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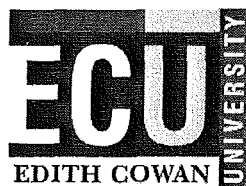
child health

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**Trans-adaption of Successful Cigarette Smoking
Intervention to Randomised School-based Cannabis
Intervention Trial**

**Annual Report Presented to
The Western Australian Health Promotion Foundation
May 2004**



Annual Report to Healthway

File Number: 10567

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Research
Curtin University

Grant Title: Trans-adaption of Successful Cigarette Smoking
Intervention to Randomised School-based
Cannabis Intervention Trial

Project Name: The Marijuana Education Project

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ABSTRACT

Despite the emergence of cannabis use as a public health issue of significance in the 21st Century, no school-based interventions specifically addressing cannabis use have been reported in the literature. The prevalence of adolescent cannabis use has risen during the 1990s while the age of onset has decreased. This three-year trial seeks to trans-adapt a successful school-based cigarette smoking program underpinned by harm minimisation (HM) theory (including abstinence messages), into a school-based cannabis intervention trial. This innovative intervention will be compared to the largely abstinence-based drug use prevention activities currently used in WA.

The first and second years of the project have been successful in establishing and conducting this school-based cluster randomised control trial. In summary, under the direction of an experienced management team, the project has recruited 24 Perth metropolitan high schools – the required number to provide sufficient power to detect hypothesised differences between intervention and comparison students. Within these schools, active parental consent to participate in data collection for the project was obtained from over 3,300 students after the initial letter and two reminders to parents (69% consent rate). Baseline data were collected from nearly 3,100 students (93% of those eligible), 2953 students at post-test 1 and 2701 students at the end of the second year of intervention (Post-test 2). In addition, data were collected at each of these time points from English and Health Education teachers, and school principals.

The two-year multi-component intervention was developed and implemented in 12 randomly selected high schools. The Health Promoting School intervention includes strategies for: i) “prevention/refusal” to assist students who have never used cannabis to remain that way or at least delay initiation; ii) “cessation” to help current users; iii)

“reduction” to reduce use and harm to current users and prepare them for future cessation; and iv) “assistance” to provide peers with support for their cessation/reduction efforts. The classroom intervention has been delivered through two Learning Areas (English and Health Education) and is reinforced by policy, school nurse, school chaplain and parental components.

The impact of the intervention has, and will continue to be, assessed through post-test questionnaires conducted late in 2002 and 2003 and followed up in 2004. English and Health Education teachers, school nurses, school chaplains and school principals will provide information regarding their implementation of the intervention as part of this process evaluation.

Dissemination of results from this project has been modest in 2002 and 2003, local seminars, national and international conference presentations and publications in peer-reviewed journals will be used to diffuse the findings in future years. If successful, methods for disseminating the intervention more widely will be explored with key local, national and international stakeholders in Western Australia.

1. OBJECTIVES

The aim of the Marijuana Education Project is to implement an innovative school-based cannabis harm minimisation intervention and compare this in a randomised control trial to the largely abstinence-based general drug prevention curriculum currently used in Western Australian schools. The intervention will build on the successful approach used in the Smoking Cessation for Youth Project (SCYP).

Primary outcome objectives:

- To reduce frequent cannabis use (in the previous 7 days) among students receiving the harm minimisation intervention relative to those receiving abstinence-based programs.

Secondary outcome objectives:

- To ensure the rate of ever cannabis use does not increase among students receiving the harm minimisation intervention relative to those receiving abstinence-based programs.
- To reduce heavy cannabis use (3 or more times/week) among students receiving the harm minimisation intervention relative to those receiving abstinence-based programs.
- To reduce reported involvement in other problem behaviours among students receiving the harm minimisation intervention relative to those receiving abstinence-based programs.

In addition, this project will provide important information about the predictors of cannabis initiation and transition to frequent use and the role schools play in these processes. Cannabis-related harm will also be quantified and the impact of the intervention on these measures will be evaluated.

