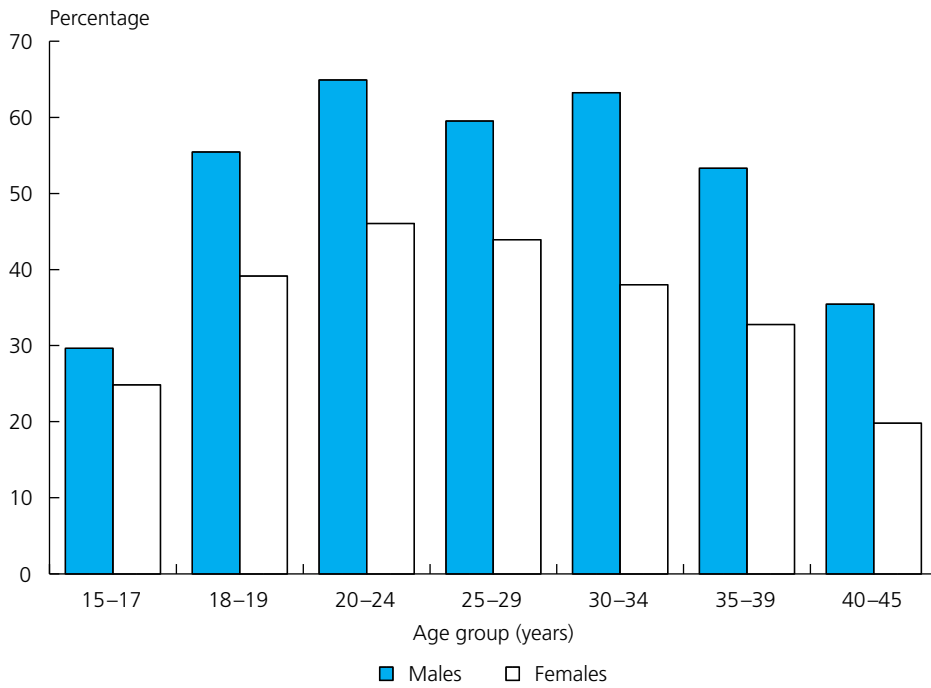
The Christchurch Psychiatric Epidemiology Study (Wells et al 1989; 1992) was conducted in 1986 and involved interviews with a probability sample of 1498 adults aged 18 to 64 years in Christchurch. The research found that 15.5 percent of the sample had ever used marijuana more than five times and that 3.2 percent had ever used it every day for two weeks (Elisabeth Wells, personal communication, 1995).

The 1990 New Zealand drug use telephone survey discussed earlier in this paper provides further data on the use of cannabis in New Zealand (Black and Casswell 1993). Black and Casswell (1993: 7) report that ‘The use of telephone interviewing in sensitive health research, and drug surveys in particular, has been examined carefully in studies overseas (Cannell 1985; Frank 1985). The results suggest that telephone and face to face surveys report similar levels of drug usage (Frank 1985). However, it is still likely that the results from any general population survey of drugs will under-estimate the true numbers of users.’ Nevertheless, this survey provides the most reliable data available.

The survey involved telephone interviews with 4688 people from Auckland and 1038 people from the Bay of Plenty aged 15 to 45 years. The research showed that 43 percent of the sample had tried marijuana, although about half of them had tried it less than five times. ‘This suggests that although a substantial proportion of the sample had tried marijuana a few times, the majority of them did not continue to use it on a regular basis’ (Black and Casswell 1993: 11).

Figure 4 indicates that young men were the predominant users of marijuana in New Zealand. Men aged 20 to 24 years were the male group most likely to have tried marijuana (65 percent of 20- to 24-year-old men). Women aged 20 to 24 years were the female group most likely to have tried it (46 percent of 20- to 24-year-old women).

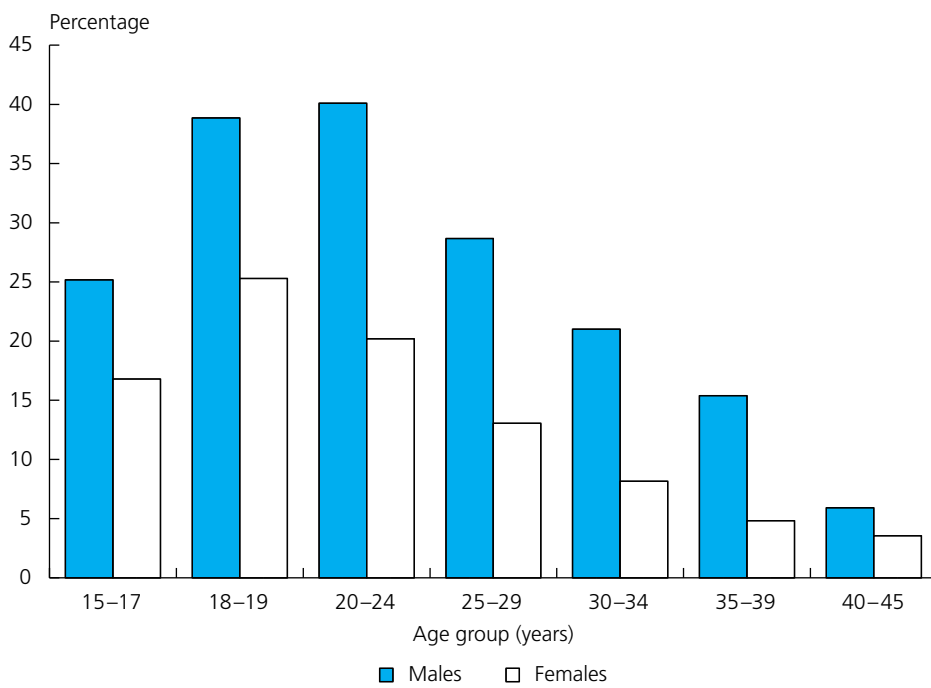
FIGURE 4: *Prevalence of those who had tried marijuana, by age and gender*



Source: Black and Casswell 1993

Figure 5 shows that men aged 18 to 24 years were the group most likely to have used marijuana in the last 12 months. Women aged 18 to 19 years were the female group most likely to have used marijuana in the last 12 months.

FIGURE 5: *Prevalence of those who had used marijuana in the last 12 months, by age and gender*



Source: Black and Casswell 1993

## Cannabis and alcohol

Twelve percent of the survey sample were current marijuana users (used in last 12 months and not stopped using). About two-and-a-half percent of the sample reported having used marijuana 10 or more times in the last 30 days (Black and Casswell 1993). These frequent users were predominantly male (81 percent) and in their twenties. Over half the frequent users (55 percent) were in the 20 to 29 year age group and 78 percent were under 30 years of age (A Wyllie, personal communication, June 1996).

Black and Casswell's research suggests marijuana is commonly combined with alcohol. Thirty-seven percent of their respondents who had used marijuana in the previous 12 months always or mostly used it with alcohol. A further 28 percent said they sometimes combined use. Potentially two-thirds of those surveyed who used marijuana in the previous 12 months were, therefore, combining marijuana and alcohol.

This group of frequent marijuana users also had a higher than average frequency of alcohol consumption. Seventy-two percent of frequent users reported drinking six or more drinks on single occasions at least weekly, and 75 percent felt drunk at least monthly.

## High-risk groups

There are a number of high-risk groups in New Zealand with regard to cannabis use. They are discussed below.

## Youth

A number of New Zealand studies indicate youth are clearly a high-risk group for cannabis use. For instance:

- the Christchurch Health and Development Study of cannabis use in children up to 15 years found that:
  - the majority of these users (75.3 percent) reported positive reactions to cannabis
  - 58 percent said that they would use cannabis again
  - problems increased with more frequent use of the drug
  - about one-quarter of those who had used cannabis were relatively experienced users, having used cannabis on more than 10 occasions (Fergusson et al 1993).
- Pryde International New Zealand's 1992 survey of 14,000 Canterbury school children from Standard 3 to Form 7 found that 17.6 percent of the secondary school students surveyed reported using marijuana in the previous year.

The evidence of cannabis use by young people is summarised by the Cannabis Working Party (Drugs Advisory Committee et al 1995) as follows:

Recent evidence suggests that by age 15 years, at least 10 to 15 percent of young New Zealanders will have used cannabis once or more. There is no gender difference in use at this age. By age 18 years, use increases substantially, with as many as 45 percent reporting cannabis use in the last year. Use appears to be highest among those aged 18 to 24 years and declines in older age groups. It is unclear whether rates of cannabis use among adolescents have been increasing or decreasing over recent years. While there is some evidence to suggest that rates of cannabis use among 15 year olds may have fallen, research to monitor change in patterns of cannabis use among the young is needed to confirm this (Feehan et al 1994; Fergusson 1993; Fergusson et al 1993; McGee 1993; McGee and Feehan 1993).

A cause for concern is the potential for educational achievement of adolescents with a history of poor school performance to be further limited by cognitive impairments caused by chronic cannabis use (Hall 1994). Problems with school attendance and performance (Fergusson et al 1993) and with truancy (Drug Advisory Committee et al 1995) have also been identified.

The relationship of mental health problems and anti-social behaviour associated with young peoples' cannabis use is problematic. The Dunedin Multidisciplinary Health and Development Research Project (DMHDS), a longitudinal investigation of a large sample of New Zealand children followed from birth, included a study of mental health disorder. One year prevalence of DSM-III disorders in 930 18-year-olds found that one in 20 (5.2 percent) met criteria for cannabis dependence in the previous year, with associated impairments in social or behavioural functioning (Feehan et al 1994). Two-thirds (67 percent) of those with cannabis dependence were also alcohol dependent.