2. INTRODUCTION

Cannabis use is of increasing public health significance in the 21st Century and more research is required to develop rational responses to the problem.¹ The prevalence of cannabis use among Australian school-aged youth has increased during the 1990s.^{1,4} Of perhaps greater significance, the age of onset of cannabis initiation is decreasing.^{1,4} Earlier onset of cannabis use has been associated with increased risk of developing drug-related problems and their associated morbidities.⁵

Over two-thirds of Western Australian students have experimented with cannabis by age 17.⁶ In 1996, 54% of 15 year olds had ever used cannabis, 24% had used it in the previous week, with 12% using it three or more times in the previous week.⁶ Prevalence among 12 year-old students (early Year 8) is still relatively low (16% ever used, 4% in previous week and 1.5% three or more times in previous week), providing an ideal time to commence intervention.⁶

Students' perceptions of the risk of cannabis use are strong predictors of use. A downturn in both perceived risk and disapproval between 1992 and 1996 has been associated with increased cannabis use.^{7, 8} Further, increases in the social acceptance of cannabis⁹ may compound students' relatively low perception of harm resulting from cannabis use. With 86% of current cannabis users obtaining the drug from friends or acquaintances and 80% using it in friends' homes, interventions targeting only access and opportunity to use cannabis appear to have limited effectiveness.²

Although cannabis is perhaps the least harmful of the psychoactive drugs,¹⁰⁻¹³ the behaviours associated with its use are likely to compromise the health status of young people who continue to use this drug. Among frequent users, mental health co-morbidities

may result if regular use continues after the teenage years.¹⁴ Educational attainment is poorer and school drop-out more likely among teenage cannabis users than their non-using peers.^{5, 15, 16} Cannabis use is also associated with a number of 'deviant' behaviours including illicit drug use, truancy, delinquency, and unsafe sexual practices.¹⁷⁻²⁴ Explanations appear to relate to the social context in which cannabis use occurs.

As Western Australia moves towards reducing penalties for possession of small amounts of cannabis, education regarding cannabis use will become increasingly important. In the Netherlands where harm minimisation policy has led to de facto legalisation and regulation of cannabis use, school-based education forms an integral part of the drug strategy.^{10, 12} The philosophy behind this policy is the "separation of drug markets". One of the negative consequences of an abstinence-only based approach is the possible marginalisation of drug users to where antisocial and health compromising behaviours are more prevalent, and normative (i.e. the clustering of problem behaviours). In effect, the goal of drug separation in the Netherlands is to keep cannabis use an isolated behaviour, in an isolated social environment, and prevent progression into other drugs and entry into destructive social networks. While the prevalence of cannabis use among teenagers in WA has risen to 27%⁹ during the 1990s, cannabis use amongst Dutch teenagers has declined to below 10%.^{13, 25}

School-based illicit drug intervention trials have been inconsistent in altering drug use behaviours, however, none have focused specifically on cannabis and few have been based on HM theory. The Marijuana Education Project seeks to adapt the successful Smoking Cessation for Youth Project harm minimisation smoking intervention to a cannabis intervention.

3. PROGRESS

Project Management

The project management team responsible for the day-to-day administration of the project consists of (members of the Child Health Promotion Research Unit unless otherwise indicated):

- Dr Greg Hamilton (Otago University, NZ)
- Professor Donna Cross
- Professor Ken Resnicow (Emory University, USA)
- Dr Shelley Beatty (Edith Cowan University)
- Dr Nyanda McBride (National Drug Research Institute, Curtin University)
- Ms Therese Shaw
- Ms Tommy Cordin
- Ms Lisa Cooper (Curtin University)

In addition, consultation with key school, adolescent and drug services stakeholders has been conducted. The following people have been consulted regarding instrument development and intervention development:

- Dr Steve Allsop (Drug and Alcohol Office, Department of Health)
- Professor Sven Silburn (Centre for Developmental Health, Institute for Child Health Research and Curtin University)
- Ms Susan Liewers (Drug and Alcohol Office, Department of Health)
- Ms Sue Dimetrovich (School Drug Education Project)
- Ms Lorel Mayberry (School Drug Education Project)
- Ms Fiona Farrington (National Drug Research Institute, Curtin University)
- Dr Simon Lenton (National Drug Research Institute, Curtin University)

Recruitment and Study Design

Recruitment of schools to the study was conducted late in the 2001 school year and in January / February of 2002. Schools were stratified by student numbers (large / small) and socio-economic status (low / medium / high) according to SEIFA postcode values, and randomly selected to participate on a proportionate basis.²⁶ Seven schools declined to participate, primarily due to their involvement in other programs. These schools were replaced by schools randomly selected from within the same strata. In total, 35 schools were approached until the sufficient school / student numbers were achieved, with four schools undecided about their participation at the time of reaching an adequate sample size. After attaining an adequate sample of schools, schools in each stratum were randomly assigned to intervention or comparison groups. All schools recruited into the study in the first year, remained in the cohort for the second year of the study.