A previous DMHDS study (reported in McGee and Feehan 1993) of 15-year-olds noted considerable overlap among use of different substances, with 10 percent of the sample reporting use of more than one substance. The authors stress that these findings strongly suggest a pattern of substance use from adolescence to young adulthood characterised by multiple substance use.

There are a number of reasons for concern about the use of cannabis by young people in their early teens.

- Hall (1994: x) argues that 'Adolescents who initiate cannabis use in the early teens are at higher risk of progressing to heavy cannabis use and other illicit drug use, and to the development of cannabis dependence'.
- Fergusson et al (1993) report that in children up to 15 years old, problems with school attendance and performance, parents, peer relationships and police were significantly higher among those who had used cannabis on six or more occasions. About 70 percent of this group said they had experienced these problems. About one third (31 percent) of the group also reported negative health-related reactions.

The Cannabis Working Party (Drugs Advisory Committee et al 1995) found that:

Among 15 year-old adolescents, frequent (as opposed to occasional) use of cannabis is strongly associated with other mental health problems, particularly alcohol use, and conduct disorder typified by truancy, persistent lying, non-confrontational stealing, and, to a lesser extent, aggressive behaviours. Heavy cannabis use among young people should be regarded as a marker for other significant mental health problems. It can also make the problems worse and more difficult to deal with (Feehan et al 1994; Fergusson 1993; Fergusson et al 1993; McGee 1993; McGee and Feehan 1993).

However, although cannabis use by adolescents up to age 15 is associated with the problems listed above, Fergusson et al (in press) conclude that much of the heightened risk ‘... could be attributed to the fact that they were a high-risk population characterised by early onset adjustment problems, by coming from disadvantaged or dysfunctional family backgrounds and by having high levels of affiliation with delinquent or substance using peers’.

While this suggests most association between early cannabis use and later outcomes is non-causal, and occurs because ‘high-risk’ adolescents tend to use cannabis early, there does appear to be some unexplained association between early cannabis use and later adverse outcomes such as increased risk of later cannabis use. Fergusson et al (in press) suggest that ‘... it is possible that cannabis use has what Kandel, Davies, Karus, and Yanaguchi (1986) have described as a cascade effect in which the long term and heavy use of cannabis may lead to both further substance use behaviours and problems of personal adjustment’.

The Board of Trustees Report (1991) outlines a number of early predictors of drug abuse in children and adolescents as follows:

- **antisocial behaviour** – in children is an accurate predictor of adolescent drug abuse
- **family factors** – families where parents are unskilled at parenting or who use drugs themselves are at greater risk of their children abusing drugs
- **school factors** – children who fail in school tend to start drug use earlier and become regular users more frequently
- **peer factors** – perceived use and social acceptance of drugs by peers reinforce and increase the likelihood of abuse
- **attitudes, beliefs, and personality traits** – attachment to parents, commitment to education, and acceptance of the general expectations, norms, and values of society point to less drug abuse. Personality traits such as rebelliousness and nonconformity with traditional values are frequently exhibited by early or frequent drug abusers
- **genetic factors** – there is a growing acceptance of a genetic predisposition to alcoholism.<sup>2</sup>

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<sup>2</sup> There is no discussion of the role of genetic factors in relation to any other drugs.

More specifically in the New Zealand context, McGee and Feehan (1993) report that among adolescent boys, cannabis and substance use in general (particularly use of more than one substance) could be predicted by earlier depression and conduct or antisocial behaviour problems during pre-adolescence. With adolescent girls, however, use of substances was not predicted by pre-adolescent problems, but strongly related to other antisocial behaviours at age 15. This suggests that while the patterns of substance use are the same for both sexes at age 15, the determinants are different.

The situation for Māori youth is discussed late in the paper, in the section on Māori as a high-risk group.

Very little is known about the use of cannabis by Pacific Islands youth in New Zealand, although anecdotal evidence suggests it is not currently a significant problem. However, given that Pacific Islands people have been identified as the fastest and youngest growing population in New Zealand with a large percentage aged under 20 years of age (PHC 1994e), it seems advisable to ensure effective prevention programmes for this particular group.

This review of the literature suggests that prevention of cannabis use in young people cannot be considered in isolation from other substances or other social factors. It also suggests that health promotion to reduce substance abuse, including abuse of cannabis, needs to begin well before the age of 15 where patterns of use are already well established in a significant group of young people.

As discussed earlier, evidence suggests that cannabis use during pregnancy impairs fetal development and leads to smaller birthweight babies and possible premature birth. There is also a possible increased risk of birth defects or childhood abnormalities. Hall et al (1994: 11) state that 'Prudence demands that until this issue is resolved, women should be advised not to use cannabis during pregnancy, or when attempting to conceive'.

Andreasson et al (1987) suggest that cannabis may precipitate schizophrenia in vulnerable people, such as those with a family history of the illness. Overseas clinicians working with the chronically severely mentally ill report difficulties in management created by the widespread use of cannabis by these patients (Dixon et al 1990; Hall et al 1994; Mueser et al 1990; Turner and Tsuang 1990).

However, determining a causal link between cannabis use and exacerbation of a psychotic illness is problematic. Even where a relationship is established, there are several ways this might occur:

- cannabis may be used to self-medicate depression, anxiety, and negative psychotic symptoms, or the side-effects of antipsychotic drugs
- drug abuse among people with schizophrenia may result from risk factors common to both disorders

Women of  
childbearing age

People with  
mental illness

- heavy cannabis use may also be a marker for the use of other drugs such as amphetamines, for which there is strong evidence of causing a paranoid psychosis (Angrist 1983; Bell 1973; Connell 1959 as reported in Hall et al 1994).

Māori with mental illness are at high risk. Bushnell et al (1994: 47) note that ‘It has been observed that Māori have greater rates of hospital admission than non-Māori, not only for severe mental disorders such as schizophrenia, but also for substance use disorders (Public Health Commission 1993, 1994, Cosgriff 1992).’

However, while the Cannabis Working Party (Drugs Advisory Committee et al 1995) states that high rates of Māori youth admissions to psychiatric hospitals with cannabis psychosis and exacerbation of schizophrenia due to cannabis use suggest a high level of use of cannabis, ‘the relationship between prevalence of disorder and service use is not straightforward. Barriers or ‘filters’ operating within the health system (Goldberg 1972) may act selectively to increase the likelihood of hospitalisation among Māori’ (Bushnell et al 1994: 47).

## Māori

While robust research, of at least the same order as Black and Casswell’s is needed on prevalence and patterns of use by Māori, and gathered within a Māori research framework, existing research and anecdotal evidence suggest widespread use of cannabis among some groups of Māori. A number of writers (Drug Advisory Committee et al 1995; Mataira 1993; Ngata 1993; Te Runanga o Te Rarawa 1995) also note the contribution of cannabis, as a crop, to the Māori economy. This prevalence has considerable impact over a range of social dimensions.

Department of Justice statistics point to evidence that a greater proportion of Māori are using marijuana than other ethnic groups:

Conviction rates by ethnicity statistics for 1992 (Justice Department 1992), indicated that Māori rates were higher than those for non-Māori for offences involving drugs and 95% of the figures related to cannabis. 51 [sic] Māori per 10,000 population (2,239) as opposed to 15 non-Māori per 10,000 population (4,314) were convicted for drug-related offences in 1992. Justice statistics have also indicated substantial increases in convictions involving drugs for Māori over the last decade – 42% for Māori as opposed to 5% for non-Māori (Justice Department, 1992, reported in Te Urikore Lux et al 1993: 5).

There is a growing culture of cannabis use in some communities where generations of Māori use cannabis (Drugs Advisory Committee et al 1995; Ngata 1993; Te Runanga o Te Rarawa 1995). The Te Rarawa research reported that ‘Cannabis use has reached epidemic proportions in the communities studied, with a general acceptance or tolerance by most people. Users range from children through to kaumatua and usage rates range widely from occasional to heavy’ (Te Runanga o Te Rarawa 1995: 7).

There is evidence about cannabis use by Māori youth which indicates a disproportionately higher, and increasing, use of the drug by this group than by others. While this may be due to the impact of Rastafarianism, with its emphasis on cannabis as a culturally and politically acceptable drug, on some young Māori (Mataira 1993; Te Runanga o Te Rarawa 1995), the negative social impact is noted by a number of commentators. Ngata (1993) notes the increasing incidence of cannabis smoking and the disproportionate number of Māori caught and suspended or expelled from school because of smoking cannabis. Teachers, concerned with the level of cannabis being used by students at school, report ‘We are well aware that cannabis is playing a big part in the lives of the children today, more so once they get to college’ (Te Runanga o Te Rarawa 1995: 442). That report also noted that some children are involved in raiding growers’ cannabis patches for sale outside the area.

Evidence suggests some Māori are beginning to use cannabis as early as primary school level (Makowharemahihi 1993).

- Ngata (1993) notes that other agencies concerned with detoxification, treatment and rehabilitation for drug and substance abuse report increasing numbers of young Māori clients seeking help, and that various psychiatric units round the country report a relationship between acute admissions for psychoses in young Māori men and cannabis use.
- The Cannabis Working Party (Drugs Advisory Committee et al 1995: 8) spell out the implications for intergenerational health.
  - ‘Māori women who use cannabis not only expose themselves to cannabis-related harm but also the unborn child if they are pregnant. This is compounded if they also smoke tobacco. The safety and protection of the unborn child – he mokopuna, he taonga – mana wahine, and the responsibility associated with maintaining a healthy whakapapa are some of the special concerns of Māori women that need to be addressed.’
  - Whanau, hapū and iwi may be affected by cannabis use, with inter-generational use permeating second and third generation Māori. ‘Together with the effects on the physical and mental wellbeing of Māori, there are the economic, social, cultural, and personal effects to be taken into account. The cost is potentially high. ... The impact and effect of cannabis use on the health, wellbeing and mauri of Māori is alarming and requires immediate action’.

The Te Rarawa report (Te Runanga o Te Rarawa 1995) also notes the use of cannabis by children through to kaumatua, the negative impact of cannabis on some whanau, and the divisions cannabis has created in some communities between users and non-users.

‘It should be noted that cannabis is not used as part of any traditional healing practice or rongoa by Tohunga Māori or healers and has no current place in the management of mate Māori and mate wairua’ (Drugs Advisory Committee et al 1995: 8).

## Persons with pre-existing diseases

Persons with certain pre-existing diseases are at risk of precipitating or exacerbating the symptoms of their disease by use of cannabis (Hall 1994). Conditions include:

- cardiovascular diseases, including coronary artery disease and hypertension (cannabis stresses the heart and increases its workload)
- respiratory diseases, such as asthma, bronchitis and emphysema
- schizophrenia
- alcohol or other drug dependence, which may increase risk of cannabis dependence.

One submission to this paper argues ‘People who have had head injuries, including minor to major concussion, are more susceptible to the effects of drugs including cannabis and may need extra assistance and monitoring’ (P Adams, personal communication, August 1995).

## The public health importance of cannabis use

The public health importance of cannabis is measured according to the number of people whose health is likely to be adversely affected, and by the severity of the health consequences for those people. Public health importance also depends on the level of risk posed by specific patterns of use (eg, occasional use over some months or daily use over decades), and on the prevalence of these patterns of use.

The standard ways of measuring health risks are:

- **Relative risk** – The relative risk of cannabis use is the increase in the odds of harmful health effects among those who use cannabis, compared with those who do not.
- **Population-attributable risk** – This is the proportion of cases with harmful effects attributable to cannabis use.

A drug with a low relative risk may have a low personal significance, but a large public health impact, if a large proportion of the population is exposed (eg, alcohol). Conversely, a drug with a high relative risk may be a major risk to users, but may have less public health importance as few people are exposed (eg, street heroin). An assessment of the personal and public health importance of cannabis use must, therefore, take account of the relative risk to the individual, the prevalence of use, and the base rate of the adverse effect.

## Public health importance – acute effects

### ADVERSE PSYCHOLOGICAL EXPERIENCES

Hall (1994: 16) argues that:

In terms of the number of persons affected, the most common adverse effects of cannabis use are likely to be dysphoric [state of unease or mental discomfort] and unpleasant psychological reactions in naive users. These may occur in as many as a third of those who ever used the drug, and their occurrence may be a major explanation for the high rates of discontinuation of its use (Goodstadt, Chan, Sheppard et al 1986; Smart 1983). Since the majority of these experiences are not life-threatening but are self-limited, easily managed by reassurance, and rarely lead to help-seeking, their public health significance is probably minor.

The public health significance of the effect these experiences may have on discouraging further use of cannabis is, however, potentially significant.

### MOTOR VEHICLE CRASHES

The impact of cannabis use on driving, together with any possible association with motor vehicle crashes, is not well understood. As Hall (1994: 8) notes:

While cannabis impairs performance in laboratory and simulated driving settings, it is difficult to relate the magnitude of these impairments to the risk of being involved in motor vehicle accidents. Studies of the effects of cannabis on on-road driving performance have found, at most, modest impairments. Cannabis intoxicated persons drive more slowly, and generally take fewer risks, than alcohol intoxicated drinkers [drivers], probably because they are more aware of their level of psychomotor impairment. There is no controlled epidemiological evidence that cannabis users are at increased risk of being involved in motor vehicle or other accidents.

Black and Casswell (1993) also found regular driving while influenced by marijuana was relatively rare for participants in their drug study who had used marijuana in the last 12 months. Fifty-four percent said they never drove while influenced. Although 34 percent reported that they had driven while influenced, most said that this occurred 'hardly ever'. A further 11 percent did not drive. However, 3 percent did most of their driving while influenced by marijuana. This would represent about 8640 people in the general population, using 1990 survey figures.

Given the lack of evidence of any significant impairment to drivers using cannabis, and the fact that cannabis users are largely unlikely to drive when intoxicated and tend to be more careful when they do, present evidence suggests that the public health importance of cannabis alone, as a contributing factor to motor vehicle crashes, is negligible. However, the public health importance of cannabis use together with alcohol, on motor vehicle crashes, is a different issue.

## Public health importance – adverse health effects

Cannabis and alcohol are frequently used together, as outlined earlier in this paper. Hall et al (1994: 8) note ‘The separate effects of alcohol and cannabis on psychomotor impairment and driving performance are approximately additive’. Thus, using cannabis and alcohol together and then driving only serves to compound the negative impacts of alcohol on driving performance. This is of particular concern with young people aged 20–24 who use the most cannabis (Black and Casswell 1993), are in the group that drink the most alcohol (PHC 1994a), and are in the group that has the most motor vehicle crashes (PHC 1994c).

The 1979/1980 Waikato Hospital Road Accident Survey investigated the role of cannabis in injury road crashes in New Zealand (Cairns et al 1984). It found that some groups of injured drivers were more likely to have used cannabis:

- male drivers aged 20–24
- those who had been drinking at a hotel
- those who drank weekly or more frequently
- those who drank heavily.

Only 25 percent of the 59 cannabis users in this study had blood alcohol levels over 50 mg/100 mls. This compares favourably with overseas studies where alcohol is frequently found in combination with cannabis in both fatal and injury crashes (Bailey 1993).

Given the lack of understanding about the impact of cannabis on driving performance, further research is needed both on the impact of cannabis alone and cannabis and alcohol together. ESR: Forensic and ESR: Health are currently undertaking research on the role of cannabis in fatal road crashes which should provide useful information on the present situation.

#### OTHER RISK OF INJURY

Cannabis use also increases the risk of other types of injury, such as those involving operating machinery or safety at work. The public health importance of injury risk is likely to be relatively low, as marijuana is most commonly used in private homes. About 64 percent of the respondents to the 1990 drug survey who had used marijuana in the previous 12 months smoked most or all of their marijuana at home. Eighty-nine percent of this group reported never using marijuana at work (Black and Casswell 1993).

It appears most people do not believe it is acceptable to use marijuana in situations where it would be likely for injury to result. Asked how generally acceptable it is to smoke marijuana when children were around, before driving and before work or study, 73 percent, 71 percent, and 70 percent of Black and Casswell’s survey sample respectively believed it would be generally acceptable to no-one.

However, over a third of young adults who use cannabis more frequently had used it in situations where there was a perceived risk of injury, including while driving.

## USE OF CANNABIS DURING PREGNANCY

Given the evidence which suggests that cannabis use during pregnancy impairs fetal development, and leads to smaller birthweight babies, possible premature birth, and possible increased risk of birth defects or childhood abnormalities, cannabis use during pregnancy does pose a public health risk. If women are poly-drug users the risks to the fetus are even higher. However, the population-attributable risk of cannabis use during pregnancy is likely to be much lower than that of tobacco smoking during pregnancy because the prevalence of cannabis use is much lower than that of tobacco.

### *Public health importance – chronic effects*

The major public health risks of regular cannabis use are, in order of importance: dependence, respiratory disease, and precipitation or exacerbation of psychoses, especially schizophrenia (Hall 1994). They are outlined in more detail below.

#### DEPENDENCE

Cannabis dependence appears to be the chronic health effect of most public health importance in New Zealand. Wells et al's (1989; 1992) finding that 4.7 percent of the sample in the Christchurch Epidemiology Study had met criteria for cannabis abuse/dependence at some time in their lives indicates a substantial proportion of the population at risk, although, as Hall (1994: 17) notes '... its consequences of [sic] are somewhat ameliorated by the high rate of remission of symptoms of cannabis dependence in the absence of treatment'.

Cannabis dependence symptoms can include impaired memory, abnormal thoughts, impaired motivation and time-keeping, and impaired work or school performance. Withdrawal symptoms can include insomnia, anxiety, depression, mental confusion, nausea, chills, anorexia, photo-phobia, cannabis craving, yawning, anergy, myalgia, and restlessness (Tennant 1986).

#### RESPIRATORY DISEASES

Hall (1994) comments on the public health risk of respiratory diseases as a result of smoking cannabis, suggesting the significance of diseases such as chronic bronchitis is probably greater than that for respiratory cancers because:

- chronic bronchitis requires a lesser length of exposure to cigarette smoke than respiratory cancers need to develop (15 to 20 years)
- most cannabis users do not use the drug for more than 5 years
- chronic bronchitis may develop within a lesser exposure period among cannabis smokers who also smoke tobacco as it appears that concurrent tobacco and cannabis smoking compound the adverse effects on the respiratory system.

Tennant et al (1971) noted bronchitis developing in persons after only three to four months of heavy hashish use, on top of existing cigarette smoking.

It should be noted, as Hall et al (1994: 20) remind us that ‘The respiratory risks of cannabis smoking are amplified if deep inhalation and breath-holding are used to maximise the absorption of THC in the lungs. This technique considerably increases the delivery and retention of particulate matter and tar’.