This study is a two-year intervention trial with a subsequent year of non-intervention follow-up. The design of the study is represented below in Table 1.

Table 1 Data collection and intervention implementation schedule

Condition	Baseline Year 8 (May '02)	Interv'n Phase 1 (Year 8)	Posttest 1 Year 8 (Nov '02)	Interv'n Phase 2 (Year 9)	Posttest 2 Year 9 (Nov '03)	No interv'n Year 10	Posttest 3 Year 10 (Aug '04)
Harm Reduction Program	O ₁	X ₁	O ₂	X ₃	O ₃	-	O ₄
Standard Abstinence-based Program	O ₁	X ₂	O ₂	X ₄	O ₃	-	O ₄

O = Observation

X₁, X₃ = MEP intervention

X₂, X₄ = Standard intervention

Intervention Materials

Four major intervention resources were produced in the second year of the project: the Year 9 English teacher manual; the Year 9 Health Education teacher manual; the School Nurse manual and a School Chaplain manual. Following feedback from schools at the end of the first year of the study, a manual for school Chaplains was developed and distributed to all intervention schools in the second year. The Chaplain's resource was based on the school nurse manual, and provides an introduction to the program, techniques for motivational interviewing, background notes, information about the potential role of the school Chaplain in reducing harm from marijuana use and support agencies and activities available to schools and Chaplains. In addition, intervention school principals were provided with a document outlining the intervention and suggesting how school policy and practices could support this intervention.

A feature of the intervention resources was the interactive process used to develop these. In a process first trialed in the Smoking Cessation for Youth Project (SCYP), as well as seeking expert input, teachers and nurses involved in delivering the intervention were given direct input into the final version of these materials. Draft activities were modeled using an experiential approach at the training sessions. At the completion of each activity, participants discussed the activity and provided in-depth feedback regarding improvements that could be made to the activity. At each subsequent training the 'improved' version was presented allowing further review. This allowed teachers implementing the program to have significant input into the final version of the materials. It was hypothesised that this input would increase teacher ownership of the program leading to greater implementation quantity and fidelity.

In the second year of the study, focus groups were held with selected Health Education and English teachers who had taught the program in the previous year. These focus groups aimed to determine teachers use and satisfaction with the previous year's intervention materials and seek their ideas for improvement of the classroom curriculum and parent and whole-school components. Feedback from these focus groups helped refine the resources

for the second year of the study, and were responsible for the introduction of a resource for school Chaplain's.

In the second year of the study, the school nurse resource was reprinted and distributed to new school nurses at each intervention school. This resource contained components to assist nurses to address students' needs regarding marijuana use on an individual level (using interviewing and worksheet approaches based on motivational interviewing) and to assist parents to address marijuana use with their children (via newsletter items and direct mail to parents whose children had problems related to marijuana use at school). Materials targeting parents aimed to provide them with strategies to improve their communication about the issue with their children and provided information about where further support could be obtained. These parent materials were refined and four new newsletter items were developed in the second year based on feedback from staff at the end of the first year of the study.

The timetabling of teacher training was problematic due to the array of commitments in which schools were involved. In total, four full training sessions for English and Health Education teachers and one for school nurses and school chaplains were conducted. Each training session aimed to develop a common understanding of a harm minimization approach to reducing cannabis use and to provide practical input into the development of the final curriculum and whole-school materials.

At the time of recruitment into the study, comparison schools were offered a one day bullying workshop for up to three staff at their school, with paid teacher relief for one staff member. These workshops were held in the latter half of the second year of the study.