#### SCHIZOPHRENIA

As suggested earlier in this paper, it is problematic whether cannabis use exacerbates schizophrenia. However, even if the relationship is causal, its public health importance in precipitating cases of schizophrenia that would not otherwise occur is likely to be relatively small. Schizophrenia affects approximately one percent of the adult population. Andreasson et al’s data (1987) suggest cannabis use would contribute to less than 10 percent of cases of schizophrenia. However, in terms of public health significance, cannabis use may accelerate symptoms of schizophrenia earlier than otherwise and may make it harder to control symptoms in those who use cannabis (Hall 1994).

#### SOCIAL/INTERPERSONAL EFFECTS

Public health proponents must be concerned with the impact of regular cannabis use in relation to:

- interpersonal relations, especially if cannabis use impairs parenting and if there is any associated violence
- any increase in the possibility of engaging in unsafe sexual practices is also of concern
- possible violence associated with growing, supplying and acquiring cannabis.

Overall, the relative risk of occasional cannabis use appears to be minor. The relative risk to long-term, heavy users is more significant. The population-attributable risk of cannabis use is small to moderate in size and is unlikely to be comparable to the health risks of alcohol and tobacco. This is because the proportion of the population that uses cannabis heavily over a period of years is much smaller than the proportions that use alcohol or tobacco.

However, we must not be complacent about this situation, particularly because we do not have prevalence trend data in New Zealand at present. If there were to be a major increase in the prevalence of long-term, heavy cannabis use, or it was found that a particular group within New Zealand society were, significantly more than the rest of the population, long-term, heavy cannabis users, the public health importance of cannabis would increase.

## Outcome targets

Two outcome targets have been set in this paper, based on the evidence from the Black and Casswell (1993) survey. The targets require repeat surveys, consistent with Black and Casswell, by the years 2000 and 2005, to enable progress on achieving the targets to be monitored. These repeat surveys should also have a nationally representative sample and the targets should be revised accordingly. When national targets are set, any changes in cannabis consumption will be taken into account. No specific targets have been set for Māori as we do not have prevalence data. When these data become available, targets should be set.

### Outcome targets

- To reduce the prevalence of current marijuana use (used in the last 12 months and not stopped using) from 12 percent of persons aged 15 to 45 years in 1990, to 8 percent or less by the year 2005 [baseline, Black and Casswell 1993].
- To reduce the prevalence of frequent marijuana use (used 10 or more times in the last 30 days) from 2.4 percent of persons aged 15 to 45 years in 1990, to 1.5 percent or less by the year 2005 [baseline, Black and Casswell 1993].

# Healthy Public Policy Issues

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## Background

### Intersectoral policy to reduce cannabis-related harm

The World Health Organization (WHO) held an expert working group meeting to address healthy public policies on alcohol and other drugs in 1988. The Working Group argued for comprehensive alcohol and drug policies rather than the traditional pattern of dealing with alcohol, tobacco, and illicit drugs separately (WHO 1988).

There are a number of reasons for a comprehensive policy:

- the abuse of all forms of drugs can lead to harm
- many people are poly-drug users and may substitute drugs
- many services and educational programmes are already concerned with poly-drug problems.

A comprehensive policy will require the development of specific policies to address cannabis due to its illegal status and the specific patterns of its use. It is therefore recommended that an intersectoral policy to improve health by reducing cannabis-related harm should be developed as part of a comprehensive national policy on tobacco, alcohol and other drugs.

## Policy principles

WHO (1988) recommends that such a policy should be related to national strategies for societal improvement, paying special attention to the needs of disadvantaged groups. It also argues that such a policy must relate to the local environment, respond to specific national and community concerns, involve explicitly defined goals, and contain short-term and long-term objectives.

WHO (1988) also recommends that the policy should reflect the principles discussed below.

### *Public support and participation*

Community support and involvement in a cannabis harm prevention policy is essential for its success. It is recognised some decisions need to be made at a national level. However, a community development approach that leads to active involvement in formulating and implementing policy is seen as empowering people, and as a means of gaining commitment (WHO 1988).

### *Wide intersectoral collaboration*

Because cannabis-related harm is influenced by a wide variety of societal forces, a correspondingly wide variety of agencies should be involved in a harm reduction policy. The health and law enforcement sectors are important agencies and have commonly been involved. The scope should be widened, however, to include non-governmental organisations and other relevant government agencies such as the Ministry of Education and the Children, Young Persons and Their Families Service. All these agencies need to collaborate to provide an integrated and effective policy. An intersectoral co-ordinating body can be a valuable mechanism to provide cohesion to the policy effort.

### *Use of existing structures and programmes*

WHO (1988: 7) note that ‘Policy should always be based on effective utilization of existing structures and programmes’. It makes good economic and practical sense to build on what has been previously established and has shown results.

### *International context and co-operation*

Setting New Zealand’s policy in an international context is beneficial. It assists in keeping up with the latest developments in drug harm prevention policy globally, and aids in co-operation on international supply and demand issues.

### *Monitoring and evaluation*

Policy should be continually monitored and evaluated to ensure that it is meeting its objectives and is in line with the latest evidence. Because of their integral nature, monitoring and evaluation should be built into the policy development process itself.

### *Research and training*

Overall, policy should provide for relevant research. Research (in which the full and active involvement of Māori researchers is essential) will enable identification of effective policy options and provide direction. Training of personnel working in the area is crucial. This training should include Māori personnel and personnel from other ethnic groups to ensure implementation in accordance with the policy direction in an effective and culturally effective manner.

### *Ensuring the needs of Māori*

A crucial policy principle in the New Zealand context, and not discussed by WHO (1988), is to ensure the needs of Māori are met. Under the Treaty of Waitangi, Government has special responsibilities to address Māori health status issues. Given the wide use of cannabis among some groups of Māori, special attention must be given in a national policy on tobacco, alcohol and other drugs to developing specific strategies where Māori are affected. This will assist in meeting the goal of ‘improving Māori health status so in the future Māori will have the opportunity to enjoy at least the same level of health as non-Māori’. Any policy work should be consistent with the policy contained in *He Matariki: A strategic plan for Māori public health* (PHC 1995a).

Planning cannabis harm reduction strategies in a broad environmental setting is particularly relevant to Māori. Patterns of Māori cannabis use are likely to be strongly related to the social, economic, political, and cultural standing of Māori in New Zealand. Māori face a major challenge in changing lifestyle and behaviour which places them at greater risk of cannabis use.

As discussed earlier, there is a growing culture of cannabis use in some communities (Drugs Advisory Committee et al 1995; Ngata 1993; Te Runanga o Te Rarawa 1995). Community-based research and work will be needed to develop an appropriate response. Because cannabis also provides important income to some communities, strategies should identify realistic economic alternatives.

### *Risk-reduction approaches*

A further principle, not discussed by WHO (1988), is the policy approach to risk reduction. The two main approaches used to reduce harm from a particular substance are:

- **the high-risk approach**, focusing on individuals who are heavy consumers of the substance
- **the population approach**, focusing on the general population.

These approaches are complementary.

Methods of reducing cannabis-related harm under the high-risk approach involve identifying individuals and situations where cannabis use is high, altering patterns of cannabis use, and changing the circumstances or environment in which it is used. This approach identifies high-risk users and offers them appropriate assistance to change damaging behaviours. High-risk strategies are complicated because of the likelihood that individuals are multiple drug users.

Results of treatment for advanced drug problems are poor. Strategies for early detection and intervention are being developed and evaluated, and offer the best opportunity for implementing the high-risk approach (Heather and Tebbutt 1989).

The population approach focuses on reducing disease and harm resulting to the population as a whole from cannabis use. This approach involves adopting a comprehensive strategy aimed at convincing people that cannabis use can harm society. It aims to ensure that most people either do not use cannabis or use it in a low-risk way. From the public health perspective, concern with the overall risk of harm to the general population makes the population approach very pertinent.

The Public Health Group recommends both high-risk and population approaches are used to improve health by reducing cannabis-related harm.

The WHO Working Group (1988) has also articulated a range of effective policy components available for inclusion in a comprehensive national drug and alcohol policy. Many of these specifically relate to cannabis.

The Group also points out that these components must be reviewed for their appropriateness in the light of a nation's needs, priorities, and resources. They also note that some components are useful for reducing demand, some for reducing supply, and some address both; and that components should be complementary, not contradictory (WHO 1988).

The components are as follows (WHO 1988):

### *Demand-reduction components*

- increase the price of legal substances (eg, through increasing tobacco taxes) or illegal substances (eg, through law enforcement efforts to reduce drug availability)
- increase the perceived probability of detection and punishment for drug and alcohol related offences
- provide education for all sectors of society, including children and youth, emphasising the social skills needed to minimise or eliminate the use of alcohol, tobacco and other drugs
- provide information to the general public, through media and face-to-face methods, about alcohol and drugs and their dangers to help to establish a climate conducive to the adoption of new drug and alcohol policies
- restrict the advertising and other forms of promotion of psychoactive substances through legislation and industry self-regulatory initiatives
- undertake early intervention, including counselling, with people commencing potentially damaging patterns of psychoactive substance use
- provide treatment programmes, especially those which emphasise relatively low-cost, minimal-intervention approaches rather than expensive residential treatment
- facilitate the social reintegration of formerly dependent people following a period of active treatment.

### *Supply reduction components*

- restrict the physical availability of alcohol, tobacco and other drugs through such methods as liquor licensing, street level law enforcement, and rational prescribing practices
- raise the minimum age at which it is lawful for young people to purchase or consume tobacco and alcoholic beverages, in nations where the use of these substances is lawful for the general community
- regulate or eliminate the production of psychoactive substances

## A public health approach to cannabis

- enhance effective legislative and law enforcement efforts concerning illicit drug production, importation, trafficking, dealing and use.

### *Other components*

- decrease the harm potential of legal psychoactive substances
- ensure the clinical usefulness of prescription drugs is carefully balanced against efforts to reduce their potentially harmful effects
- train personnel in prevention, treatment and law enforcement techniques
- increase the quantity and improve the quality of research, monitoring and evaluation relating to drugs and alcohol
- discourage particularly risky behaviours in relation to alcohol and other drugs, such as driving or operating machinery while intoxicated.

Mosher and Yanagisako (1991) outline a public health approach to illegal drug policy. This can be applied to cannabis.

- Public health policy should focus on both harm minimisation (reducing the incidence and severity of illegal drug problems) and the reduction of cannabis use.
- Cannabis user-related strategies should focus on providing effective treatment and education programmes.
- Policies should target environmental risk factors. Comprehensively planned interventions need to occur at all levels including: families, schools, workplaces, peer groups, etc.
- Increased responsibility for programme planning should be placed at the community level. Programmes will need to respond to a community's particular characteristics, culture, and historical experience. The community level provides the best opportunity for empowering marginalised groups, providing them the opportunity to develop their own prevention responses.
- The public health field needs to address the overall social, political, and economic forces putting communities at cannabis-related risk. Cannabis harm prevention efforts should be tied to programmes addressing areas such as employment opportunities, community support systems, institutionalised racism, housing, and other structural forces that marginalise at-risk communities from the rest of society.
- Research priorities need to be redefined to include study of environmental factors, their interaction with cannabis and with the individual user, the potential impact of comprehensive, community-based interventions, and the role of broader economic, political, and social forces in cannabis use.

## Healthy public policy issues

The need for an intersectoral approach to improve health by reducing cannabis-related harm, as part of a national policy on tobacco, alcohol and other drugs. The policy should be based on the following principles:

- collaboration between law enforcement, health, education, and other relevant governmental and non-governmental agencies and organisations
- multisectoral co-ordination of efforts to reduce cannabis supply and demand
- connection to national strategies for societal improvement, with emphasis on the needs of disadvantaged groups
- public support and participation
- effective use of existing structures and programmes
- harmony with international policy
- continuing monitoring and evaluation
- provision to fund research and training for non-Māori and Māori
- ensuring the needs of Māori are addressed by enabling development of specific strategies acceptable to Māori and recognising Māori aspirations for self-management
- use of both high-risk and population approaches.

# Public Health Programme Issues

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## Effective drug prevention programmes

The common use of cannabis along with other substances, especially alcohol and tobacco, suggests that cannabis prevention programmes may be less effective than programmes recognising poly-drug use. McGee and Feehan (1993) certainly argue this for the age group from adolescence to young adulthood. Prevention programmes are also more effective when they operate across differing environments such as family, school, peer and neighbourhood, and work to develop social norms which discourage problematic drug use ( Mosher and Yanagisako 1991).

The *Ottawa Charter for Health Promotion* (WHO et al 1986) outlines a range of potential strategies which can be used in drug prevention programmes. They are:

- building healthy public policy
- creating supportive environments
- strengthening community action
- developing personal skills
- reorienting health services.

One or more of these strategies should be used in drug prevention programmes. Wherever possible programmes should support common initiatives in other areas, such as regional or national campaigns. Programmes should be based on evidence of effectiveness, and evaluation should be built into development and delivery in order to ensure effectiveness.

## School-based drug prevention programmes

The Board of Trustees Report (1991) provides a valuable literature review of the effectiveness of school-based drug prevention programmes in the United States. These findings are summarised below.

- Most traditional prevention programmes have been based on the assumption that knowledge about drugs would preclude use. However, evaluations of programmes focusing on providing factual information as their primary strategy indicate that increased knowledge alone has virtually no effect.
- Effective cigarette-smoking prevention campaigns suggest some useful strategies. These strategies are based on social learning and problem behaviour theories, and focus on the psychosocial factors involved in starting to smoke.

Some investigators stress the importance of training students to deal with peer and media pressures. These approaches feature peer leaders as programme facilitators, or use role-playing and social reinforcement techniques to help students in developing peer resistance skills.

- Other researchers believe that youth must reduce their motivation toward abuse by their increasing personal and social competence, and by enhancing perceptions of the risks abuse poses to relationships, roles, or status that they value.
- A meta-analysis of 143 school-based drug prevention programmes for adolescents identified peer teaching as being highly effective in deterring drug use, particularly among junior high school students.
- Alternative programmes have proved successful in reaching high-risk youth with drug dependence, juvenile delinquency, or school-related problems. Two separate approaches are employed in the programmes. For mainstream youth, involvement in positive community activities with opportunities for recognition of good work achieved, have been effective. For those at special risk, individual needs are met through opportunities for remedial reading instruction, one-on-one relationships, job skills, and physical adventures.
- A popular prevention strategy is the mass media campaign. Although mass media campaigns are generally not effective in reducing behaviour indicative of substance abuse, they do raise public awareness, and are valuable reinforcers of information and skills taught in other drug education programmes.
- Student and employee assistance programmes, teacher training, and parent education are other ways in which schools, businesses and communities can address drug abuse.
- The best opportunity for gains exists through comprehensive community programmes. Considerable progress has been made in the United States as school-based programmes have extended strategies to include the community. The Midwestern Prevention Project, a longitudinal trial for primary prevention of tobacco, alcohol, and marijuana use in adolescents, documents such advances (Pentz et al 1989). In a broad-based approach, school, mass media, parents, community organisations, and health policy are critical components in a co-ordinated effort to reach those at greatest risk, at the time and place of risk.

## Issues in drug education

Goodstadt (1989) argues that there are many ways to conceptualise drug education. His paper highlights a number of issues in relation to drug education around what he calls eight dichotomies. His discussion is summarised below.

The first dichotomy Goodstadt raises is that between legal and illegal drug use. He argues, as discussed at the beginning of this paper, that this is not a helpful distinction and that comprehensive drug education is the best approach. This supports the argument for prevention programmes for multiple drug use.

Legal versus  
illegal drugs

## Abstinence versus responsible use

Goodstadt (1989) asks about the circumstances in which one can talk about the responsible use of a drug. Should abstinence be the objective of all adolescent drug education, including alcohol and tobacco? He argues that questions such as these are among the most contentious questions facing North American drug educators. (This may well also be the case in New Zealand.)

Goodstadt suggests abstinence is a reasonable and possibly a necessary objective of drug education. Advocating abstinence for those who have not begun to use drugs is reasonable, as delaying the use of drugs reduces both the probability of their use and the likelihood that such use will lead to problems.

Another approach, 'drug non-use', has recently received attention. Goodstadt describes it as, 'not merely the absence of drug use, but ... the choosing of an alternative set of behaviours as a source of gratification' (1989: 200). This approach uses strategies emphasising refusal skills.

Abstinence may be an inadequate objective for drug education, particularly in relation to substances such as alcohol where abstinence may only be until a young person is a certain age. It also may be inappropriate for current users. One alternative is the responsible use of drugs.

Responsible use of drugs has two possible connotations. It suggests either that people make decisions about their use of drugs, and that they should be encouraged to make personally and socially responsible decisions; or that people will use drugs, and that they should be encouraged to use drugs in a responsible fashion. The latter connotation has caused concern, especially with respect to illegal drugs – is it possible to talk about responsible use of a prohibited substance? Low-risk use has been suggested as an alternative objective, although this may still suggest that drug use is expected. Low-risk use might, however, be an appropriate objective for populations already using drugs, or that are very likely to try drugs in the near future.

## Supply reduction versus demand reduction

Goodstadt (1989) notes that governments have traditionally invested heavily in trying to limit the availability of illegal drugs. However, he suggests that a combination of supply reduction and demand reduction may be the best strategy.

In the New Zealand context (and not discussed by Goodstadt) the Crime Prevention Action Group, in 1993, estimated drug-related funding by Government departments and agencies. Drugs were defined as alcohol, prescription drugs of abuse, and illicit drugs. Tobacco was not included. Table 1 indicates that the majority of Government expenditure in this area was estimated to go on supply reduction.

TABLE 1: *Annual drug-related funding by New Zealand Government departments and agencies*

Strategy	\$m
Drug control enforcement	74.1
Treatment	34.4
Education	18.0

Source: *Crime Prevention Action Group 1993*

Price of the product is known to be an important factor with regard to rates of cigarette smoking (PHC 1994f) and alcohol consumption (Wette et al 1993). ‘Enforcement measures, while intended as a deterrent, serve to reduce supplies and thereby contribute to a relatively high price. While this can make trade more lucrative, it may also reduce consumption’ (R Henderson, personal communication, January 1996). There is a difficult balance to be struck between the likely reduction in harm due to higher prices and the likely increase in harm due to the increased incentive involved for growers.

Goodstadt (1989) points out that drug education is commonly directed at youth rather than adults, and for good reasons which include: drug use is considered a phenomenon of youth; primary prevention is most effectively focused on youth; and it is easier to reach young people through the schools.

However, Goodstadt argues that evidence indicates that drug use changes dramatically throughout the life-cycle. Adults, therefore, need to be targeted by drug educators. He sees this as a means of preventing drug abuse among adults, of facilitating desirable behaviour through role-modelling and promoting healthy drug-related attitudes and behaviours among youth, and of fostering healthy drug policies and programmes. After all, adults are the primary policy decision-makers. Goodstadt also argues that targeting only young people may make them feel scapegoated and may allow them to discount prevention programmes aimed solely at them.