Both comparison and intervention schools were presented with a summary report of post-test 2 results of the entire student cohort for cannabis and other drug use behaviours as well as predictors of cannabis use. These results stressed the confidential nature of the information and contained each school's results compared with the entire student population of other participating schools (see Appendix 1). Reports did not contain the

school's name, only an identification code. These reports are an important strategy to ensure an ongoing partnership with schools.²⁷

Instrumentation

A range of instruments was developed, pilot tested and administered in the second year of the project. These instruments included:

- Post-test 2 student questionnaire (Appendix 2);
- Post-test 2 Health Education teacher questionnaire (Appendix 3);
- Post-test 2 English teacher questionnaire (Appendix 4);
- Post-test 2 Health Education teacher telephone interview (Appendix 5);
- Post-test 2 English teacher telephone interview (Appendix 6);
- Post-test 2 English teacher log (Appendix 7);
- Post-test 2 Health Education teacher log (Appendix 8);
- Post-test 2 school nurse interview (Appendix 9);
- Post-test 2 school chaplain interview (Appendix 10);

A student measure of self-reported depressive symptoms was taken at each data collection point using the Centre for Epidemiologic Studies Depression Scale (CES-D). These data were analysed to determine students at risk of depression using a cut off of 40 to identify students at 'high risk' of depression. In total, 172 students were identified at either baseline or post-test 1 as having elevated scores for depression and a further 27 students reported these elevated scores at both of these time points. A further 84 students were identified as 'at risk' using the same measure at post-test 2. A letter was sent to the parents of each of these students notifying them of their child's responses to the questionnaire, and providing contact details of a trained psychologist to whom they could talk with regarding their child's results.

Summary of Tasks Completed in 2003

The following tasks were completed during the second year of the program.

Recruitment

- Twenty-four schools re-recruited after completion of Year 1 of the study.
- Just over 2700 students completed post-test 2 questionnaires.
- Approximately 152 English and 114 Health Education teachers participated.
- Twelve school-based nurses participated.
- Eleven school chaplains participated.

Intervention Materials

- Health Education and English classroom intervention designed and implemented.
- Post-test 1 process data were analysed and incorporated in the development of the second year intervention materials.
- Focus groups conducted with English and Health Education teachers to help inform the development of all Year 2 materials.
- School nurse materials providing one-on-one and parental approaches.
- Input from school nurses was incorporated into their materials.
- School chaplain resource developed based on focus group feedback
- Materials suggesting how school policies and practices could support this intervention.

School Reports

- Individualised, de-identified reports with information about cannabis and other drug behaviours and their predictors were provided to all schools allowing comparison with the entire cohort.

Data Management and Analysis

- Post-test 1 data were entered, cleaned and preliminary analyses conducted.
- Post-test 2 data were collated and entered and were being analysed at the time of submission of this report.

Margaret River SHS

- Margaret River Friends of the Institute project commenced.
- Support received from the community with one community meeting and training sessions held in Margaret River during 2003.
- Data collected from students during 2003.
- Implementation of the intervention materials has been delayed by one year.

4. RESULTS

The following results were obtained from the post-test 2 surveys administered in October / November of 2003. Questionnaires were completed by 2701 students (87% retention rate). Among all students in this study, 50% were male, 87% were aged 14 years old, 8% 13 years old, with the remainder aged 12 through to 16 years.

Drug Use Behaviours

Table 2 illustrates cigarette smoking, alcohol, marijuana and other illicit drug use reported by all students. For the majority of the illicit drugs, the numbers of students indicating they had used these drugs were small. Compared with 1999 Western Australian Department of Health data, ever cigarette smoking was lower while more frequent smoking and all levels of alcohol use were similar^{1,2} (an age/year breakdown of illicit drug use is not provided by the Department of Health). Differences may reflect the differing times of the year when each survey was conducted.

No real differences existed between males and females for smoking, drinking alcohol or ever using marijuana than females. Drug use behaviours were highly likely to occur together. Students who had used marijuana in the last four weeks were 12 times more likely to have also drunk alcohol in the last four weeks and 27 times more likely to have smoked cigarettes in the last four weeks.

Table 2 Students' drug use behaviours

Drug Use Behaviour	Level of use	May 2002	November 2003
		Percentage All students (n=3113)	Percentage All students (n=2701)
Cigarette Smoking	Ever smoked (even a puff)	31	41
	Smoked in last 12 months	20	26
	Smoked in the last 4 weeks	9	11
	Smoked in the last week	6	8
Alcohol	Ever drunk alcohol	66	80
	Drunk alcohol in past 4 weeks	39	52
	Drunk 5+ standard drinks at a time in last 4 weeks	21	29
Marijuana	Ever used	14	26
	Used in past 12 months	9	20
	Used in past 4 weeks	6	12
	Used in last 7 days	3	7
Solvents (eg glue)	Ever used	5	5
Ecstasy	Ever used	2	4
Heroin	Ever used	1	2
Amphetamine	Ever used	3	6
Cocaine	Ever used	2	3
LSD	Ever used	1	4

Perceptions Related to Drug Use

Perceptions of alcohol use by peers were relatively high with 43% of students reporting they believe 'a lot' or 'all' of their friends used alcohol. These proportions decreased to 20% for cigarettes, 20% for marijuana and 3% for other illicit drugs (Table 3). The majority of students indicated they would not accept offers for cigarettes, marijuana and illicit drugs from friends. However, students were less certain of their responses to alcohol with approximately 20% indicating they were unsure and over half indicating they would accept such an offer. Concern over friends' use was greater for other illicit drugs, followed by marijuana, cigarettes with relatively few (6%) indicating they would be 'very concerned' about their friends' use of alcohol.

Table 3 Attitudes related to drug use

Drug	May 2002 Percentage			November 2003 Percentage		
	Perception of friends' use – 'a lot' or 'all'	Concern over friends' use – 'very concerned'	Willing to try if offered – 'yes'	Perception of friends' use – 'a lot' or 'all'	Concern over friends' use – 'very concerned'	Willing to try if offered – 'yes'
Alcohol	27	12	33	43	6	53
Cigarettes	18	22	14	20	16	17
Marijuana	12	38	12	20	25	23
Other illicit drugs	3	72	2	3	63	4

Factors Related to Marijuana Use

To the best of their knowledge, eleven percent of students indicated that their parent/s used marijuana (Table 4). In addition, 27% of the sample identified they had a sibling who used marijuana.

Most commonly, students indicated that it would be easy to obtain marijuana. Among all students, 13% perceived it would be either 'very hard' or 11% perceived it would be 'hard' to obtain marijuana. However, 27% felt it would be 'easy' and 24% 'very easy' and 25% were unsure as to how hard it is to obtain marijuana. While only ten percent of students indicated they would be using marijuana in one year, a further 20% demonstrated a lack of commitment (a risk factor) answering they were unsure if they would be using marijuana in one year.

Table 4 Risk factors for marijuana use

Risk factor	May 2002 Percentage	November 2003 Percentage
	All students (n=3113)	All students (n=2701)
Parents' marijuana use	8	11
Siblings' marijuana use	20	27
Ease of obtaining marijuana		
Very hard	33	13
Hard	19	11
Easy	27	27
Very easy	21	24
Unsure	0	25
Will be using marijuana in one year		
No	75	70
Unsure	18	20
Yes	7	10

Students reported their school results from their last report. While this measure is subjective, it may help to define their involvement and perceived success in school. As evidenced in Table 5, most commonly students reported receiving high grades (42%). The majority of students (68%) indicated they had been absent between 1 and 10 days of school in the term. Lower grades and increased absence from school are both correlated with increased risk of using marijuana within the last four weeks.

Table 5 School factors

Risk factor	May 2002 Percentage	November 2003 Percentage
	All students (n=3113)	All students (n=2701)
Results on last report		
Very high	18	14
High	46	42
Average	33	39
Low	3	4
Unsure	0	1
Days of school absent in previous term		
None	26	6
1-3 days	48	35
4-10 days	20	33
More than 10 days	7	18
Unsure	0	9

Students were asked about a series of ‘problem behaviours’ as these are known to be related to marijuana and other drug use and may reflect greater levels of disconnection from school and family. Table 6 illustrates responses to these questions. Few students indicated they had been involved in the majority of the ‘problem behaviours’. The most common negative behaviours were ‘getting into trouble at home’, having a ‘disagreement or argument with parents’ and ‘losing temper or getting really angry’.