Although peer pressure has been cited as a major factor contributing to drug use, research suggests that it is not as influential as frequently assumed. Goodstadt argues that the concept of ‘peer influence’ is more useful as it recognises that ‘students play an active role in shaping their own behaviors, and that peers can have a positive influence on each other’ (1989: 203). Goodstadt also acknowledges that adults, especially parents, are an ongoing important source of influence over children and adolescents.

Youth versus adults

Peers versus parents

Individuals  
versus  
environment

Both strategies aimed at individuals and strategies to change the environment in which drug use occurs are discussed. Goodstadt argues that environmental strategies hold promise, but require a careful analysis of environmental influences.

Education versus  
legislation

Goodstadt argues that education and legislation frequently appear to be used as alternative strategies. With regards to cannabis legislation, Goodstadt points out ‘there is evidence that anti-cannabis legislation in particular is ineffective as a deterrent and, on the other hand, liberalization of cannabis laws has not (in the United States) resulted in a significant increase in use of this drug’ (1989: 205).

Education: help  
versus harm

Goodstadt discusses the effectiveness of drug education programmes and concludes that the quality of the existing evidence does not allow us to draw definitive conclusions.

## Drug education in New Zealand schools

Goodstadt’s discussion provides valuable information about effective drug education and the issues that need to be considered in conducting it. In the New Zealand context, information and guidance for teachers on how to provide effective drug education in schools is detailed in *Drug Education: Guidelines for schools and boards of trustees* (Learning Media and the Ministry of Education 1991).

The *Healthy Schools – Kura Waiora* framework includes a comprehensive health promotion approach within which drug harm minimisation programmes in schools should occur (PHC 1995b). This is important for all schools, including Kura Kaupapa. The development of a *Healthy Schools – Kura Waiora* health promotion guideline on drug- and alcohol-related harm minimisation would assist schools develop a comprehensive health promotion approach. All drug harm minimisation programmes should support, and be consistent with, the curriculum being taught in schools. A new national curriculum statement on health and physical education is currently being developed which has a health promotion focus.

Evaluation of existing and new drug harm minimisation programmes brought into schools is imperative to ensure that they are effective.

## Workplace drug testing for cannabis use

When considering the issue of workplace drug testing for cannabis use the extent of cannabis use at work must be taken into account. The most reliable assessment of cannabis use at work was made in Black and Casswell's (1993) survey. Of the 12 percent of those surveyed who used marijuana in the last 12 months and had not stopped using, 89 percent reported never smoking marijuana at work.

This finding suggests that very few people are likely to use cannabis at work in New Zealand. This, when coupled with the current difficulty of assessing the level of an individual's cannabis impairment (discussed in more detail below), suggests workplace drug testing for cannabis use does not appear warranted. There may be exceptions in relation to safety sensitive situations where testing for cannabis is part of a comprehensive workplace programme to identify and address alcohol and other drug-related problems. These programmes are best initiated by employer and employee groups with advice from appropriate government agencies.

## Health education messages

Health education messages about cannabis should build on the community's knowledge of the adverse health effects of alcohol and tobacco. The risks of driving after using cannabis, especially when combined with alcohol, should feature in alcohol and road safety media campaigns. The respiratory risks of cannabis smoking should feature in health education material about tobacco smoking.

Messages should be given about the risks of using cannabis and operating machinery, and about the social and interpersonal effects of cannabis use.

The vulnerability of certain groups to cannabis should be highlighted.

- People with respiratory or heart disease, or a family history of these diseases, should be advised against smoking cannabis as they are presently advised not to use tobacco or abuse alcohol.
- People with schizophrenia, or a family history of the disorder, should be advised not to use cannabis to reduce their risk of experiencing psychotic symptoms or making their symptoms worse or harder to manage (Hall 1994).
- Women should be advised not to use cannabis during pregnancy or when trying to conceive as it may damage their fetus.
- People with alcohol or other drug dependence should be advised that they may be at increased risk of cannabis dependence.

In communicating the risks of dependence, it is necessary to be cautious of exaggerating risk among occasional users, by stressing that those at greatest risk are daily or near-daily users.

## Programmes for Māori to minimise cannabis-related harm

From a Treaty of Waitangi perspective the five components of the *Ottawa Charter* are (Messiter 1995: 29 adapted from Ropiha 1993):

- *‘Building healthy public policy means:*  
“Māori health has top priority from the highest political levels”
- *Creating supportive environments means:*  
“recognising and acting on Māori health concepts and practices”
- *Strengthening community action means:*  
“iwi Māori having control over their own health and being supported in this through the equitable access to health resources and the health dollar”
- *Developing personal skills means:*  
“facilitating empowerment through equitable access to training and education”
- *Re-orienting health services means:*  
“health services for iwi Māori and by iwi Māori”.

This may provide a helpful framework for developing health promotion programmes to minimise cannabis-related harm. Messiter focuses on iwi control in terms of strengthening community action and on health services for iwi Māori provided by iwi Māori. It should be noted that iwi may be viewed in the broadest sense as being inclusive, rather than exclusive, of whanau and hapū.

Despite limited research in the area of health promotion programmes to prevent or reduce cannabis use by Māori, there are papers which provide guidance. Ngata (1993: no page number) reminds us that the first issue to consider in developing such programmes should be the experience with programmes to reduce alcohol and tobacco consumption by Māori.

It is distressing to note that despite the growing body of scientific and epidemiological evidence linking tobacco with illness and premature death: and drinking and driving with accidental injury and death, young Māori are still taking up the smoking habit at two to three times the rate of their non-Māori cohorts and are continuing to drink and drive. ... If Māori are not taking on board the message to change attitudes and behaviour as well as acknowledge the very addictive nature of alcohol and nicotine, how are we going to take on board appropriate messages about cannabis?

Educational programmes to reduce Māori cannabis abuse are likely to be more effective if conducted by Māori, using their own networks and communication systems. Māori must purchase and provide culturally effective services. General strategies in the community or schools should complement this (Ngata 1993; PHC 1995a). Te Puni Kokiri (1993: 32) supports the call for educational programmes directed specifically at Māori, arguing for programmes to promote ‘the dangers of drug and alcohol abuse, with a particular focus on drug abuse and the contribution of cannabis to drug abuse and psychosis’.

Te Rarawa note overwhelming support for drug education in schools but also argue:

However there is also a great deal of support for drug education right ‘across the board’, in all areas and sectors of the community. During the talkback [one method of data collection] callers suggested integrating iwi, education, health, and justice and confronting cannabis use at every level of the community. Some suggested that the iwi be made the vehicle for information and co-ordination of a drugs strategy (Te Runanga o Te Rarawa 1995: 55).

Community development strategies are likely to be most effective in this context.

Long-term, group-based activity programmes have been seen to be more successful for Māori in reducing cannabis use. These should incorporate the sharing of knowledge and information, and developing skills to enable people to make informed choices and take responsibility for themselves (Ngata 1993). He continues (no page number):

It appears there are now a number of very good small community-based programmes emerging around the country embracing a holistic approach and a range of treatment, rehabilitation, counselling, and prevention services. Māori people are also becoming more involved at looking at the sorts of services they feel they need to help themselves, their whanau, hapū, or iwi.

Teaching and training institutions have begun to involve Māori in developing appropriate programmes to complement existing courses. Some have specific programmes run by Māori for Māori. A similar trend is seen in drug and substance-abuse prevention programmes aimed at young people. Activities and programmes that empower Māori with information, knowledge, and skills for successful parenting, anger control, and personal behaviour management, and enable Māori to take responsibility for themselves are more likely to be successful (Ngata 1993).

The Cannabis Working Party (Drugs Advisory Committee et al 1995: 8) argues that action aimed at reducing cannabis-related harm to Māori should be based on:

- ‘the principle and concept of kāti – that’s enough
- the principle of safety and protection – of mokopuna, rangatahi, whānau, hapū and iwi – from further harm, damage and distress caused by cannabis use
- the principles of prevention, health education and harm minimisation
- the principles of tino rangatiratanga where policies and programmes are developed and delivered by Māori for Māori.’

Ngata (1993) notes that one of the traditional strengths of Māori has been the role and influence of pakeke and kaumātua in maintaining harmony and balance in the whānau, and the transmission of information and knowledge. He advocates

harnessing this strength, as well as that of young parents, to ensure a clear and consistent message about cannabis is promoted across and between generations. Mataira adds that ‘the message must be conveyed in appropriate ways, starting with the knowledge people already have’ (P Mataira, personal communication, August 1995).

Ngata (1993: no page number) states:

I believe we could all be empowered by the mauri or essence of Kaati:  
That is enough; Kaati te kai tarukino: That is enough smoking cannabis;  
Kaati te mamae: That is enough pain or hurt; Kaati te maukino: That is  
enough abuse.

Mataira (1993) advocates four principles important to Māori to give strength to break from cannabis dependence.

- **Development from within.** Healing and development must come from within the community of the people who desire change, and this change must be largely directed by the people.
- **No vision, no development.** If the Māori people have no vision of human possibility beyond their present circumstances, they cannot expect to heal themselves.
- **Development of the individual and of the whanau go hand in hand.** Their strength directly contributes to the development and healing of the individual.
- **A life-long learning enterprise is required.** Māori must learn to live in the world as individuals, family units and communities in new ways.

Public health programmes for Māori should be monitored. Evaluation frameworks that can be used include the CHI culturally appropriate auditing model (PHC 1994d). The model consolidates earlier experience, adopts a holistic framework, and seeks to be interactive. Its primary purpose is to provide a framework within which provider contracts can be audited with respect to cultural appropriateness and health gains for Māori. The CHI model should be able to ascertain:

- how a health programme is related to positive Māori development
- what health gains can be expected for Māori in a health programme
- whether the programme is sensitive to Māori cultural beliefs and values.