Table 6 Participation in ‘problem behaviours’

‘Problem behaviour’	May 2002	November 2003
	Mean number of times All students (n=3113)	Mean number of times All students (n=2701)
Stolen something from a store or person (even if it was only worth a little money) (past month)	0.5	0.4
In a physical fight (past month)	0.5	0.4
In an argument with friends (past month)	1.0	0.9
Lost temper or got really angry (past month)	1.1	1.2
Got into trouble at home (past month)	1.5	1.3
Broke something of own on purpose (past month)	0.4	0.3
Damaged or destroyed things that did not belong to you (eg street signs, cars, neighbour’s property) (past month)	0.3	0.3
Disagreement or argument with your parents (past month)	1.0	1.2
Not paid for something, like sneaking onto a bus or train or into a movie (past month)	0.4	0.5
Changed the rules of a game so you could win (past month)	0.5	0.4
Thrown objects like a rock at cars or buildings (past month)	0.4	0.3
Brought a weapon to school (past year)	0.2	0.3
Sold drugs (past year)	0.1	0.2

5. EFFECT OF RESEARCH ON PROFESSIONAL DEVELOPMENT

The Marijuana Education Project provides a unique opportunity for the Principal Investigator (GH) to take responsibility for the conduct of this study. This is the first large grant on which he has taken primary responsibility for all aspects of its management.

This project has also provided many student volunteers with opportunities to develop their skills on a range of tasks. Over 40 post-graduate and under-graduate students from Curtin and Edith Cowan Universities have completed significant amounts of volunteer work on the project. A large proportion of these students have committed time on an ongoing basis. The tasks performed by these students include:

- Research administration (e.g.: preparing data bases, coding and other preparation for instruments);
- Data collection (e.g.: questionnaire administration, advanced literature searches, conduct of interviews);
- Data management and analyses (e.g.: data cleaning, data base management, univariate analyses); and
- Report writing for each school.

6. IMPLICATIONS FOR HEALTH PROMOTION

This project aims to build on the success of the Smoking Cessation for Youth Project (SCYP) which used a harm minimisation approach to reduce cigarette smoking among school students. The combined evidence from this project and the SCYP will provide a clearer understanding of the effectiveness of a harm minimisation education approach to a range of drug-related contexts.

This project has the potential to alter school-based drug education programs. Rather than simply focusing on the prevention of marijuana use, this approach encourages students who have not used marijuana to remain that way and encourages those who use marijuana occasionally or regularly to quit or reduce use. Thus, rather than one simple message, i.e. don't ever use, a range of messages is required, some of which depend on current levels of use. These messages are:

- Non-use of marijuana is the safest option (all students);
- Don't start (students who have never used);
- Quit (students who experiment or use regularly);
- Reduce (students who experiment or use regularly);
- Ensure don't progress to higher levels of use (students who experiment or use regularly); and
- Don't become a regular user (students who use regularly).

Additional messages also include (these depend on level of use):

- Reduce exposure from others' use;
- Avoid people / places / situations where use is common;
- Provide support for others who wish to cut down or quit;
- Don't pressure others to use;
- Avoid using in some situations;
- Do things to reduce risks when using;
- Try to avoid mixing alcohol and marijuana; and
- Don't progress to using other illicit drugs.

7. COMMUNITY BENEFITS FROM THE RESEARCH

To date, this research has focused on providing schools with a range of sustainable strategies for addressing cannabis use. The emphasis on sustainability increases the likelihood, should the intervention be found to be effective, that it will be able to be disseminated more widely throughout Western Australia and further a field. The interest demonstrated by the School Drug Education Project indicates that they may be a potential partner in future dissemination of the intervention materials.

The major potential benefits of the project will be to:

- Determine, develop and evaluate strategies to encourage students who do not use cannabis to remain non-users or delay their initiation to using the drug;
- Determine, develop and evaluate strategies to encourage students who use to quit or reduce cannabis use or to help their friends quit or cut down if they choose to use cannabis;
- Enhance researchers' understanding of the effect of 'separation of drug markets' i.e.: keeping young people's use of cannabis an isolated behaviour and prevent progression into use of other drugs;
- Determine if HM strategies can reduce alienation experienced by young people who use cannabis;
- Provide guidance to drug education program developers regarding the effectiveness of harm reduction strategies related to cannabis use (other than abstinence);
- Disseminate findings of the study to education and youth health practitioners as well as the scientific community; and
- Ultimately decrease Western Australian adolescents' transition through cannabis to other illicit drugs use and destructive social networks.

While the intervention remains unproven at a student level, interest from the community is illustrated by the decision of Margaret River Senior High School to become a rural pilot school for the intervention in 2004. This involvement has been facilitated by the Margaret River 'Friends of the Institute for Child Health Research' and has received widespread community support. To date, community meetings to discuss the project have been held and student baseline data have been collected. Intervention implementation is scheduled for 2004. This development is of particular significance to establish the effectiveness of the intervention in a rural community setting with significant community support.

Each of the 24 schools participating in this project has benefited from the data collected by the project. Schools have been provided with (and will continue to be provided with) individual feedback regarding their students' collective responses to drug use and related behaviours (see Appendix 1). This allows all schools, including comparison schools, to evaluate their performance against normative data from all schools and plan future strategies. The feedback has been well received by schools.

8. PUBLICATIONS

Three innovative new intervention packages were developed for the second year of the study. These include:

- Hamilton G, Cross D, Cordin T, Dearle, L. 2003. *Marijuana Education Project: Year 9 Health Education*. Western Australian Centre for Health Promotion Research, Curtin University of Technology, Perth. ISBN 1 74067 264 X.
- Hamilton G, Cross D, Cordin T, Dearle, L. 2003. *Marijuana Education Project: Year 9 English*. Western Australian Centre for Health Promotion Research, Curtin University of Technology, Perth. ISBN 1 74067 256 9.
- Hamilton G, Cross D, Beatty S, Cordin T, Cooper, L, Dearle, L. 2002. *Marijuana Education Project: School Chaplain*. Western Australian Centre for Health Promotion Research, Curtin University of Technology, Perth.

The school nurse resource listed below was developed in the first year of the study and redistributed again in the second year, with additional notes on using motivational interviewing and four new newsletter items.

- Hamilton G, Cross D, Beatty S, Cordin T, Cooper, L, Dearle, L. 2002. *Marijuana Education Project: School Nurse*. Western Australian Centre for Health Promotion Research, Curtin University of Technology, Perth. ISBN 1 74067 127 9.

Papers in planning

Although no papers have been prepared for peer review publication, advanced planning for the writing of the first two papers from this grant have been initiated. The first will present differences in outcomes between students from intervention and comparison schools from year one of the intervention. The second will contribute to the literature by using a multilevel modeling approach to evaluate the relative importance of individual, school and community predictors of cannabis use among the sample.

9. DISSEMINATION

This project has generated a number of enquiries and interest from the media and the community. To date, dissemination efforts have been modest due to the potentially controversial nature of the project and the possibility of confounding study findings. It is envisaged that dissemination efforts will be more widespread after completion of the intervention in 2004.

Seminars and Presentations

The following conference presentation was conducted:

Conference Proceedings

- Hamilton G. School-based interventions for Marijuana Use in High Schools. Sixth Annual Conference on Child and Adolescent Disorders, University of Western Australia. 3 December 2003, Perth.

In addition, two abstracts were accepted for conferences in 2004:

- Hamilton G, Cross D. A school-based cannabis intervention. Scientific Conference of the Australasian Society of Behavioural Health and Medicine. 12-14 February 2004, Christchurch.
- Hamilton G, Cross D. Predictors and outcomes of adolescent cannabis use. World Conference on Health Promotion and Health Education. 26-30 April 2004, Melbourne. (oral poster).