**Public health programme issues:**

- **the need for health promotion programmes to reduce cannabis-related harm which recognise the needs of the following priority groups:**
  - youth (recognising that adult behaviour strongly influences this group)
  - Māori
  - women of childbearing age

- persons with mental illness
- persons with pre-existing diseases which increase risk of cannabis-related harm.
- the key elements of the programmes should include:
  - intersectoral collaboration, so programmes comprehensively address the wide variety of factors influencing cannabis-related harm
  - community level focus
  - association with broader drug programmes, such as those focusing on alcohol and tobacco
  - consistency with the principles of the Treaty of Waitangi
  - evaluation of programmes to ensure effectiveness.

## Personal health services

As primary care providers, general practitioners and associated workers have an important role in the early identification, treatment and referral of patients at high risk of, or engaging in, cannabis abuse. They are also well positioned to assist in anticipatory guidance, family support, education, and community action for avoiding or minimising cannabis abuse problems (Board of Trustees, 1991).

### Personal health service issues:

- the continuation of primary health care services for the early intervention, treatment and referral of persons at high risk of cannabis-related harm
- the continuation of support to primary health care workers in the early intervention, treatment, and referral of persons at high risk of cannabis-related harm, including introducing incentives for workers to undergo training in this area
- all pregnant women, and those women planning pregnancy, should be given advice on the possible risks of using cannabis, and people with pre-existing diseases likely to be affected by cannabis use should be advised of the risk.

New Zealand data show that alcohol and other drug disorders often coexist and that people often move from one substance to another. Given these high levels of coexisting disorders among clients of both alcohol and other drug treatment services, a unified approach to treating both disorders may have advantages (Bushnell et al 1994).

A recent inquiry in respect of certain mental health services (Mason et al 1996) confirmed a substantial amount of co-morbidity between drug/alcohol disorders and mental illness. It called for greater integration between drug/alcohol services and mental health services.

Primary care

Treatment services

**Personal health service issue:**

- **the continuation of cannabis abuse/dependence treatment services that are part of an integrated drug/alcohol and mental health service.**

Specific treatment services should also be available for youth as they need more specialised services. Evidence from a Central Regional Health Authority (CRHA 1995) youth needs assessment suggests that utilisation of existing services by youth is low in the central region of New Zealand. This may be the case in other parts of the country.

The CRHA found that young people wanted more drug and alcohol programmes targeted at them, especially at young men. These services needed to cover education and information on drug and alcohol use aimed at various age groups, outpatient treatment and assessment services, residential treatment, and assessment programmes. Programmes also needed to target young men who did not consider themselves at risk of abusing drugs and alcohol. The special characteristics and needs of young men should be taken into account when designing services.

**Personal health service issue:**

- **the continuation of age appropriate treatment services, especially those designed for youth.**

Māori are also likely to respond better to services acknowledging their particular cultural needs. The Te Rarawa report (Te Runanga o Te Rarawa 1995) comments on a general lack of education, counselling, and rehabilitative services in Northland. It also notes that there is a high demand for services by Māori for Māori. Young Māori in the central region wanted culturally appropriate counselling and drug and alcohol services which were low-cost, accessible, and holistic. Services should also be staffed by Māori health professionals (CRHA 1995).

**Personal health service issue:**

- **the continuation of culturally appropriate treatment services for Māori.**

The CHRA research also found that Pacific Islands young people wanted culturally appropriate services, although the importance of Pacific Islands health professionals delivering the service should be balanced by the need for providers with professional expertise (Vanderlanh Smith 1995).

**Personal health service issue:**

- **the continuation of culturally appropriate treatment services for Pacific Islands people.**

## Public health programme issues

### Population-based health services

The need for health promotion programmes to reduce cannabis-related harm which recognise the needs of the following priority groups:

- youth (recognising that adult behaviour strongly influences this group)
- Māori
- women of childbearing age
- persons with mental illness
- persons with pre-existing disease which increases risk of cannabis-related harm.

The key elements of the programmes should include:

- intersectoral collaboration, so programmes comprehensively address the wide variety of factors influencing cannabis-related harm
- community level focus
- association with broader drug programmes, such as those focusing on alcohol and tobacco
- consistency with the principles of the Treaty of Waitangi
- evaluation of programmes to ensure effectiveness.

### Personal health services

The continuation of primary health care services for the early intervention, treatment, and referral of persons at high risk of cannabis-related harm.

The continuation of support to primary health care workers in the early intervention, treatment, and referral of persons at high risk of cannabis-related harm, including introducing incentives for workers to undergo training in this area.

All pregnant women, and those women planning pregnancy, should be given advice on the possible risks of using cannabis, and people with pre-existing diseases likely to be affected by cannabis use should be advised of the risk.

The continuation of cannabis abuse/dependence treatment services that are part of an integrated drug/alcohol and mental health service.

The continuation of age-appropriate treatment services, especially those designed for youth.

The continuation of culturally appropriate treatment services for Māori.

The continuation of culturally appropriate treatment services for Pacific Islands people.

# Research and Information Issues

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## Research

### General

Lack of evidence on the relationship between cannabis and health and the effectiveness of policies and programmes to deal with cannabis use is a major limitation in this whole area. Research across the range of issues is needed to improve this situation.

Research should include:

- the study of environmental factors associated with cannabis abuse
- the interaction of those factors with each other and with factors specific to cannabis and the user, including the role of broader economic, political, and social forces in cannabis problems (Mosher and Yanagisako 1991).

Previous research has identified much information about the interplay of personal behaviour, risk factors, and health in the prevention of substance abuse. One unanswered matter, however, is why some individuals seem predisposed to dependence on drugs while others do not (Board of Trustees 1991).

Although there are studies demonstrating the short-term effectiveness of some prevention approaches, the Board of Trustees was unsure whether these techniques are effective in producing lasting reductions in substance abuse. Similarly, it did not know whether prevention techniques effective with younger, more malleable youth may be less effective with older, or more rebellious, adolescents (Board of Trustees 1991).

Research is needed to determine how behavioural choices are made and subsequently altered, and how information can be effectively provided to specific individuals or population groups (Board of Trustees 1991).

Finally, existing drug programmes should be evaluated and amended in the light of those evaluations, to ensure effective service delivery.

### Māori

There is a specific need for research on cannabis use by Māori and on effective strategies to prevent or limit cannabis-related harm. In particular, research is needed on the prevalence and incidence of cannabis use in the Māori community and its effect on mental health and wellness (Bushnell et al 1994). Rigorous research, controlled by Māori, conducted by Māori researchers and using a Māori research framework, will reflect the Māori reality in this context.

Lack of research also hampers conclusions on the relationship between marijuana use by Māori and schizophrenia, or other psychoses and affective disorders. The relatively higher use of marijuana by Māori and the high incidence of schizophrenia and other psychoses in Māori suggest that marijuana may be one of the variables aggravating psychological disorders. Similarly, research is lacking on the effect of cannabis on the airways, lung function, reproductive and genetic health of Māori (Ngata 1993).

Further, evaluation of existing Māori community-based harm minimisation programmes is needed to enable purchasers to purchase effective services.

Bailey (1993) outlines the difficulties in carrying out epidemiological and case control studies linking cannabis to motor vehicle crashes.

## Motor vehicle crashes

### *Problems with epidemiological studies*

It is now widely recognised that urine samples are not reliable measures of intoxication from cannabis. Bailey (1993: 4) notes, ‘cannabis metabolites persist in urine for weeks after smoking, making almost impossible the interpretation of the results relating to cannabis smoking shortly before an accident. Therefore, only studies based on blood samples are considered’.

### *Problems with case control studies*

- It is difficult to obtain useful drug data on drivers in crashes. Blood samples taken must be timely, since the impairing effects of cannabis last only a few hours.
- Obtaining an unbiased sample is difficult, since many drivers refuse to consent to a sample, particularly when an illicit substance is involved.
- Obtaining samples from a comparable control group of non-crash drivers is also difficult because of the illicit nature of cannabis. Attempting to get blood samples could also result in a high refusal rate because it is invasive. Saliva sampling may offer a useful alternative since it is non-invasive.
- Analysing relative crash risks for specific drugs is also difficult. Many authors have employed culpability analysis. This determines the proportion of a group of drivers killed or injured who were responsible for the crash they were involved in. A comparison shows whether drivers with both cannabis and alcohol in their body are more at fault than drivers with alcohol only, cannabis only, or neither drug. Since a high proportion of all fatally injured drivers are at fault, and the proportion at fault is about 90 percent for drinking drivers, it is statistically difficult to prove a significant difference for drivers using both cannabis and alcohol. The analysis for drivers using cannabis only is also difficult, because typical sample sizes of drivers using cannabis and no alcohol is very small. Culpability analysis tends to give more conclusive results when applied to groups of non-fatally injured drivers.

Despite these difficulties, research on the links between cannabis and/or alcohol and motor vehicle crashes is needed in New Zealand. Research to develop a reliable means of determining the level of cannabis impairment would be valuable.

**Research issue:**

- **the need for research on the following:**
  - **the environmental factors associated with cannabis abuse (including economic, political and social forces), and their interaction with factors associated with cannabis the drug, and the user, for non-Māori and Māori**
  - **the factors determining predisposal to cannabis/drug dependence, for non-Māori and Māori**
  - **the effectiveness of cannabis/drug harm prevention approaches, for non-Māori and Māori**
  - **the determinants of behavioural choices regarding cannabis/drug use, for non-Māori and Māori**
  - **the links between cannabis use by Māori and psychological/physical disorders, including comparison with non-Māori**
  - **the health effects of cannabis, including the linking of cannabis/alcohol and motor vehicle crashes, for non-Māori and Māori.**

## Information

In its consensus statement on healthy public policy for alcohol and other drugs, WHO (1988: 3) argues, ‘Although patterns of alcohol and drug problems vary from country to country there is a need for all countries to recognise the international influences on drug-related problems.’ In this context, WHO argues for ‘the development of comparable national data on trends in drug use and related problems; information to monitor change and predict future trends; exchange of materials, research findings, experience and personnel.’ New Zealand has a role to play in developing its own national data and in ensuring appropriate exchanges with other nations.

Improved ethnic data on cannabis use and problems is needed, especially regarding Māori, to enable an accurate appraisal of the extent and nature of the problem within the different ethnic groups. Youth-related data is also of major importance.

Surveys consistent with Black and Casswell’s (1993) study should be conducted by the years 2000 and 2005 to update current patterns of drug use, along with other pertinent information, including prevalence trend data necessary to monitor the targets set in this paper. These repeat surveys should also have a nationally representative sample. Drug use by specific ethnic groups, including use by Māori, must be included. Māori data of at least the same order as Black and Casswell should also be gathered, within a Māori research framework and controlled by Māori, by the years 2000 and 2005.

### Information issues:

- **internationally comparable data on trends in cannabis use and related problems need to be developed and monitored, with particular attention to ethnic data, especially Māori, and youth-related data**
- **periodic surveys of drug use in New Zealand. These should be consistent with Black and Casswell’s study, should include use by specific ethnic groups, especially Māori, but should also have a nationally representative sample. Māori data should be gathered within a Māori research framework and controlled by Māori.**

## Research and information issues

### Research

Research concerning the following is required:

- the environmental factors associated with cannabis abuse (including economic, political, and social forces), and their interaction with factors associated with cannabis the drug, and the user, for non-Māori and Māori
- the factors determining predisposal to cannabis/drug dependence, for non-Māori and Māori
- the effectiveness of cannabis/drug harm prevention approaches, for non-Māori and Māori
- the determinants of behavioural choices regarding cannabis/drug use, for non-Māori and Māori
- the links between cannabis use by Māori and psychological/physical disorders, including comparison with non-Māori
- the health effects of cannabis, including the linking of cannabis/alcohol and motor vehicle crashes, for non-Māori and Māori.

### Information

Internationally comparable data on trends in cannabis use and related problems need to be developed and monitored, with particular attention to ethnic data, especially Māori, and youth-related data.

Periodic surveys of drug use in New Zealand. These should be consistent with Black and Casswell’s study, should include use by specific ethnic groups, especially Māori, but should also have a nationally representative sample. Māori data should be gathered within a Māori research framework and controlled by Māori.

# Summary of Benefits

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- Prevention of possible cannabis-related motor vehicle accidents, particularly when cannabis is combined with alcohol, or other accidents, resulting in death and injury to the user and others. Consequent savings in health spending for treatment.
- Prevention of cannabis-related health risks to the user including: respiratory problems, cognitive impairment, acute cannabis psychosis, cannabis dependence, and possible exacerbation of psychotic symptoms and schizophrenia in vulnerable persons.
- Increased productivity in the workforce from less illness and better work performance.
- Building a better educated society as a result of fewer cannabis-impaired youth having their school performance limited.
- Prevention of cannabis-related harm to others including: harm to the unborn child, harm to inter-personal relationships, financial strain on families, harm due to violence and harm from passive cannabis smoking. Healthier communities will result.
- Lessening strain on the mental health system by lowering admissions for treatment of cannabis abuse/dependence. Consequent saving in health spending. Freeing up mental health resources for other activity.
- Prevention of cannabis-related harm among Māori and enhanced health gains for whanau, thereby improving health status and reducing inequity with Pākehā.
- Re-focus of Police activity from dealing with cannabis-related offences to more positive activities. Consequent prevention of harm to the individual from contact with the legal system. Potential financial savings relating to Police and Justice activity and freeing up resources for other activity.

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# Glossary

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**Acute effects:** The effects that follow use of one dose of the drug or one occasion. The effects will differ from time to time in individuals, and will also differ between individuals.

**Affective:** Relating to emotions or feelings.

**Anergy:** Diminished reactivity to specific antigens (substances capable of inducing an immune response).

**Bronchitis:** Inflammation of the linings of the bronchial tubes. These are the main forks of the large airways of the respiratory system.

**Cannabis:** A generic name for a variety of preparations from the plant *Cannabis sativa*.

**Cannabis abuse:** Periodic cannabis use and intoxication. This can interfere with performance at work or school and may be physically hazardous in situations such as driving a car.

**Cannabis dependence syndrome:** The continued use of cannabis despite adverse personal and social consequences. The cannabis user behaves as though the effects of the drug are needed for their continued wellbeing. Dependence exists in varying degrees. It is similar to other drug dependence syndromes.

**Chronic effects:** The effects that follow the ongoing, long-term use of the drug.

**Cognitive:** Dealing with knowing, perceiving, or conceiving.

**Cognitive impairment:** Damage to cognitive functions. This is indicated by the following kinds of symptoms: forgetting, able to be easily distracted, problems in paying attention and in concentrating as well as with memory, problems in putting together complex information, problems in focusing attention, and with ignoring irrelevant information.

**Committed:** Receiving compulsory psychiatric treatment.

**Co-morbidity:** Suffering from more than one disease/disorder.

**Conduct disorder:** A pattern of problem behaviour that is characterised by aggressive and/or non-aggressive conduct such as fighting, truancy, stealing and vandalism.

**Current users:** Those who have used cannabis in the last 12 months and not stopped using.

**Euphoria:** A feeling of wellbeing.

**Frequent users:** Those who have used cannabis 10 or more times in the last 30 days.

**Hapū:** Sub tribe.

**Hashish:** Dried resin and compressed flowers of the cannabis plant. THC content is generally between 2 and 8 percent, but can be as high as 10 to 20 percent.

**Hash oil:** A viscous or gummy substance made by extracting soluble substances from leaves and flowering tops of the cannabis plant and concentrating the extract. This is the strongest cannabis preparation. The THC content of the New Zealand oil is generally between 10 and 20 percent, but varies between 5 and 50 percent.

**Heterogeneous:** Diverse in character.

**Hypomaniac:** Characterised by overactive behaviour and racing thoughts.

**Hypoxia:** Oxygen deficiency. This occurs when the cells do not have, or are unable to utilise, sufficient oxygen to carry on their normal functions.

**In-patient:** Person receiving treatment from a health service and staying at that service for more than a 24-hour period.

**Intersectoral:** Involving various sectors of society – government (health, education, welfare etc), community organisations (Rotary, Lions etc) and the general public/individuals.

**Iwi:** Tribe.

**Kāti:** That is enough; stop it!

**Kaumātua:** Wise and experienced older members of the whānau.

**Lifetime prevalence:** (of a disorder) The proportion of the population affected at some stage of their lives.

**Marijuana:** Dried leaves, flowering tops and small stalks of the cannabis plant. THC content is generally between 0.5 and 5 percent, but varies between 0.1 and 10 percent.

**Mate wairua:** Sickness of the spirit.

**Mauri:** Life force, spirit.

**Mokopuna:** Grandchild.

**Myalgia:** Muscular pain.

**Non-dependent abuse:** (Of drugs) cases where a person, for whom no other diagnosis is possible, has come under medical care because of the maladaptive effect of a drug on which they are not dependent and that they have taken on their own initiative, to the detriment of their health or social functioning.

**Non-confrontational stealing:** Stealing that does not involve threat or force against a victim.

**Pakeke:** Adult.

**Passive inhalation:** Inhalation of smoke and its contents by individuals not smoking at the time, but who take into their airways smoke drifting from other people's cigarettes.

**Perceptual:** Dealing with how the mind refers its sensations to external objects.

**Photo-phobia:** Abnormal visual intolerance to light.

**Poly-drug use:** A pattern of use of more than one drug.

**Psychoactive:** A description of the type of drugs that affect mood, perception, thought processes and consciousness. People generally take psychoactive drugs with the intention of achieving euphoria, to improve their mood, and to relax.

**Psychoses:** Recognised psychiatric conditions. Psychoses are characterised by marked impairment of behaviour and a serious inability to think coherently, and to understand reality.

**Perceptual motor co-ordination:** (Sometimes called motor performance.) The ability to perform skilled movement (eg, tasks involving eye/hand co-ordination).

**Rangatahi:** Young adult.

**Remission:** Decline of the symptoms of a disease.

**Respiratory disease:** Disease of the airways and lungs (eg, pneumonia, emphysema, also coughs).

**Rohe:** Boundary.

**Schizophrenia:** Any of a group of severe emotional disorders, usually of psychotic proportions, characterised by withdrawal from reality, delusions, hallucinations, ambivalence, inappropriate affect and withdrawn, bizarre, or regressive behaviour.

**Short-term memory:** Memory for events that have just occurred. Loss of short-term memory will affect recall of recent events.

**Taonga:** Treasure, special possession.

**THC:** Delta-9-tetrahydrocannabinol – the primary psychoactive constituent in cannabis.

**Tino rangatiratanga:** Self-determination.

**Tohunga:** Healer.

**Whānau:** Family.

**Whakapapa:** Genealogy.

# Submissions Received on the Draft of *Cannabis*

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Accident Rehabilitation and Compensation Insurance Corporation (ACC)

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Ministry of Youth Affairs

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New Zealand General Practitioners' Association Inc

New Zealand Nurses' Organisation

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# Address to Send Comments

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