REFERENCES

1. Hall W, Babor TF, 2000. Cannabis use and public health: Assessing the burden. *Addiction* 95: 485-490.
2. Reid A, Lynskey M, Copeland J, 2000. Cannabis use among Australian adolescents: Findings of the 1998 National Drug Strategy Household Survey. *Australian and New Zealand Journal of Public Health* 24: 596-602.
3. Lynskey M, White V, Hill D, Letcher T, Hall W, 1999. Prevalence of illicit drug use among youth: Results from the Australian School Students' Alcohol and Drugs Survey. *Australian and New Zealand Journal of Public Health* 23: 519-524.
4. Australian Institute of Health and Welfare, 1999. 1998 National Drug Strategy Household Survey: First Results. Canberra: Australian Institute of Health and Welfare (Drug Statistics Series).
5. Fergusson DM, Horwood LJ, 1997. Early onset cannabis use and psychosocial adjustment in young adults. *Addiction* 92: 279-296.
6. Health Department of Western Australia, Anti-Cancer Council of Victoria, 1998. Licit and Illicit Drug Use among 12 to 17-year-old Western Australian School Students in 1996. Perth: Health Department of Western Australia.
7. Torabi MR, Bailey WJ, Majd-Jabbari M, 1993. Cigarette smoking as a predictor of alcohol and other drug use by children and adolescents: evidence of the "gateway drug effect". *Journal of School Health* 62: 302-306.
8. Bachman JG, Johnson LD, O'Malley PM, 1998. Explaining recent increases in students' marijuana use: Impacts of perceived risks and disapproval, 1976 through 1996. *American Journal of Public Health* 88: 887-892.
9. Lenton S, Ovenden C, 1996. Community attitudes to cannabis use in Western Australia. *Journal of Drug Issues* 26: 783-804.
10. Drucker E, 1995. Harm reduction: a public health strategy. *Current Issues in Public Health* 1: 64-70.
11. Drucker E, 1999. Drug prohibition and Public Health: 25 years of evidence. *Public Health Reports* 114: 14-29.
12. MacCoun RJ, 1998. Toward a psychology of harm reduction. *American Psychologist* November: 1199-1208.
13. Resnicow K, Drucker E, 1999. Reducing the harm of a failed drug control policy. *American Psychologist* 54: 842-843.
14. McGee R, Williams S, Poulton R, Moffitt T, 2000. A longitudinal study of cannabis use and mental health from adolescence to early adulthood. *Addiction* 95: 491-503.
15. Lynskey M, Hall W, 2000. The effects of adolescent cannabis use on educational attainment: A review. *Addiction* 95: 1621-1630.
16. Ellickson P, Bui K, Bell R, McGuigan KA, 1998. Does early drug use increase the risk of dropping out of high school? *Journal of Drug Issues* 28: 357-380.

17. Jessor R, Chase JA, Donovan JE, 1980. Psychosocial correlates of marijuana use and problem drinking in a National sample of adolescents. *American Journal of Public Health* 70: 604-613.
18. Jessor R, 1987. Problem-behaviour theory, psychosocial development, and adolescent problem drinking. *British Journal of Addiction* 82: 331-342.
19. Donovan JE, Jessor R, Costa FM, 1988. Syndrome of problem behavior in adolescence: a replication. *Journal of Consulting and Clinical Psychology* 56: 762-765.
20. Donovan JE, 1996. Problem-behavior theory and the explanation of adolescent marijuana use. *Journal of Drug Issues* 26: 379-404.
21. Farrell AD, Danish SJ, Howard CW, 1992. Relationship between drug use and other problem behaviors in urban adolescents. *Journal of Consulting and Clinical Psychology* 60: 705-712.
22. Gilmore MR, Hawkins JD, Catalano RF, Day LE, Moore M, Abbott R, 1991. Structure of problem behaviors in preadolescence. *Journal of Consulting and Clinical Psychology* 59: 499-506.
23. Resnicow K, Ross-Gaddy D, Vaughan RD, 1995. Structure of problem and positive behaviors in African-American youths. *Journal of Consulting and Clinical Psychology* 63: 594-603.
24. Copeland LA, Shope JT, Waller PF, 1996. Factors in adolescent drink driving: binge drinking, cigarette smoking, and gender. *Journal of School Health* 66: 254-260.
25. Sheldon T, 2000. Cannabis use falls among Dutch youth. *British Medical Journal* 321: 655.
26. McLennan B, 1998. *Socio-economic indexes for areas 96*. Canberra: Australian Bureau of Statistics.
27. Cheadle A, Psaty BM, Anderman C, Shultz L, Curry S, Wagner E, Wickizer T, 1995. Evaluating the usefulness for school principals of feedback reports from a school-based adolescent health survey. *Evaluation Review* 19: 675-686.
28. Health Department of Western Australia, 2001. Illicit and licit use of drugs by Western Australian school students in 1999. Perth: Health Department of Western Australia.
29. Health Department of Western Australia, 2000. Cigarette Consumption among Western Australian School Students in 1999. Perth: Health Department of Western Australia.